



VALIDATION REPORT

For the CDM Project Activity

10 MW Manjanadka Hydro project, Karnataka, India

In
India

Report No. 01 997 9105071963

Version No. 02, 2012-12-27

Designated Operational Entity (DOE)

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I. Project description:

Project title:	10 MW Manjanadka Hydro project, Karnataka, India	Report No.: 01 997 9105071963
Host Country:	India	Current revision No.: 02
Methodology:	AMS-I.D Version 17 <input type="checkbox"/> Large Scale <input checked="" type="checkbox"/> Small Scale	Date of current revision: 2012-12-27
		Date of first issue: 2012-11-30
Annual average emission reductions (estimate):		29,655 tCO ₂ e/yr
GHG reducing measure/technology:	The GHG emission reduction would happen by displacing grid electricity equivalent to the net electricity supplied by the Hydro Power Project Activity.	

Party	Project Participants	Party considered a project participant	Contract party
India(Host)	Bhoruka Power Corporation Limited	No	<input checked="" type="checkbox"/>

II. Validation Team:

Validation Team			Role									
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
Mr. Shailendra Kewat	India	1.2, 13.1	X		X	X	X					
Ms. Ujjwala Medhi	India								X			
Mr. M. P Kanal	India	1.2, 3.1, 6.1, 13.1/13.2, 15.1								X		

Validation Phases and Validation Status:

- Desk Review
 Follow up interviews
 Resolution of outstanding issues
 Corrective Actions / Clarifications Requested
 Full Approval and Submission for Registration
 Rejected

III. Validation Report:

Final approval	Released	Distribution
<input checked="" type="checkbox"/>	By: Mr. Praveen Urs	<input type="checkbox"/> No distribution without permission from the Client or responsible organizational unit
Date: 2012-12-31		<input checked="" type="checkbox"/> Unrestricted distribution

Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland (China) Ltd.), here after called TRC, is been assigned by “Bhoruka Power Corporation Limited” to perform the validation of their project “10 MW Manjanadka Hydro project, Karnataka, India”. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Clean Development Mechanism Validation and Verification Standard (version 03.0), Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.

The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, site visit, stakeholder interviews, review of the applicable methodology and its underlying formulae and calculations.

Validation methodology and process

The validation has been performed as described in the VVS version 03.0 and constitutes the following steps:

- Publication of the PDD on the UNFCCC website (28/09/2012 – 27/10/2012)
- Desk review of the PDD and the relevant documents
- On-site assessment (20/11/2012)
- Issuance of Validation Report

Validation criteria

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Host country criteria
- Criteria given to provide for consistent project operations, monitoring and reporting.

The host part is India and the party fulfil the participation criteria and have approved and authorized the project and the project participant. The DNA from India confirms that the project assists in achieving sustainable development.

The project correctly applies the baseline and monitoring methodology AMS I.D, version 17, “ Grid connected renewable electricity generation”.

The project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards “India”.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is TRC’s opinion that the project participants are able to implement the monitoring plan.

By generating renewable (Hydro) electricity which will displace fossil fuel based grid electricity the project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

The total emission reductions from the project are estimated to be 296,550 tons of CO_{2e} over a 10 year crediting period, averaging 29,655 tons of CO_{2e} annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

The validation protocol describes a total of 10 findings which include:

- 6 Corrective Action Requests (CARs);
- 4 Clarification Requests (CLs);

- 0 Forward Action Requests (FARs); and all findings have been closed satisfactorily.

TRC concludes that the CDM Project Activity “10 MW Manjanadka Hydro project, Karnataka, India ” in India, as described in the PDD version-1.1, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board.

The selected baseline and monitoring methodologies (AMS-I.D, Version 17) are applicable to the project and correctly applied. The TRC therefore requests the registration of the project as a CDM project activity with UNFCCC.

Shailendra Kewat (Team Leader)



TÜV Rheinland (India) Pvt. Ltd.
2012-12-27

Mr. Praveen Nagaraje Urs (DOE Manager)



TÜV Rheinland (China) Ltd.
2012-12-31

Abbreviations

BPCL	Bhoruka Power Corporation Limited
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CER	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated operational entity
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of approval
N ₂ O	Nitrous oxide
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PP	Project Participant
tCO ₂ e	Tonnes of CO ₂ equivalents
TRC	TÜV Rheinland (China) Ltd.
UNFCCC	United Nations Framework Convention on Climate Change
GWP	Global Warming Potential

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1. Introduction:

The organization “Bhoruka Power Corporation Limited” has commissioned the DOE TÜV Rheinland (China) Ltd. to perform a validation of the CDM Project Activity “10 MW Manjanadka Hydro project, Karnataka, India” in India (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures or the simplified modalities and procedures for small-scale CDM project activities (as applicable) and the subsequent decisions by the CDM Executive Board.

1.1 Objective:

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

1.2 Scope:

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Standard employed (latest version) a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

While carrying out the validation, TRC determines if the project activity complies with the requirements of Para 37 of the CDM M&P and also assess the claims and assumptions made in the PDD without limitation on the information provided by the project participants.

The scope of the validation is:

- To apply TRC's own quality management system integrated with the VVS standard along with the recent decisions and guidance provided by the UNFCCC board to determine if the project activity meets all applicable CDM requirements, including those specified in the project standard, relevant methodologies, tools and guidelines and processing the same with CDM project cycle procedure;
- Asses the accuracy, conservativeness, relevance, completeness, consistency and transparency of the information provided by the project participants;
- Determine whether information provided by the project participants are reliable and credible;
- Present information in the form of validation report in a factual, neutral, coherent manner and document all assumptions, provide references to the background material and identify changes made to the documentation;
- Base the findings and conclusions on objective evidence and conduct all validation in accordance with CDM rules and procedures;
- Apply consistent validation criteria in providing expert judgments to the requirements of applicable approved methodologies, tools and also cross check the same with projects of similar characteristics, technology, time period and region; and
- Safeguard the confidentiality of all information's obtained or created during validation.

2. Methodology:

The validation consists of the following four phases:

- I A desk review of the project design documents
 - A review of data and information;
 - Cross checking between information provided in PDD with all necessary means without limitations to the information provided by the project proponent;
- II On-site visit and follow-up interviews with project stakeholders
 - Interviews with relevant stakeholders in host country with personnel's having knowledge with the project development via telephone, email or direct on-site visits;
 - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;
- III Reference to available information's relating to projects or technologies similar projects under validation and review based on the approved methodology being applied of the appropriateness of formulae and accuracy of calculations.
- IV The resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

2.1 Desk Review of the Project Design Documentation:

The following table outlines the documentation reviewed during the validation:

Ref no.	Reference Document
/P01/	PDD [10 MW Manjanadka Hydro project, Karnataka, India], Version 01, Date 05/09/2012
/P02/	PDD [10 MW Manjanadka Hydro project, Karnataka, India], Version 01.1, Date 27/12/2012
/P03/	Letter of Approval issued by DNA of India dated 03/09/2008
/P04/	Modalities of Communication dated 31/12/2012
/P05/	Validation contract in between TUV Rheinland China Ltd. and M/s Bhoruka Power Corporation Limited for this project activity.
/P07/	Proof of starting date of CDM project activity: (Contract for the Civil and Electromechanical works)
/P08/	Proof of start of commercial operation of the project
/P09/	Spread sheets for emission reduction calculations and Grid Emission Factor corresponding to /P01/ and /P02/.
/P10/	Spread sheet for Investment analysis and sensitivity analysis corresponding to /P01/ and /P02/.
/P11/	Proof of prior consideration of CDM for the project activity (Investment decision by management Dated May 15, 2006).
/P12/	<p>Evidences against all Techno-economic input data and assumptions used in Investment analysis, in particular:</p> <ol style="list-style-type: none"> 1. Detailed Project report dated May 2006 2. Work Order for Civil Works issued to M/s. Gannon Dunkerley & Co. Ltd by M/ Bhoruka Power Corporation Limited dated 15/02/2007 3. Work Order for Electro Mechanical works issued to M/s Jyothi ltd by M/s Bhoruka Power Corporation Limited 15/01/2007 4. Loan Agreement between M/s Bhoruka Power Corporation Limited and L & T Infrastructure Finance Company Limited 5. PPA entered into with Chamundeshwari Electricity Supply Company Limited by M/s Bhoruka Power Corporation Limited

/P13/	Relevant proofs of local stakeholder consultation process.
/P14/	Operational and management structure for implementation and monitoring of project activity.
/P15/	Statutory clearances: 1) Karnataka State Pollution Control Board Clearance 2) Forest Department Clearance 3) Karnataka Renewable Energy Development Limited 4) NOC from Department of Energy, Government of Karnataka 5) NOC from Gram Panchayat
/P16/	Proof of the companies name as per the Indian Company Registration / Incorporation Act. M/s Bhoruka Power Corporation Limited
/P17/	Technical specifications for Francis Turbine
/P18/	Training plan and records.
/P19/	Operational details for the project since commissioning
/P20/	Key photographs of the current site activities along with photographs of the name plates of generating equipments.
/P21/	Declaration for no ODA funding for the project activity by M/s Bhoruka Power Corporation Limited
/P22/	Proof for GPS co-ordinates of the site submitted by PP
/P25/	Contract for validation services with TUV-Rheinland

Background investigation and other referred documents/websites

Ref no.	Reference Document
/B01/	<ol style="list-style-type: none"> 1. CDM Validation and Verification Standard, Version 03.0 2. CDM Project Standard, Version 2.1 3. CDM Project cycle procedure, Version 03.1
/B02/	Approved Baseline & Monitoring Methodology: AMS-I.D Version 17, "Grid Connected Renewable Electricity Generation"
/B03/	<ul style="list-style-type: none"> • EB 63 Annex 19, "Tool to calculate the emission factor for an electricity system", Version 02.2.1, • General Guidelines to SSC CDM methodologies", Version 19
/B04/	Glossary of CDM terms, version 07
/B05/	Websites referred: a) http://cdm.unfccc.int/ b) http://maps.google.co.in/
/B06/	EIA Notification published in the Gazette of India, Ministry of Environment and Forests dated 2006-09-14 to confirm that no EIA is necessary Government of India, Ministry of Environment and Forests, http://envfor.nic.in/legis/eia/so1533.pdf http://moef.nic.in/downloads/rules-and-regulations/3067.pdf
/B07/	<ol style="list-style-type: none"> 1. EB 68, Annex 27 – Guidelines on the Demonstration of Additionality of small-scale project activities – Version 09.0; 2. EB 63, Annex 24 – Attachment A of Appendix B - Version 08;

	<p>3. EB 62 Annex 13 – Guidance on the demonstration and Assessment of prior consideration of the CDM</p> <p>4. EB 62 Annex 5 - Guidelines on the Assessment of Investment Analysis</p> <p>5. EB 54, Annex 29 – Guidelines on the Registration Fee for proposed project activities under the CDM – Version 02;</p> <p>6. EB 52, Annex 60 - Guidelines for Assessing Compliance with the Calibration Frequency Requirements;</p> <p>7. EB 50, Annex 15 “Tool to determine the remaining lifetime of equipment”.</p> <p>8. EB 48, Annex 11 “Guidelines for the reporting and validation of plant load factors”</p> <p>9. EB 47, Annex 28 “Attachment C to Appendix B – Indicative Simplified Baseline and Monitoring Methodologies for Selected small-scale project activity categories – General guidance on leakage in biomass project activities” (Version 03);</p> <p>10. EB 45, Annex 59 “Procedures for Modalities of Communication between Project Participants and the Executive Board” (Version 01)</p> <p>11. Guidelines on assessment of de-bundling for SSC project activities</p>
/B08/	http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm (CO ₂ Baseline Database for the Indian Power Sector User Guide Version 7.0, January 2012 - Government of India Ministry of Power (Central Electricity Authority))
/B09/	http://www.cea.nic.in/reports/regulation/meter_reg.pdf (Section 18.1 (b) Page 12 states all interface meters shall be tested at least once in five years)
/B10/	CDM pipeline (http://www.cdmpipeline.org/)
/B11/	Exchange rate http://www.oanda.com/convert/fxhistory
/B12/	CER rate http://www.exchange-rates.org/Rate/EUR/INR
/B13/	MAT, Corporate Tax, Surcharge, Cess, IT Depreciation rate: IT Act for FY 2006-07
/B14/	Book Depreciation (SLM) Company's Act 1961
/B15/	KERC Order dated November 2005
/B16/	2006 IPCC Guidelines for National Greenhouse Gas Inventories Web link: http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html
/B17/	http://cdm.unfccc.int/Reference/PDDs_Forms/Registration/reg_form19.pdf Latest MOC form available in UNFCCC
/B18/	Clarifications on the consideration of National and/or Sectoral policies and circumstances in Baseline Scenarios-EB 22-Annex 3

2.2. Follow-up Interviews with Project Stakeholders:

TÜV Rheinland validation team carried out an on-site visit dated (20/11/2012) and performed interviews with the project representatives and stakeholders. The site visit was conducted to validate the accuracy and completeness of the project description as specified under webhosted PDD.

During the site visit, the validation team reviewed the process technology adopted across different plant capacities and unit type (brick/block). The team also carried out project design review, documentation check and comparison analysis with equivalent projects and found it to be appropriate.

	Date	Name	Organization	Topic
/i/	20/11/2012	Mr. Mohan	Bhoruka Power Corporation Limited	Seriousness of CDM

				consideration, Implementation of project activity, Sustainability criteria, Local Stakeholders meeting process Additionality, Monitoring plan
/ii/	20/11/2012	Mr. Sangamesh	Bhoruka Power Corporation Limited	Technical details of project activity, Baseline determination, Statutory clearances, Monitoring plan

2.3 Resolution of Outstanding Issues:

The objective of this phase of the validation is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which need be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customized for the project. The protocol shows in transparent manner criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet CDM requirements;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for this project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfillment of CDM criteria or where a risk to the fulfillment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- Mistakes have been made with a direct influence the ability of the project activity to achieve on project results like real, measurable, verifiable and additional emission reductions;
- CDM and/or methodology specific requirements have not been met; or
- There is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

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

Validation Protocol Table 1: Validation requirements				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various UNFCCC requirements as specified in the VVS are linked to checklist questions the project should meet. The checklist is organized in different sections, following the logic of the VVS.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a corrective action request (CAR) due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)			
Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Validation conclusion
If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants during the communications with the validation team should be summarized in this section.	This section should summaries the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".

Table 3: List of forward action requests (FARs)			
FAR number	Reference	Summary of project owner response	Validation team conclusion
Forward action request (FAR) to be raised during validation to highlight issues related To project implementation that requires review during the first verification of the project activity. FARs Shall not relate to the CDM requirements for registration.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants during the communications with the validation team should be summarized in this section.	This section should summaries the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".

Figure 1. Validation protocol tables

2.4 Internal Quality Control:

The final validation report underwent a technical review by a qualified independent reviewer before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification that meets the criteria of EB guidelines for qualification.

2.5 Validation Team:

Validation Team			Type of Involvement						
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer
Mr. Shailendra Kewat	India	1.2, 13.1	X	X	X	X	X	X	
Ms. Ujjwala Medhi	India			X		X			
Mr. M. P Kanal	India	1.2, 3.1, 6.1, 13.1/13.2, 15.1							X

3. Validation Findings:

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of validation and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation.

3.1 Approval and Participation:

The below table summarizes the project participants and parties involved. The authenticity of the letters of approval has been validated by TÜV Rheinland validation team.

These LoA(s) are therefore regarded as valid and meeting the requirements

3.1.1 Letter of Approval:

Project participants	<i>Bhoruka Power Corporation Limited</i>
Parties involved	<i>Government of India</i>
APPROVAL	
LoA received	<i>Yes</i>
Date of LoA	<i>03/09/2008</i>
Reference to document	<i>4/13/2008- CCC</i>
LoA received from	<i>DNA</i>
Validation of authenticity	<i>Validation of authenticity of the LoA has been done through web-research¹ by referring to the official web-site of the host DNA.</i>
Validity of LoA	<i>Yes, validation team considers the LoA in accordance with § 50 to 52 VVS, ver 03 /B01/</i>
PARTICIPATION	
Party is party to Kyoto Protocol	<i>Yes. India ratified the Kyoto protocol in August 2002.</i>
Voluntary participation	<i>Yes in point no. 3 of LoA.</i>
Diversion of official	<i>No. Annex I country is not involved.</i>

¹ http://cdmindia.in/reports_list_details.php?id=21&reporttype=1

development aid towards host country	
Project contribution to SD	<i>Project activity contributes to SD.</i>

3.1.2 Modalities of Communications:

Requirement of MOC	Criteria fulfilled	Determination by the validation team
Is the focal point identified	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes, M/s. Bhoruka Power Corporation Limited is the focal point for the project activity.
Is the MOC signed by all project participant (including focal point identified entity/personal)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Please refer above comment
Is the written confirmation obtained by the PP's stating the authorization, specimen signatures and personal details, employment status are valid and accurate?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The MOC is signed by Mr. B. Ravichander of M/s. Bhoruka Power Corporation Limited
Is MOC received by the validation team from the PP with whom DOE has the contractual relationship?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The MOC is received from the M/s. Bhoruka Power Corporation Limited and the DOE has contractual relationship with the same.

The Modalities of Communication (MoC) /04/, signed on 31/12/2012, was received from the PP. As required in Procedures for Modalities of Communication between Project Participants and the Executive Board, the Validation Team has verified that the name of Mr. B. Ravichander as the primary authorised signatory for future communication related to the corresponding scope of authority with UNFCCC. The MOC has been checked as per the requirement of EB 45 annex 59 and found correct. The Validation Team confirms that the signatory and contact details on the MoC /04/ are authorized and credible.

The validation team confirms that the applicable latest template is been employed by the project participant for the MOC. The MOC is been received from the DOE's contractual project participant.

3.2 Project Design Document:

Webhosted PDD and all version of the PDD have been presented in the prescribed format Clean Development Mechanism Project Design Document Form (F-CDM-SSC-PDD), Version 04.1, which is valid document (http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form07.pdf). The template has not been altered and no modifications have been made to the font, format, headings and logo.

The PDD follows the contents provided under the "Guidelines for completing the Project Design Document Form For Small-Scale CDM Project Activities", Version 01.0, EB 66, Annex 09 (http://cdm.unfccc.int/Reference/Guidclarif/pdd/PDD_guid07.pdf), and the directions contained under Section B (Pages 5/17 to 17/17) of the above guidelines.

3.3 Project Description:

The project activity is a green field hydro project in the Kodagu District of Karnataka State, India. The project site is at latitude : 12° 26' 40" N and longitude : 75° 25' 9" E. The geographical location of the site has been cross checked with the GPS co-ordinates submitted by PP /P21/ also latitude and longitude has been confirmed with following web-link <http://www.satsig.net/maps/sat-view-of-lat-long.htm>

It involves installation and operation of two numbers of 5 kW Horizontal Francis Turbines (aggregating to 10 MW capacity). The project is already operational since 27/06/2009 /P07/ and also found consistent with the technical features and physical locations as mentioned in the PDD.

The net annual exportable power generation is estimated as 35182 MWh per year based on the DPR of the project. The generated electricity is being sold to Karnataka Power Transmission Corporation Limited (KPTCL) (under PPA /P12-6/ conditions) through state grid which is interconnected to Southern regional grid of India.

The project activity will thus reduce Green house gas (GHG) emissions associated with the Southern grid, which are highly fossil fuel dependent. Plant load factor of 42.50% is considered for the estimation of net generation (35182 MWh per year) by the project activity which has been estimated by Detailed Project Report /P11-1/. The total emission reductions due to the project activity works out to be 29,655 tCO₂e per year based on the net annual exportable power generation. This net annual exportable power generation is ex-ante estimate based on the ex-ante Plant Load Factor.

M/s Bhoruka Power Corporation Limited is the PP of the project activity and the same was confirmed by letter of approval /P03/ obtained from DNA of India and the commissioning certificates provided by Karnataka Power Transmission Corporation Limited (KPTCL) /P07/.

The technology used in the project is indigenously available in India and hence there is no transfer of technology. Further, the technology of Horizontal Francis Turbine employs environmentally sound and safe features. Technical specification of the turbine has been cross verified with the specification submitted to the PP by the Manufacturer /P16/.

DOE has found the specification are in-line with the PDD description and the actual on site installation. The project technology will not be replaced by any other technology within the crediting period. The project activity contributes to the sustainable development criteria of the host country in terms of social, economical, technological and environmental benefits achieved due to the project activity.

The operational lifetime of the project has been determined as 25 years which corresponds to the standard design life time of a Hydro Power Plants and has been verified from the technical specification provided by the “Statement of Objects and Reasons CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 (06.02.2012)”. The project participant has opted for a fixed crediting period of 10 years. The start date of the crediting period is mentioned as 01/01/2013. The start date of project activity is considered as 15/01/2007 and has been verified to be the date of placing the Electro Mechanical equipment to M/s Jyoti Ltd. has /P06/.

Based on the information furnished by the project participants, no ODA contributes to the financing of the project /P20/. Geographical and temporal boundaries of the project are clearly defined.

TÜV Rheinland validation team considers the project description of the project contained in the PDD to be complete and accurate. The PDD complies with the relevant methodology, tools, forms and guidance at the time of PDD submission for registration.

Nevertheless CL-01 and CL-04 have been raised and closed during the course of validation (Refer Appendix A: CDM Validation Protocol - Table 2).

Starting date of project	Expected project operational lifetime	Crediting period
15/01/2007 as per the PO placed for electromechanical equipment	25 years	10 years

Herewith, the Validation Team summarizes *major* changes between webhosted PDD and final version of PDD for submission as follows:

Subject	Webhosted PDD	Correction to webhosted PDD in the final PDD submission for registration with DOE assessment and reason of acceptance.
PDD (project title / participants involved/ project	10 MW Manjanadka Hydro project, Karnataka, India	No change

location /project technology etc)		
Methodologies and tools applied (scope and version numbers)	AMS I.D Version-17	No change
CER calculations (formula applied/ amount of emission reduction)	30,095 tonnes of CO2 e	29,655 tonnes of CO2 e, CAR-01 has been raised and closed successfully
Additionality: (benchmark / input values/analysis type/project start date/IRR or NPV values etc)	Project IRR - has been analysed against the benchmark of 12.78%.	Project IRR has been analysed against the benchmark of 12.72%. CAR-04 and CAR-05 has been raised and closed successfully
Monitoring (parameters / frequency)	Net electricity export to the grid by project activity	Net electricity export to the grid by project activity, Quantity of diesel consumed in DG Set in the project activity. CL-08 has been raised and closed successfully
Crediting period (type / start date)	10 Years (fixed)	10 Years (fixed)

Please refer to Appendix A of this report for details of each change between webhosted PDD and the final PDD for submission. The Validation Team has carried out the validation process based on the Webhosted PDD and raised CARs/CLs against the project by issuing the validation protocol.

With the updated information and corrections done on final PDD, the PP has addressed all the CARs /CLs that were raised by the Validation Team.

It is concluded that the Validation Team has reviewed the project in line with the VVS (version 03) and all the evidence, corrections, justifications and updating done on the final PDD with respect to CARs /CLs raised are accepted and closed by the Validation Team, issuing the positive validation opinion for project registration.

3.4 Baseline and Monitoring Methodology:

3.4.1 Applicability of the selected methodology to the project activity

The project applies the approved simplified baseline methodology for selected small-scale CDM project activity categories, category I.D- “Grid connected renewable electricity generation” (AMS.I.D.) version 17 /B02/, which also uses the “Tool to calculate the emission factor for electricity an electricity system” version 3.0.0 /B03/.

The selected version of the methodology at the time of web hosting of PDD /P01/ was AMS I.D., version 17.

Applicability criteria for the baseline methodology /B02/ are assessed by the validation team by means of document review and interview. It is agreed in the validation team’s opinion that the project activity fully met the criteria as described below:

Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass:1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The project activity is a hydro power project of 10 MW capacity and has been checked from the document review mainly /12-1/. Furthermore, the electricity generated by the

Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
(a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.		project activity will be supplied to the Karnataka Power Transmission Corporation (KPTC) which is part of electricity generation system and comes under Southern region grid of India as per the delineation of CEA /B06/ and this has been checked from the Energy Purchase Agreement /P12-5/ signed between the PP and KPTCL which explicitly mention that the generated electricity from the project activity will be sold to the KPTC.
Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A ²) applies is included in Table 2.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Project supplies electricity to the regional grid (Southern grid). AMS – I.D. is applicable as per Table 2 of methodology AMS I.D. Ver 17, EB 61, and the project qualifies for using the methodology. It has also been noted by the validation team that since the project activity does not displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit hence methodology AMS-I.F. is not applicable for the present case.
This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition; ³ (c) Involve a retrofit ⁴ of (an) existing plant(s); or (d) Involve a replacement ⁵ of (an) existing plant(s).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bullet no. (a) of the paragraph 2 of the applied methodology is applicable for the present case as project activity install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity i.e. a Greenfield plant, the same has been checked from the document review /P02/, /P12 and from the onsite visit.
Hydro power plants with reservoirs ⁶ that satisfy at least one of the following conditions are eligible to apply this methodology: <ul style="list-style-type: none"> • The project activity is implemented in an existing reservoir with no change in the 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The present CDM project activity is a run of the river Hydro power plant; with the implementation of new reservoir with power density greater than 4 W/m ² .

² AMS-I.D “Grid connected renewable electricity generation”, AMS-I.F “Renewable electricity generation for captive use and mini-grid” and AMS-I.A “Electricity generation by the user”

³ A capacity addition is an increase in the installed power generation capacity of an existing power plant through: (i) The installation of a new power plant besides the existing power plant/units; or (ii) The installation of new power units, additional to the existing power plant/units. The existing power plant/units continue to operate after the implementation of the project activity.

⁴ Retrofit (or rehabilitation or refurbishment). It involves an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants. A retrofit restores the installed power generation capacity to or above its original level. Retrofits shall only include measures that involve capital investments and not regular maintenance or housekeeping measures.

⁵ Replacement. It involves investment in a new power plant or unit that replaces one or several existing unit(s) at the existing power plant. The installed capacity of the new plant or unit is equal to or higher than the plant or unit that was replaced.

⁶ A reservoir is a water body created in valleys to store water generally made by the construction of a dam.

Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
<p>volume of reservoir;</p> <ul style="list-style-type: none"> The project activity is implemented in an existing reservoir,⁷ where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m²; The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m². 		
<p>If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel,⁸ the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>The project activity is a 10 MW Hydro power plant and it does not involve any non-renewable component and verified from the documents /P02/, /P12 and from the onsite visit.</p>
<p>Combined heat and power (co-generation) systems are not eligible under this category.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>The project activity is a 10 MW hydro power plant and is not a co-generation project; hence paragraph is not applicable for the project.</p>
<p>In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct⁹ from the existing units.</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>The project activity is a Greenfield project being implemented at a site where no renewable energy plant exists and this is not a capacity addition project and verified from documents /P02/, /P12 and from the onsite visit. Hence this paragraph is not applicable to the project.</p> <p>Furthermore, the capacity of the Greenfield project is below 15 MW and falls under small scale project activity.</p>
<p>In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>As stated above the project is a green field project and hence this paragraph is not applicable. The capacity of the Greenfield project is below 15 MW and falls under small</p>

⁷ A reservoir is to be considered as an “existing reservoir” if it has been in operation for at least three years before the implementation of the project activity.

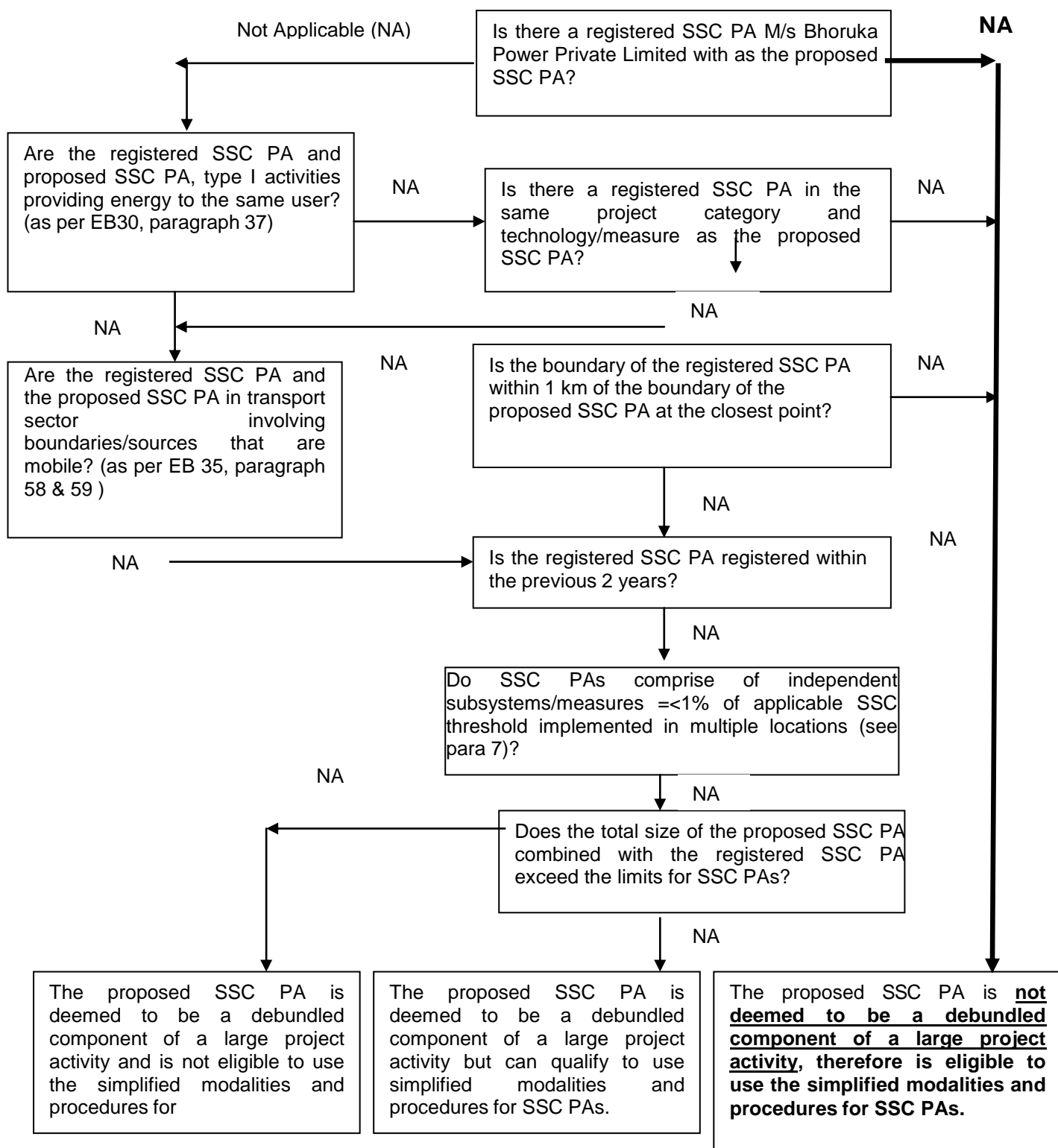
⁸ A co-fired system uses both fossil and renewable fuels, for example the simultaneous combustion of both biomass residues and fossil fuels in a single boiler. Fossil fuel may be used during a period of time when the biomass is not available and due justifications are provided.

⁹ Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered “physically distinct”.

Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
the limit of 15 MW.		scale project activity.

Thus the validation team confirms that the project participant correctly applied the approved methodology /B02/ for the project activity.

There is no registered small-scale project activity under the CDM or an application to register another small-scale CDM project activity by the project participant within the previous two years with the same project category and technology within 1 km of the project boundary of the proposed project. This is confirmed by the validation team during the on-site interview with the representative of PP. In addition, the validation team has checked up with the UNFCCC website/ CDM Pipeline by UNDP and not identified other small-scale project being developed by the project participant. Therefore, the proposed project is not deemed to be a de-bundled component of a large project activity. In accordance with Annex 13 of EB 54 the assessment of the de-bundling is presented in the adopted flowchart as below:



Being a hydro power project and according to the applied baseline and monitoring methodology AMS I. D. version17 /B02/, the validation team observed that Diesel Generator fired by diesel will be used for the Emergency Purposes. Apart from this, the validation team confirms that there would be no sources of project emission which are not addressed by the AMS.I.D/Version17 /B02/.

The assessment of the project's compliance with the applicability criteria of the methodology AMS I.D (version 17) as documented in the PDD part B and annex 3, which are evaluated in detail under the validation protocol in Appendix A to this report based from the webhosted PDD.

3.4.2 Project Boundary:

Project activity boundary is delineated as physical and geographical boundary of the hydro power plant and is adequately described in the PDD /P02/ in Section B.3. The project boundary included the Hydro Power Project and the metering points which have been shown pictorially in section B.3 of the PDD

The geographical and physical project boundary of the project activity was determined by the validation team during the on-site assessment. The coordinates were correctly documented in the PDD. The sources and sinks of greenhouse gas identified in the PDD are deemed to be appropriate. The coordinates were confirmed by the validation team through the weblink: <http://www.satsig.net/maps/sat-view-of-lat-long.htm>

Emissions	GHGs involved	Description
Baseline emissions	CO ₂	Major emission source, which is emitted from the electricity generation by fossil fuel-fired power plants connected to the Southern grid.
Project emissions	CO ₂	Major emission source, which is emitted from the electricity generation by Diesel Generator that will be used for emergency purposes.
Leakage	N/A	As per the applied methodology /B02/, leakage is to be considered in case of transfer of energy generating equipment from another activity. As this project activity is a green field project (as described in section 3.4.1 above) and there is no transfer of equipment from another activity (as the equipments used in the project activity is newly purchased /P11/), leakage is not considered for this project activity as per the methodology.

In summary, the project boundary was correctly identified in accordance with the methodology AMS I.D (version 17). All greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed CDM project activity have been appropriately addressed in the PDD.

The identified project boundary and selected sources of emissions are justified for the project activity. The validation of the project activity did not reveal other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, with respect to the methodology applied.

Nevertheless, CAR-03 was raised and closed (refer table 2 in the protocol).

3.4.3 Baseline Identification:

As per the applied methodology AMS I.D (version 17), is calculated as the product of electrical energy baseline $EG_{BL,y}$ (Quantity of net electricity supplied to KPTCL which is the part of Southern grid) expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor in accordance with § 11, 12 of AMS I.D version 17 /B02/.

According to AMS I.D. version 17 /B02/ § 12, the Emission Factor can be calculated in a transparent and conservative manner as follows:

a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the ‘Tool to calculate the Emission Factor for an electricity system’.

OR

b) The weighted average emissions (in tCO₂e/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

PP has opted option “a”) and adopts the ex-ante calculation of emission factor of the grid. The combined margin emission factor for Southern grid of India has been calculated to be 0.8429 tCO₂e / MWh. This has been calculated using the source from the Central Electricity Authority CO₂ Baseline Database /B06/. Central electricity Authority (CEA) (under Ministry of Power, Government of India) have worked out baseline emission factor for various grids in India and made them publicly available. The DNA of the host party (India) has also given a reference link of the CEA on their official website. The data from CO₂ Baseline Database for the Indian Power Sector User Guide - Version 7.0 /B06/ is the most recent data at the time of submission of CDM-PDD for validation (Cp p5 of tool to calculate emission factor of an electricity system, version 02.2.1 /B03/). Validation team has checked the calculation of the combined margin grid emission factor and confirmed that the applied value of the emission factor follows the tool /B03/. And the values of OM and BM incorporated in the PDD /P02/ is taken from publically available database i.e. by CEA (Govt of India) /B06/.

Nevertheless, following steps (step numbers correspond to tool to calculate emission factor of an electricity system, version 02.2.1) demonstrate the calculation of combine margin emission factor in accordance with “tool to calculate emission factor of an electricity system”, version 02.2.1

Step 1 - In line with the requirements specified in the tool /B03/, the PP has used a regional grid definition as applicable for large countries like India having layered electricity dispatch systems. The Indian power system is divided in two grids, the Northern, Eastern, Western and North- Eastern (NEWNE) Grid and Southern Grid. The project activity is connected to Southern Grid and hence for the purpose of estimation of baseline emission factor the consideration of Southern Grid is appropriate and correct.

Step 2 - of the tool gives an option to include off-grid power plants in the project electricity system. CEA in its database for the Indian Power Sector User Guide - Version 7.0 /B06/ has considered only grid power plants for the analysis.

Step 3 - Simple OM method, out of the four methods provided in the tool /B03/ for calculating the operating margin (EF_{grid,OM,y}) is selected. The tool /B03/ specifies that the simple OM method can only be used if the low-cost/must-run resources constitute less than 50% of total grid generation in :1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production. The Simple OM method selected is justified and appropriate as the average proportion of low-cost/must run resources is less than 50%. The ex-ante option for determining the simple OM is opted by the PP.

Step 4 - The PP has considered the national published data (CEA database, ver 07 /B06/) for simple OM (This is in conformation with the § 2, section B.6.1 of Specific guidelines for completing CDM-SSC-PDD, version 1 /B05/). The simple OM emission factor calculated by the CEA is the generation weighted average CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving the system, not including low-cost/must power plants (Cp page 6, User Guide – CO₂ Baseline Database, ver-7 for the Indian power sector /B06/).

The value of simple operating margin for each year and the data for the calculation of EF grid, simple OM_y is published by the CEA /B06/ and is publically available. However, validation team has carried checked the published value of simple OM from the data available in CEA, version 7 /B06/ and found that PP has rightly calculated the generation weighted average value and this is in line with the tool /B03/ and arrived at the following summary:

Year	OM emission factor (tCO ₂ /MWh)	Net Generation including imports(GWh)

2010-11	0.94	145,076
2009-10	0.94	135,774
2008-09	0.97	127,797

EF_{gridOM}=0.9521 tCO₂/MWh

Hence validation team confirms that the PP has rightly followed the CEA database version 07 /B06/ and the EF_{gridOM} for the southern grid is based on three year generation weighted average is in conformity with the tool to calculate emission factor, version 02.2.1 /B03/.

Step 5 - Option (b) the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently has been considered by CEA and the same has been selected in the PDD.

Validation team checked independently and confirm that the selection of the options is correct. This conclusion has been made based on the analyzing both the options, and it was found that the set of power as per option (b) comprises of larger annual generation and hence confirm the requirement of the tool /B03/. In validating this step, validation team further confirms that:

- (i) the identified power capacity additions comprise 20% of the system generation for the year under consideration.
- (ii) none of the considered power capacity additions considered under (i) above have been built more than ten years earlier.

PP has fixed the Build Margin emission factor as ex-ante for the whole crediting period.

Step 6 - The PP has considered the national published data (CEA database, ver 07 /B06/) for BM (This is in conformation with the § 2, section B.6.1 of Specific guidelines for completing F-CDM-SSC-PDD, version 1 /B05/).

The CEA database /B06/ provides a BM value for the Southern grid as 0.73389. As part of validation of Step 6 of the tool /B03/, Validation team has checked the BM for the year 2010-11 and found the same correct and in line with the tool.

Step 7 of the tool /B03/ requires calculation of the combined margin emission factor as per the following equation:

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

According to the tool /B03/ on selecting alternative weights, the default weights applicable for hydro projects are $w_{OM} = 0.50$ and $w_{BM} = 0.50$ for the crediting period have been applied. The combined margin emission factor has been calculated as; $EF_{CO_2,grid,y} = EF_{grid,CM,y} = 0.8429$ tCO₂/MWh (The official published data for simple OM and BM is considered for calculation of CM). The CM for the entire crediting period is fixed ex-ante. Hence the validation team confirms that the PP has correctly calculated the combined margin grid emission factor and is in line with the tool to calculate emission factor, version 02.2.1 /B03/.

The validation team confirms that the proposed project activity meets the above requirement. Therefore, the baseline scenario as prescribed in the AMS I.D (version 17) is applicable to the proposed project activity. The validation took cognizance of VVS (version 03.0).

<p><i>The approved baseline methodology applicable to the project</i></p> <ul style="list-style-type: none"> - <i>explicit criteria</i> - <i>implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE)</i> 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>As per clause 11, 12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.</p>
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<i>calculations)</i>		
<i>PDD includes all assumptions and data used by project participants</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11,12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
<i>All the references and documents used are relevant for establishing the baseline scenario</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11, 12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
<i>All the references and documents used are correctly quoted and conservatively interpreted in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11,12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
<i>All relevant policies / regulations considered are listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11,12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
<i>Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11,12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
<i>The baseline scenario selection is appropriate and determined according to the methodology</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11,12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
<i>The approved methodology used is applicable to the identified baseline scenario</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per clause 11,12 of the AMS-I.D. /Version 17 /B02/, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.

The approved baseline methodology has been correctly applied to identify a realistic and credible baseline scenarios, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed CDM project activity.

All the assumption and data used by the project participants are listed in the PDD and/or supporting documents. All documentation relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD.

3.4.4 GHG Emission Reductions:

The GHG emissions reduction calculations are transparently documented and appropriate assumptions regarding the expected amount of electricity generated have been used to forecast emission reductions.

According to the applied formulae in the PDD /P02/, the emission reductions (ER_y) by the project activity during the crediting period is the difference between the baseline emissions (BE_y) and sum of emissions arising from leakage (LE_y) and project (PE_y), which is expressed as follows:

$$ER_y = BE_y - PE_y - LE_y$$

While the leakage (refer section 3.4.2 of this report) and project emission are zero, the baseline emissions are equal to the emission reductions due to the project activity. According to the applied meth, the baseline emissions are demonstrated in Section B.6.1 of PDD and are calculated as follows:

$$BE_y = EG_{BL,y} * EF_{CO_2,grid,y} \quad (\text{Cp Section B.6.3 of PDD /P02/})$$

Where:

BE_y Baseline Emissions in year y; t CO₂e

$EG_{BL,y}$ Quantity of net electricity supplied to the grid as a result of the implementation of

$EF_{CO_2,grid,y}$ the CDM project activity in year y (MWh)
CO₂ Emission Factor in year y ; t CO₂/ MWh

$EF_{CO_2,grid,y}$ in this case is taken as Combined margin CO₂ emissions factor for grid connected power generation in year y .

$EG_{BL,y}$ is estimated as 35,182 MWh.

Project emission due to combustion of Diesel in the DG sets is considered for the project activity. The project emissions are demonstrated in Section B.6.1 of PDD and are calculated using “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” Version 02.2.1 as:

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO_2,i,y}$$

$PE_{FC,j,y}$	the CO ₂ emissions from fossil fuel combustion in process j during the year y (tCO ₂ / yr);
$FC_{i,j,y}$	Quantity of fuel type i (HSD) combusted in process j during the year y (Litre)
$COEF_{i,y}$	CO ₂ emission coefficient of fuel type i (HSD) in year y (tCO ₂ / kg)
$NCV_{i,y}$	$NCV_{i,y}$ is the weighted average net calorific value of the fuel type i (HSD) in year y (Kcal/kg)
D_{HSD}	Density of HSD (kg/l)
$EF_{CO_2,i,y}$	weighted average CO ₂ emission factor of fuel type i (HSD) in year y (tCO ₂ /TJ)

Leakage is also not applicable as the transfer of equipment does not apply to this green-field project activity utilizing new purchased equipment (Cp § 120 of AMS I.D, version 17 /B02/ and § 50 of EB 44). So emission reduction is direct multiplication of quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh) (export-import figure) and the grid emission factor.

The emissions reductions due to the project activity were estimated ex-ante to be 13,895 tCO₂e per year in the PDD /P02/ and calculated as follows:

$$BE_y = 35,182 \text{ (MWh)} * 0.8429 \text{ (tCO}_2\text{/MWh)} = 29,655 \text{ tCO}_2\text{e (Rounded Down)}$$

$ER_y = \text{Emissions Reductions} = \text{Baseline Emissions (BE}_y) - \text{Project Emissions (PE}_{FC,j,y}) - \text{Leakage (L}_y)$
Hence,

$$ER_y = 29,655 \text{ tCO}_2\text{e} - 0 - 0 \text{ tCO}_2\text{e} = 29,655 \text{ tCO}_2\text{e}$$

$$ER_y = 29,655 \text{ tCO}_2\text{e}$$

The summary of GHG emission reduction is as follows:

<i>All assumptions made for estimating GHG are listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD /P02/ Section B.6
<i>All data used by project participants are listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD /P02/ Annex 3 Baseline Information & Section B.6
<i>Their references and sources are also listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD /P02/ Annex 3 Baseline Information & Section B.6
<i>Formulas, parameters, values are complete,</i>	<input checked="" type="checkbox"/> Yes	As per PDD /P02/ Annex 3 Baseline Information &

<i>accurate, transparent and conservative</i>	<input type="checkbox"/> No	Section B.6
<i>All the references and documents used are correctly quoted and conservatively interpreted in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per PDD /P02/ Annex 3 Baseline Information & Section B.6
<i>Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per AMS I.D, Version 17 /B02/ and methodological tool, “Tool to calculate the emission factor for an electricity system/Version 2.2.1.”/B03/, “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” Version 02 /B08/
<i>All the emissions of baseline emissions can be replicated using information provided in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per AMS I.D, Version 17 /B02/ and methodological tool, “Tool to calculate the emission factor for an electricity system/Version 02.2.1.”/B03/.

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average *ex-ante* estimation of emission reduction conservatively calculated to be 29,655 tCO₂e per year for the selected crediting period.

All assumptions and data used by the project participants are listed in the PDD and/or supporting documents, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD. All values used in the PDD are considered reasonable and conservative in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PDD.

Nevertheless, CAR-02 & CAR-04 have been raised and successfully closed (ref Annex: Validation Protocol - Table 3).

3.5 Additionality:

The project is small scale in size i.e. below 15 MW in line with the requirement of “General Guidelines to SSC CDM methodologies”/B05/, Version 19, foot note number 6. Therefore, in accordance with § 28 of the simplified modalities and procedures for small-scale CDM project activities, the additionality of the project activity has been demonstrated using Attachment A to Appendix B, read with Annex 34, EB 35 /B04/ and Guidance given vide Annex 05 of EB 62 /B04/. As all requirements specified vide § 28 of the simplified modalities and procedures are complied with by the project activity, this approach has been assessed to be appropriate for the additionality assessment for this project activity.

3.5.1 CDM consideration:

The project developers have stated the start date of the project activity 15/01/2007 and has submitted a copy of the work order for electro mechanical works released to M/s Jyoti Ltd..The project developers have not undertaken any construction or any real action on the implementation of the project activity prior to this date. Since the real action of the project activity had begun on 15/01/2007, as per Glossary of CDM terms (version 07) /B05-c/, this date has been treated as the start date of the project activity.

Since the real action of the project activity had begun before 02 August 2008, timeline of major milestones relevant to the project development, prior CDM consideration and achievement of CDM are tabulated below, according to the VVS, version 3.0 /B01/.

<i>Timeline</i>	<i>Milestone</i>	<i>Determination by the validation team</i>
Jun 3, 2002	Approval of power evacuation from Karnataka Power Transmission	--

<i>Timeline</i>	<i>Milestone</i>	<i>Determination by the validation team</i>
	Corporation Ltd.	
Nov 19, 2002	Permission from State Irrigation Department	--
May 15, 2006	Board's resolution to take CDM benefits for the project activity	Serious consideration of CDM
Jan 15, 2007	Award of contract for Supply of Electromechanical Equipments to M/s Jyoti Ltd.	Start Date of Project activity
Jan 21, 2008	Technical Clearance from Karnataka Renewable Energy Development Limited	--
Jun 02, 2008	Stakeholder Consultation at Project Site	Stakeholder Consultation documents
Jul 21, 2008	Presentation to NCDMA for Host Nation Approval	Start of Host Country Approval Process
June 20, 2008	Work Order with DOE (TUV India private limited) for Validation exercise	Serious consideration of CDM
18 Oct 08 - 16 Nov 08	Initial webhosting of PDD with TUV NORD	Serious consideration of CDM
03 Sep 2008	NCDMA Approval	Serious consideration of CDM
Mar 05, 2009	Site visit has been conducted by DOE (TUV India private limited)	-
April 09, 2009	Initial DVR received from DOE (TUV India private limited)	-
May 18, 2009	Response for DVR queries & Supporting documents have been addressed by the consultant	Serious consideration of CDM
Sep 08, 2009	2 nd DVR has been raised by the DOE (TUV India private limited)-	-
Oct 14, 2009	Response for 2 nd DVR queries & Supporting documents have been addressed by the consultant	Serious consideration of CDM
May 06, 2010	Mail Received from DOE (TUV India private limited) asking some clarification wrt to EB 51 Annex 58	-
Aug 08, 2010	Response for the queries raised on May 06, 2010 have been addressed	Serious consideration of CDM
March 09, 2012	Termination contract Sent to DOE (TUV India private limited) for Validation exercise	-
May 11, 2012	Termination contract acceptance by DOE (TUV India private limited) for Validation exercise	-
June 09, 2012	Agreement with M/s TUV Rheinland for Validation exercise	Serious consideration of CDM

The documentary evidences for the events have been listed in the Annex 4 of the PDD.

The project proponent, Bhoruka Power Corporation Limited is into the business of renewable power generation and it has secured the CDM benefits for its number of other projects such as:

1. CDM Ref No. 836 : 24 MW Chayadevi mini hydro power project in Karnataka, India
2. CDM Ref No. 921 : 4.5 MW grid connected sugur mini hydel scheme
3. CDM Ref No. 923 : 6.25 MW grid connected sattegala mini hydel scheme

4. CDM Ref No. 1549: 9 MW Neria Hydroelectric project, Karnataka, India

Therefore, it was very well aware of the eligibility of the project activity as a CDM project and the associated benefits right from the inception stage of the Manjanadka Hydro project activity. The project activity was not financially viable without the CDM benefit which has been demonstrated in the following section. However, the BPCL Board decided to undertake the project activity on May 15, 2006 because of the fact that the renewable energy projects are eligible to get additional benefits under the Clean Development Mechanism of Kyoto Protocol. Subsequently, the contract for Supply of Electromechanical Equipments was awarded to M/s Jyoti Ltd. on Jan 15, 2007.

The validation team has checked all the milestones listed in the above table and would like to confirm that all the milestones are evidenced with documents provided by the project participants, and through communication with the local official, stakeholders, project owner and consultant, the validation team deems that all the corresponding evidences are authentic.

It is TÜV Rheinland validation team opinion that the proposed CDM project activity complies with the requirements of the latest version of the guidance on prior consideration of CDM.

Starting date of project	Justification of and evidences (references) on the starting date of project	Date of CDM consideration
15/01/2007	<i>Work Order for Electro-mechanical</i>	15/05/2006

In conclusion, the starting dates of the project activity were before 02/08/2008 as well as the date of publication of the PDD for global stakeholder process. Thus, the proposed project activity is defined as an “Existing project activity” according to the Annex 13 of EB 62 “Guidelines on the demonstration and assessment of prior consideration of the CDM”.

Based on the documented evidence as described above, it is clearly demonstrated that the CDM was seriously considered by the project owners prior to starting dates of the project activity. The real actions relating CDM development took place in parallel with the project’s implementation and the gap between the documented evidence is less than 2 years. Therefore, the validation team confirms that the implementation of the proposed project activity as a CDM project is fully in line with the Annex 13 of EB 62 “Guidelines on the demonstration and assessment of prior consideration of the CDM”.

Nevertheless CAR-03 has been raised and closed during the course of validation (ref Annex: Validation Protocol - Table 2).

3.5.2 Alternatives:

This is a hydro power project and is based on the Methodology AMS I-D Ver. 17 /B02/. The methodology /B02/ states, “If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources”.

VVS, ver 3.0 /B01/ states that PDD is required to 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 AMS I-D, version 17 /B02/ used by the project activity prescribes the baseline scenario, no further analysis of alternatives is required for the project activity.

Validation Team, therefore, concludes that the PDD /P02/ and the validation report conforms to the guidance given by EB vide VVS version 3.0 /B01/.

TÜV Rheinland validation team considers the selected baseline is credible and complete.

3.5.3 Investment analysis:

The Investment analysis has been carried out as per the “Guidelines on the demonstration of additionality of small-scale project activities” (Version 9.0, Annex 27 of EB 68).

According to the guideline,

Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

- a) **Investment barrier:** a financially more viable alternative to the project activity would have led to higher emissions;
- b) **Technological barrier:** a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;
- c) **Barrier due to prevailing practice:** prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;
- d) **Other barriers:** without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

RBPL has chosen Investment barrier to prove the additionality of the project activity and investment analysis has been carried out in compliance with the latest version (5.0) of the “Guidance on the Assessment of Investment Analysis”/B07-4/.

As per the paragraph 117 of the VVS version 3.0 if the investment analysis is used to demonstrate the additionality of the proposed project activity, PDD shall determine the proposed project activity would not be;

- a) The most economically or financially attractive alternative; or
- b) Economically or financially feasible without the revenue from the same of CERs.

PDD demonstrates that the project would not be financially feasible, without the revenue from the sale of certified emission reductions (CERs). In order to assess the claim of the project developer that the project scenario is not economically feasible without benefits from CER sales, Validation Team adopted a six-pronged strategy, viz.,

- a) Determining the suitability of the investment analysis, benchmark applied and the suitability thereof to 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.

The Investment Analysis has been assessed for compliance with the latest version (05) of the “Guidelines on the assessment of investment analysis”.

3.5.3.1 Choice of approach

Project developer had demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required investment [VVS version 3.0 /B01/]. For demonstrating the financial unattractiveness of the project activity, project developer had chosen investment barrier and to demonstrate the investment barrier had selected benchmark analysis. Since in this instant case, as subsequent section would reveal, baseline is outside the direct control of the project developer (grid connected power) and hence, the

choice of the project developer is restricted to “invest or not to invest”, the benchmark approach is most suited as per the latest version of Guidance 16 of Annex 05 of EB 62 /B04/.

In the above background, as subsequent paragraphs would reveal, 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 VVS, version 3.0 (/B01/).

The Investment Analysis has been assessed for compliance with the latest version (i.e., version 05) of the “Guidance on the Assessment of Investment Analysis”.

The investment analysis is done in accordance with the stepwise approach provided in the “Tool for the demonstration and assessment of additionality” version 06.0.0

Benchmark selection

The project developer has chosen project IRR to demonstrate the additionality of the project. Considering the fact that the project is funded by equity and debt and that guidance 12 of Annex 05, EB 62 /B04/ 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.

As per guidance 12 of Annex 05, EB 62 /B04/, “Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR”. The project developer has considered WACC as the benchmark.

A separate benchmark (WACC) calculation sheet /P04/ is submitted to DOE. The validation of WACC calculation is tabulated as below:

Description	Value	Validation opinion
Cost of equity	17.55%	Please find below the detailed assessment for the calculation of ROE.
Debt equity ratio	70:30	The debt equity ratio is based on the DPR ^{/P5/} which was available at the time of investment decision. Normally, the infrastructure projects are given loan between 60 to 80% of the project cost in India. Hence the debt equity ratio considered is acceptable.
Cost of debt	12.00%	The cost of debt is based on the lending rate taken from DPR available at the time of investment decision. The PLR of RBI is checked for the same and found to be same during the investment decision.
Tax rate	11.22%	In accordance with the Guidelines on Assessment on Investment Analysis, as the project activity can be developed by any entity other than the project participant, the tax rate used for computation of benchmark should also be applicable to any investor investing in power projects in India. Hence a Minimum Alternative Tax rate of 11.22% (applicable tax rate) for calculation of WACC has been used in line with the following provision of Indian Income Tax Act. The tax rate considered is the Minimum Alternate tax rate applicable to the investment decision year which was available at the time of investment decision. BPCL is a company investing in a renewable hydro energy project and paying MAT from the commercial operation till 10 th year due to carry forward losses as per the financial analysis spread analysis. Hence considering the debt repayment component for period of 10 years from the COD and BPCL

		<p>paying MAT, the MAT value considered for calculation of post-tax cost of debt is found to be valid and correct and in line with the local accounting principle. This is confirmed through interview with PP and review of IRR spread sheet. Hence considering MAT for the WACC calculation in this project activity is more appropriate.</p>
Weighted Average Capital Cost (WACC)-Post tax	12.72%	<p>The WACC is calculated based on the following equation</p> $WACC = \frac{E}{V} * R_E + \frac{D}{V} * R_D * (1 - T_C)$ <p>Where:</p> <p>E = Value of Equity D = Value of Debt V = Value of Equity + Value of Debt R_E = Cost of Equity R_D = Cost of Debt T_C = Corporate Tax Rate</p> <p>The benchmark calculation sheet is verified and found that the equations are correctly applied and the WACC is calculated in correct and transparent manner. Hence the Weighted average Capital Cost calculated as benchmark for this project activity is correct.</p>

Benchmarks supplied by relevant national authorities are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented". Project developer had selected post tax project IRR as financial indicator of the project and used WACC for deciding benchmark for this project. The cost of equity is calculated based on CAPM is a model of linear general equilibrium return. In the CAPM theory, investors are assumed to have homogeneous expectations during the decision-making period. Investors make their decision only on the basis of the expected returns, standard deviations and covariance of all pairs of security. According to CAPM, investor holds only the market portfolio and riskless securities. The market portfolio is a portfolio comprised of all stocks in the market.

The required rate of return is given by the following formula -

$$CoE = r_f + \beta(ERP)$$

Where,

COE = Cost of Equity

r_f = Risk free rate

ERP = equity risk premium for the market

β = Beta or systematic risk for this type of equity investment coefficient reflecting the volatility (risk) of the stock relative to the market.

Risk free rate:

Yield to Maturity of Central Government Securities till the time of decision making (15 May 2006) has been chosen as proxy for the Risk Free Rate. The value taken as 7.56% for the project activity¹⁰ is verified and found to be appropriate. The data for the risk free rate is considered as the Yield to Maturity of the Government Securities for the term of maturity of 20 years. The term of maturity of 20 years represents the time period of residual maturity for the G-Sec transactions comparable with the operational lifetime of the project activity (25 years) available at the time of investment decision.

Expected Market rate of return:

¹⁰ http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=8149

PP had considered BSE-200 well established share market in the host country, as Market index for the determination of return on well-diversified market portfolio. BSE-200 comprises of 30 large companies, based on their market capitalization. It is the major index of India that is being monitored at the international market. It had tracked the Indian stock market for a long period. Thus large number of data points is available which provide a better estimate of expected market return. The index can therefore be considered as relatively stable with low random fluctuations and thus is in line with the assumptions of the CAPM model and it is reasonable to refer to BSE-200 for determining the average market return. The values of market return along with time period considered for cost of equity calculation for both the phases are tabulated below:

Market return of BSE 200	Value	Remarks
Base Value	100	Apr-89
End Value	2,541.85	May-06
Number of Years	17	Years
Compounded annual growth rate (CAGR)	16.23%	Calculated

Equity risk premium for the market:

The market risk premium is calculated as the difference between the expected market rate of return and the average risk free rate and is measured by looking at the average of the historical returns on a market portfolio. In the context of the present project activity, the period selected to calculate the expected market return has been calculated from the inception of BSE 200 until the decision making date.

Thus the market risk premium estimated is

$$\text{Market risk premium} = R_M - R_F$$

$$\text{Beta} = \text{Covariance}(R, R_M) / \text{Variance}(R_M)$$

Beta is the measure of the expected volatility of a particular stock relative to a well-diversified market portfolio. It measures the systematic risk of a stock, i.e. the risk that cannot be eliminated in a well-balanced, diversified portfolio. The beta is calculated as the covariance between its return and the return on a well-diversified market portfolio, divided by the variance of the return on a well-diversified market portfolio.

The beta is determined by referring beta values of publicly listed companies that are engaged in similar types of business. Once there was no exclusive hydro energy companies listed on any stock exchange in India PP has considered beta values of the power companies in India. The group of companies considered includes renewable as well as conventional power generating companies. Risky businesses are likely to have higher cost of equity than safer businesses; projects in riskier businesses will have to cover these higher costs. Hence, investors demand a higher return from renewable energy projects than from conventional energy ones, given the higher risks in renewable, including risks of technology, risks from significantly varying and unpredictable resource availability (e.g. hydro), and a lower established support base for such projects relative to that for conventional power (e.g. grid connections, bank finance, suppliers, etc.). The use of this Beta value is therefore considered conservative, as it does not add for the higher risk of non-conventional energy.

In the context of project activity PP had taken average of unlevered beta of the Companies which are included in Power - Generation/Distribution sector categorized by money control & have trading data of 5 years at the time of investment decision date which is appropriate as per Page No. 10.10, Projects – Planning, Analysis, Selection, Financing, Implementation and Review, 7th Edition, Prasanna Chandra. The value is also further cross checked with 3 years average for the same companies and found that the 5 years beta values are more conservative. Project Proponent had taken the average of unlevered Beta value arrived for four power companies (TATA Power, Neyveli Lignite, Reliance Infra, CESC) listed on Bombay Stock Exchange (BSE) available at the time of investment decision.

Beta value has been calculated from the below formula

$$\beta_a = \text{Unlevered Beta or Asset Beta} = \beta_e / \{1+(1-T)*(D/E)\}$$

where -

β_a = Asset Beta or Unlevered Beta of the stock

β_e = Equity Beta or Levered Beta of individual stock

T = Marginal Tax Rate

D/E = Debt/Equity

The post-tax equity project IRR is compared with the post-tax WACC prevalent during the time of investment decision of the project. Equity IRR and its respective benchmark at the time of investment decision are provided in the below table. DOE found the values are appropriate. Therefore, ROE as benchmark conforms to guidance 12 of Annex 05, EB 62/B20/. Moreover, since the BSE Sensex is publicly available and can be validated by DOE, it also conforms to guidance 13 of Annex 05, EB 62 /B20/.

The benchmark (WACC) for the project activity is estimated as 12.72%. The source data for the calculation of benchmark is reviewed, and the calculation of WACC is checked and confirmed to be correct. The parameters applied in the WACC calculation was the latest available information before the investment decision. Therefore, the validation team considers that the calculated WACC is traceable and reasonable to be considered as the suitable benchmark of the project IRR for the investment analysis.

Input parameters

The three important parameters, which determine the IRR of the project, are project cost, financing pattern and profitability estimates.

The source for various input parameters used in the financial indicator calculations and their assessment by referring to § 122(a),(b) and (c) of VVS version 3.0 are discussed below in subsequent paragraphs, which also reveals that the input parameters considered in the financial indicator calculations conform to guidance 6 of Annex 05, EB 62 are conservative.

Project Cost/P08/:

Project cost comprises of capital cost and running costs. Capital cost includes machinery, land and civil cost. Running costs includes Operation & maintenance cost and administrative costs.

Financing pattern:

The project is funded by partly by debt and partly by equity. The debt: equity ratio has been considered as 70:30 from the DPR which is further cross verified from KERC order which are available at the time of decision making. The profitability estimates of the project, which forms the basis for IRR calculation is based on installed capacity depreciation and taxation etc.

The source of the input parameters used in the financial indicator calculation for the project reveals that the input parameters considered in the financial indicator calculations conform to guidance 6 of Annex 05, EB 62/B07-4/ are conservative as indicated in the tables below:

Parameter:	Installed Capacity
Value applied for the IRR calculation:	2 x 5.0 MW = 10 MW
Source of the value:	DPR, PPA, Commissioning Certificate

Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	Installed capacity proposed at the time of decision making (i.e. management decision) and post decision making (actual implementation) is same.
Justification by the validation team according to §120, 121 of VVS 03.0: (cross checking and comparison as applicable)	The project rated capacity i.e. 10.0 MW (=2*5.0 MW) was further cross checked through document review namely all DPR, Commissioning Certificate and from PPA and found to be 10 MW, hence correct and acceptable.

Parameter:	Project cost (includes land, Power Plant Civil & Hydro mechanical works, Power Plant Electro Mechanical equipments, Transmission Lines, Project Management Fee, Engineering & Consultancy Fee, Project Exigencies and IDC)															
Value applied for the IRR calculation:	INR 607.49 million															
Source of the value:	The project cost has been considered from the Detailed Project Report prepared by third party															
Consistency of the value:	The web hosted PDD and final PDD mention the same value. There is no change in project cost during validation.															
Validity of input value at the time of investment decision making:	The Project Cost was considered from the Detailed Project Report which was available at the time of decision making															
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	<p>The project cost has been considered from the Detailed Project Report, which was available at the decision making time and DOE found it in accordance with EB-62 Annex-05. DOE has cross verified the Detailed Project Report and input value of project cost found to be correct. DOE also cross checked the actual project cost and it is found that the actual project cost is greater the project cost assumed at the time of decision making, which is acceptable. Actual Project cost post implementation is greater than the project cost assumed at the time of decision making which was confirmed from the chartered accountant certificate.</p> <p>Moreover, according to the statistic of registered similar kind of Hydro CDM projects in Karnataka, as per table below, the Project cost of these projects ranges from 52 to 77 INR Millions/MW. The project cost of the project is between the above mentioned range. Hence can be considered as reasonable.</p> <table border="1" data-bbox="726 1713 1244 1993"> <thead> <tr> <th>Registration Ref. No.</th> <th>Installed Cap.(MW)</th> <th>Cost/MW (INR Millions/MW)</th> </tr> </thead> <tbody> <tr> <td>Project activity</td> <td>10.0</td> <td>60.7</td> </tr> <tr> <td>921</td> <td>4.5</td> <td>68.8</td> </tr> <tr> <td>923</td> <td>6.25</td> <td>76.3</td> </tr> <tr> <td>4164</td> <td>15</td> <td>52.58</td> </tr> </tbody> </table> <p>The validation team found the value to be correct.</p> <p>Sensitivity analysis has been done for the project cost and it</p>	Registration Ref. No.	Installed Cap.(MW)	Cost/MW (INR Millions/MW)	Project activity	10.0	60.7	921	4.5	68.8	923	6.25	76.3	4164	15	52.58
Registration Ref. No.	Installed Cap.(MW)	Cost/MW (INR Millions/MW)														
Project activity	10.0	60.7														
921	4.5	68.8														
923	6.25	76.3														
4164	15	52.58														

	<p>shows that IRR is below benchmark with $\pm 10\%$ variation.</p> <p>Taking into consideration all these factors and based on the local and sectoral expertise, the validation team concludes that the project cost is reliable and appropriate for the given project activity.</p>
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Parameter:	O&M cost
Value applied for the IRR calculation:	1.50% of the project cost
Source of the value:	The O&M cost has been considered from the Detailed Project Report
Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	O&M cost has been taken from the detail project report, which was available during the investment decision. Hence input value is valid and correct as per guidelines.
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	<p>The O&M cost has been considered from Detailed Project Report, which was available at the decision making time and DOE found it in accordance with EB-62 Annex-05. DOE has cross verified the Detailed Project Report and input value of O&M cost for project and found to be correct.</p> <p>DOE has also cross checked the O&M cost with the KERC recommended O&M cost. O&M cost recommend by KERC is 1.50% of the total project cost which is same as the cost taken by PP for the project. DOE found that O&M cost taken by PP is appropriate.</p> <p>Moreover sensitivity analysis has been done for the O&M and it shows that IRR is below benchmark with $\pm 10\%$ variation.</p> <p>Taking into consideration all these factors and based on the local and sectoral expertise, the validation team concludes that the O&M cost is reliable and appropriate for the given project activity.</p>

Parameter:	O&M cost escalation
Value applied for the IRR calculation:	5% per annum
Source of the value:	The escalation in O&M cost has been considered from the Detailed Project Report
Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	Escalation in O&M cost has been taken from the detail project report, which was available during the investment decision. Hence input value is valid and correct as per guidelines.

Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	<p>The escalation in O&M cost has been considered from the Detailed Project Report, which was available at the decision making time and DOE found it in accordance with EB-62 Annex-05. DOE has cross verified the Detailed Project Report and input value of escalation in O&M cost found to be correct.</p> <p>DOE has also cross checked the escalation in O&M cost with the KERC recommended escalation in O&M cost. Escalation in the O&M cost recommend by KERC is 5.0% which is same as the cost taken by PP for the project. DOE found that O&M cost taken by PP is conservative and appropriate.</p> <p>Taking into consideration all these factors and based on the local and sectoral expertise, the validation team concludes that the escalation in O&M cost is reliable and appropriate for the given project activity.</p>

Parameter:	PLF
Value applied for the IRR calculation:	42.50%
Source of the value:	The PLF has been considered from the Detailed Project Report
Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	PLF has been taken from the detail project report, which was available during the investment decision. Hence input value is valid and correct as per guidelines.
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	The PLF based on the historical rainfall data and considered as 42.50% in the financial analysis spread sheet which meets the requirement of Annex 11 of EB 48. The value is conservative when compared with the KERC recommended PLF of 30% and also available at the investment decision time. Hence DOE found the PLF as per Annex 11 of EB 48 and conservative and accepted.

Parameter:	Tariff
Value applied for the IRR calculation:	INR 2.80/kWh
Source of the value:	The Tariff has been considered from the Detailed Project Report

Consistency of the value:	Same in Web-hosted and final version of PDD																								
Validity of input value at the time of investment decision making:	Tariff has been taken from the detail project report, which was available during the investment decision. Hence input value is valid and correct as per guidelines.																								
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	<p>Tariff is based on the Detailed Project Report, and the KERC Order of November 2005 /B06-g/, also provides for a tariff of INR 2.80/kWh. Since this was the rate which was available at the investment decision time and also it is in-line with the EB-49 Para-48 guidelines.</p> <p>This tariff is also cross checked with the KERC Order of November 2005 which was available at the time of decision making and it is found to be 2.80/kWh and the actual signed PPA fixed for 10 years. Further KERC tariff order dated 18.01.2005 also reflects the tariff rate of Rs. 2.80/kWh which is calculated over a period of ten years of operation. The below table is extracted from page no 14 of KERC tariff order dated 18.01.2005 clearly presents the annual tariff for the period of ten years and the resultant levelised tariff considered by KERC (Rs. 2.80/kWh)</p> <p>Please refer page no 14 of KERC Order dated 18.01.2005 which states that “ <i>the reduction in tariff from year to year is mainly account of repayment of debts and also that there are no running costs other than O & M costs which increases only marginally from year to year. The commission feels that for mini hydel projects varying tariff from year to year on a reducing scale is not appropriate and may not give welcome signal to the developers to attract new investment. Therefore the commission decides to have a uniform tariff for the first 10 year period for the hydro projects</i>”. The following table reflects the same:</p> <table border="1" data-bbox="820 1265 1398 1921"> <thead> <tr> <th>Year</th> <th>Tariff (Rs./unit)</th> </tr> </thead> <tbody> <tr> <td>1st Year</td> <td>3.24</td> </tr> <tr> <td>2nd Year</td> <td>3.14</td> </tr> <tr> <td>3rd Year</td> <td>3.04</td> </tr> <tr> <td>4th Year</td> <td>2.93</td> </tr> <tr> <td>5th Year</td> <td>2.83</td> </tr> <tr> <td>6th Year</td> <td>2.73</td> </tr> <tr> <td>7th Year</td> <td>2.63</td> </tr> <tr> <td>8th Year</td> <td>2.53</td> </tr> <tr> <td>9th Year</td> <td>2.43</td> </tr> <tr> <td>10th Year</td> <td>2.33</td> </tr> <tr> <td>Average Tariff for the above 10 years</td> <td>2.79 rounded off to 2.80</td> </tr> </tbody> </table> <p>From the KERC tariff order, it is clearly found that any increase in the tariff rate after ten years is not a possible scenario. The reason why the tariff rate is constant after the 10th year is because the largest component of tariff being the servicing of debt (principal repayment and interest payment) and it is</p>	Year	Tariff (Rs./unit)	1 st Year	3.24	2 nd Year	3.14	3 rd Year	3.04	4 th Year	2.93	5 th Year	2.83	6 th Year	2.73	7 th Year	2.63	8 th Year	2.53	9 th Year	2.43	10 th Year	2.33	Average Tariff for the above 10 years	2.79 rounded off to 2.80
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	<p>assumed that the loan repayment concludes by the 10th year of operations and these have already been factored in while determining the regulated tariff for the first 10 years. The tariff reduces gradually year on year and it is therefore clear that the tariff for the project activity beyond the initial PPA period would be lower. This is expected to happen in the cost plus tariff regulated power projects where the tariff reduces after the debt service is over. Hence in the financial analysis the fixed tariff of Rs. 2.80/kWh has been considered for the entire lifetime of the project activity. Hence tariff is fixed for 20 years.</p> <p>PP has given the sensitivity analysis for the tariff and it is found that with +10% increments in tariff also IRR is below the benchmark.</p> <p>Validation team concluded that the tariff considered also takes into account the concern expressed by EB vide paragraph No.48 in the 49th meeting. The tariff is therefore considered correct and appropriate for the project activity.</p>
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Parameter:	Administrative cost and escalation
Value applied for the IRR calculation:	INR 3.0 Millions for the Project Activity.
Source of the value:	The Management cost has been considered from the Detailed Project report
Consistency of the value:	Web-hosted PDD mention 1% of project cost and final version of PDD mention 0.5% of the project cost. However escalation rate is same.
Validity of input value at the time of investment decision making:	Management cost has been taken from the detail project report, which was available during the investment decision. Hence input value is valid and correct as per guidelines.
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	<p>The Management cost has been considered from Detailed Project Report prepared, which was available at the decision making time and DOE found it in accordance with EB-62 Annex-05. DOE has cross verified the Detailed Project Report and input value of administrative expense and escalation for project and found to be correct. DOE also cross checked the actual Management cost as per the certificate issued by the Chartered Accountant submitted by PP and it is found that actual expenses incurred is greater than the cost assumed at the time of decision making, which is acceptable.</p> <p>Taking into consideration all these factors and based on the local and sectoral expertise, the validation team concludes that the Management cost is reliable and appropriate for the given project activity.</p>

Parameter:	I.T. Depreciation
Value applied for the IRR calculation:	10% for Civil Works and 15% for Plant Equipment.

Source of the value:	Publicly available data (web-link)
Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	The Depreciation rate which was available during the investment decision has been considered. Hence input value is valid and correct as per guidelines.
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	This rate is based on Income Tax Rules. There has been no change in the depreciation rate since the time of decision making. Same has been cross checked with following link http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&schT=rul&csId=4a23cee1-1818-45d6-ab19-f155e08ed789&rNo=&sch=&title=Taxmann%20-%20Direct%20Tax%20Laws

Parameter:	Income Tax rate
Value applied for the IRR calculation:	33.66%
Source of the value:	Publicly available data (web-link)
Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	The Income Tax rate which was available during the investment decision has been considered. Hence input value is valid and correct as per guidelines.
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	This rate pertains to Financial year 2006-2007 (year in which decision was taken). http://indiabudget.nic.in/ub2006-07/fb/bill81.pdf

Parameter:	Minimum Alternate Tax
Value applied for the IRR calculation:	11.22%
Source of the value:	Publicly available data (web-link)
Consistency of the value:	Same in Web-hosted and final version of PDD
Validity of input value at the time of investment decision making:	The Income Tax rate which was available during the investment decision has been considered. Hence input value is valid and correct as per guidelines.
Justification by the validation team according to §120, 121 of VVS03.0: (cross checking and comparison as applicable)	This rate pertains to Financial year 2006-07 (year in which decision was taken). http://indiabudget.nic.in/ub2006-07/bh/bh1.pdf

checking and comparison as applicable)	
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Parameter:	Auxiliary consumption, Transmission and Wheeling charges
Value applied for the IRR calculation:	0.5% Auxiliary, 0.5% Transformation and 3% Transmission losses, 1.5% Grid outage
Source of the value:	DPR, KERC order and Approved Grid outage extraction copy from Sulya substation
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (03.0) (cross checking and comparison as applicable)	Auxiliary consumption of 0.5%, transformation loss of 0.5% and transmission loss of 3.0% is considered while calculating the net electricity delivered by the project activity from the gross electricity. In addition 1.5% of loss is considered for grid putages. The same is verified against the DPR, KERC order and Approved Grid outage extraction copy from Sulya substation. KERC recommends auxiliary and transformation loss of 1% and the remaining 3% of transmission loss are specific to the project activity based on the resistance and line losses. Hence the considered value is valid and correct.

Parameter:	Life time of the project
Value applied for the IRR calculation:	25 years
Source of the value:	DPR
Consistency of the value:	Same in webhosted and final version of PDD
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (03.0) (cross checking and comparison as applicable)	The lifetime considered for the project activity is based on the DPR prepared by the third party engineering consultant expertise in the field of hydro power projects. The considered value of 25 years is higher when compared to option (c) of EB 50 Annex 15 ‘Tool to determine the remaining lifetime of equipment‘which recommend a lifetime of 18 years. Hence the IRR analysis is calculated for the entire life time of 20 years and the salvage value of 100% land cost + 5% of the project cost is added back to the cash flow at the end of the life time.

Financial calculation and conclusion

The block of assets has been computed for depreciation purpose as per the accepted accounting principles and ruling given. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developer has taken into account the Tax holiday (u/s 80IA of the Income Tax Act, 1961), which the infrastructure projects (under which the project activity falls in as much as it generated electricity) are entitled to for 10 consecutive years out of the first 15 years.

Since the input parameters have been sourced from the offers, purchase orders, acts and regulations, they were valid at the time of decision making, (or modified to ensure conservativeness in the computation of financial indicator), are reliable, credible and appropriate for the project activity. Thus, the Validation conforms to the guidance given vide paragraph 118 to 114 of VVS version 3.0.

The investment analysis for this project activity has been done as per the “Guidelines on the demonstration of additionality of small-scale project activities”, Version 09.0. The financial analysis is in accordance with the “Guidelines on the assessment of investment analysis” version 05. All input parameters used in the IRR calculation were valid at the time of investment decision making. The validation team confirms that the project IRR post tax without any CDM revenue works out to be 10.12% which is below benchmark of 12.72%. It is clearly demonstrated that the proposed project activity without CER revenues is financially unattractive. The validation took cognizance of § 119 of VVS (version 03.0).

Nevertheless CAR-05 & CAR-06 have been raised and closed during the course of validation (ref Annex: Validation Protocol - Table 2).

1.1.1.1 Sensitivity analysis

According to the “Guidelines on the assessment of investment analysis” (version 05), only variables including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets. The validation team thus confirms that the following parameters meet the requirement and these parameters have been subjected to variations in the range of +10% and -10% in the PDD.

- Project costs,
- Annual O&M cost,
- Electricity tariff and
- PLF

Input Values	-10%	0%	10%
PLF	8.19%	10.12%	11.94%
Tariff	8.19%	10.12%	11.94%
Project cost	12.16%	10.12%	8.30%
O&M	10.36%	10.12%	9.88%

The validation took cognizance of § 120 (e) of VVS (version 03.0). The table below summaries the situation where the IRR would reach the benchmark:

Input value	Variation	Validation team’s opinion
Project cost	If the investment cost decreases by 12.36%, the IRR reaches the benchmark.	The PP has already placed the Purchase Orders for the project activity and incurred a cost of which is greater than the project activity mentioned in the DPR which is verified as per the certificate provided by the Chartered Accountant. Hence a further

Input value	Variation	Validation team's opinion
		reduction of 12.36% in the project cost is not possible.
O&M cost	If the O&M cost decreases by 113.5%, the IRR reaches the benchmark.	It is observed that O&M cost is not a critical factor at all in as much as only a 113.5% reduction in O&M cost would render the project non-additional. Reduction in 113.5% O&M cost, when the country is experiencing inflation at ~4.5% is impossible.
Electricity tariff	If the electricity tariff increases by 14.36%, the IRR reaches the benchmark.	Tariff considered for the project is similar to the KERC Tariff order. The tariff is signed with a state utility and is based on guidelines issued by the State Electricity Regulatory Commission at the rate of INR 2.8/kWh. The tariff is already fixed for 10 years and variation in tariff is not possible as per the detailed assessment in above sections for tariff.
PLF	If the PLF increases by 14.36%, the IRR crosses the benchmark.	The Plant Load Factor is considered as 42.5% per the Detailed Project Report which was prepared by the third party, thus a further increase of 14.36% is not practical. Furthermore KERC in its order "In the matter of Determination of Tariff in respect of Renewable Sources of Energy" dated 18/01/2005 considered a PLF of 30% for mini-hydel power projects for the determination of tariff. Hence the increase of 14.36% over the assumed PLF of 42.5% may not be practically possible.

The validation team thus confirms that the sensitivity analysis is in accordance with the "Guidelines on the assessment of investment analysis" version 05. All input parameters used for sensitive analysis constitute more than 20% of either total project costs or total project revenues. The justifications provided by the PP with the variations of these parameters are been analysed, clarified and accepted by the DOE.

Nevertheless CAR-05 & CAR-06 have been raised and closed during the course of validation (ref Annex: Validation Protocol - Table 2).

1.1.2 Barrier analysis

Project developer did not considered barrier analysis. Hence, this is not applicable.

1.1.3 Common practice analysis

Project developer did not considered common practice analysis. Hence, this is not applicable.

3.5.4 Conclusion of assessment of Additionality

The auto addtionality of the project activity has been assessed under Section 3.5.

3.6 Monitoring

The monitoring plan is included in Section B.7 of the PDD /P02/ based on the approved monitoring methodology AMS I.D/Version 17 /B02/ titled "Grid connected renewable electricity generation" and is

correctly applied to the CDM project activity. This methodology /B02/ stipulates that monitoring shall consist of monitoring of Quantity of net electricity supplied to the grid in year y. This confirms the requirement of VVS ver 03 /B01/.

3.6.1 Parameters determined ex-ante

The project adopts the ex-ante calculation of emission factor of the grid. The OM and BM are calculated as fixed factors for the first renewable crediting period by choosing data vintage based on ex-ante data published by CEA /B06/.

The parameters for determining the GHG emissions reductions have been clearly demonstrated in section B.6.2. of the PDD /P02/. The combined margin emission factor for the Southern grid of India has been calculated to be 0.8429 tCO₂ / MWh.

The validation team has verified the value used against the sources and conclude that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered and the value of the parameters are real, measureable and conservative.

3.6.2 Parameters monitored ex-post

According to the approved methodology AMS I.D version 17, the following parameters will be monitored:

Sl. No.	Parameters	Description
1	EG _{BL,y} , EG _{Export,y} , EG _{Import,y}	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y ($EG_{Export,y} - EG_{Import,y}$)
2	M _{HSD}	Quantity of HSD consumed in DG Set in the project activity

In summary, the validation team is convinced of compliance of the monitoring plan with the requirements of the monitoring methodology of AMS I.D (version 17). During the on-site assessment, the validation team interviewed the PP that the monitoring arrangements described in the monitoring plan are feasible within the project design. The emission reductions resulting from the proposed CDM project activity can be reported ex post and verified.

3.6.3 Management system and quality assurance

Steps undertaken to assess the monitoring plan

Compliance of the monitoring plan with the approved methodology

According to the PDD /P02/, the project's monitoring plan outlines the followings:-

- Monitoring parameters: the monitoring parameter of the project includes quantity of net electricity supplied to the grid in year y (= Total export – Total import) by the project activity and Quantity of HSD consumed in DG Set in the project activity as described in section B.7.1 of the PDD /P02/.
- Operational and management structure: management structure is illustrated for the CDM project monitoring;
- Monitoring Equipment and Relative Location: metering equipment to monitor export and import of electricity (to calculate Quantity of net electricity supplied to the grid in year y by the project activity)
- Quality Control and Data Archive: arrangement of meter calibration; archiving of the data collected during monitoring; and collection of monitored data and report preparation.

Quantity of net electricity supplied to the grid in year y is monitored as per the requirement of § 22 bullet (5) of the monitoring methodology /B02/ applied for the project activity and hence confirms compliance of VVS.

Implementation of the plan

According to document review in the PDD and on-site interviews with the representatives of the PP /I-01/, detailed monitoring procedures, monitoring structure, management team, monitoring items and functions are clearly demonstrated in the PDD which will enable subsequent verification of the project's emission reductions in line with the applied methodology. The validation team confirms that as per § 24 of EB 23, the specific uncertainty levels, methods and associated accuracy level of measurement instruments and calibration procedures used for various parameters and variables are identified in the PDD /P02/, along with detailed quality assurance and quality control procedures. The accuracy class and the method and frequency of calibration of the electricity meters confirm to the national standards /B07/. This also complies with § 12 of the general guidelines of the small scale project activities EB 52, annex 14. All the monitored data will be archived until 2 years after the crediting period to facilitate cross-checking during the crediting period.

Hence the validation team considers that the PP is capable to implement the monitoring plan and hence confirms compliance of VVS ver 03/B01/.

3.7 Sustainable Development

The host party's DNA, Ministry of Environment and Forests of India has confirmed the contribution of the project to the sustainable development in India according to the Letter of Approval for the Project /5/, which was checked by the validation team to be valid. The project activity is in compliance with all current applicable legislations. As project activity facilitates development small and micro enterprises, it contributes to sustainable development in the specified region.

In conclusion, the Validation Team is of the opinion that the project activity is in full compliance with all applicable requirements for the CDM by leading to emission reductions additional to what would have otherwise occurred, providing for reliable and measurable emission reductions with sustainable development in India through reductions in emissions.

3.8 Environmental Impacts

The project activity is expected to have positive impacts and no significant adverse environmental impact due to project activity is foreseen since the proposed project is a small scale run of the river hydro energy project with no project emissions. There is no mandatory legal requirement for carrying out EIA for small hydro power projects, which was verified by means of EIA notification dated 14 September 2006, of MoEF /B06-c/. However, the validation team has verified all the clearances like statutory clearances; commissioning certificates and Power Purchase Agreements for the project activity. The validation team confirms that all the clearances obtained are in accordance with the procedures required by the host party.

Nevertheless CAR-05 has been raised and closed during the course of validation (Refer Appendix: A CDM Validation Protocol - Table 2).

3.9 Local Stakeholder Consultation

A Local Stakeholders meeting was carried out by the project proponent on 02/07/2008 which was prior to the publication of PDD on the UNFCCC website (28/09/2012 – 27/10/2012). The validation team noted that all the relevant stakeholders were identified are in line with the definition of stakeholders as per latest version of CDM Glossary of terms, version 7 /13-11/. The local stakeholders identified by the PP were the plant personnel, MESCOM representative, local residents, local panchayat members who were affected by the project. Personal invitations were sent on 25/06/2008 to invite these stakeholders /27/. Stakeholders were directly asked to comment on the project through in an open meeting conducted on 02/07/2008 among local stakeholders. Feedback forms were distributed to the stakeholders to record their comments/suggestions. Queries were raised by some of the stakeholders which were appropriately addressed by representatives of Bhoruka Power Private Limited. From the background of the stakeholders, it was reasonably believed that the general attitude of the local residents, who were likely to be affected by the project, was positive towards the project and same has been verified from the onsite visit interviews with the local stakeholders. Validation team reviewed all relevant information of local stakeholder consultation meeting /27/ and confirms that the LSC meeting meets to the

requirement of VVS, version 03.0 /18/. The validation team confirms that the process for conducting the local stakeholders meeting is adequate and credible.

During the on site visit, representatives from the local community were interviewed. In general, the interviewees showed adequate understanding of the nature of the project and felt that there would be no adverse impacts on the environment arising from the project activity. The interviewees also considered that the local economy would be benefitted from the project activity.

The validation team confirms that the process for conducting the local stakeholders meetings is adequate and credible.

Nevertheless CL-15 has been raised and closed during the course of validation (Refer Appendix: A CDM Validation Protocol - Table 2).

3.10 Comments by Parties, Stakeholders and NGOs

The PDD version 01 of 15/09/2012 was made publicly available on <http://cdm.unfccc.int/Projects/Validation/DB/RZ08QUMLVJFSN526127U5LA4UJSF54/view.html> between 28/09/2012 – 27/10/2012 in order to invite comments from public stakeholders, comments were received and is given (in unedited form) in the below text box.

Comment by:

Accredited NGO Party Stakeholder

Provided on:

Subject:

Comment:

Comment No.:	Comment ^{*)}	Conclusion Validation team opinion
1.	The project is claimed to be run of river hydro project. So the calculation of reservoir is wrong. The criterion 3 is applicable only to pumped storage or accumulation hydro projects. What does reservoir refer to as per PP? BPCL Response: In the PDD section B.2, it is clearly mentioned that the project activity involving power generation utilizing the hydro energy potential of the /manjanadka river, is a run-of-river scheme. Hence the applicability condition of the methodology is not relevant for the project activity and there is no calculations made with respect to reservoir. TUVR Response: The project activity is a small scale run-of-river project and does not involve any dams. Hence the comment is not related.	
2.	The justification of opting out alternative 3 and alternative 4 is not justified adequately. It should be based on latest published data and figures. Refer B.4. Pls. clarify. BPCL Response: Same has been modified in the revised PDD TUVR Response: The same has been verified from the revised PDD and found to be OK.	
3.	The bilateral agreements, PPA with India are the documents, DOE to check thoroughly BPCL Response: PPA submitted to DOE for verification. TUVR Response: The PPA has been signed on 22 Aug 2008 with Chamundeshwari Electricity Supply Corporation Limited. The same has been checked.	
3.	Date of investment decision should be at the time of DPR preparation. So, the basis of the cost escalation factors at a later date for CDM consideration is not valid. Pls. clarify. Refer B5. Step 3a.(Investment barrier). BPCL Response: Necessary supporting documents have been submitted to DOE for verification.	

TUVR Response: The investment decision date is on 15 May 2006, the same has been checked and found to be ok. The Purchase Order is in January 2007. The chronology as also been checked and verified.

4. How the CDM benefit will alleviate the technical barriers. As per additionality tool, if the barriers are not alleviated by CDM, then the project is not additional.

BPCL Response: The barrier faced by the project is provided as per additionality requirements. The return and the project IRR is given to the DOE.

TUVR Response: The additionality has been checked and the assessment and opinion is given in the FVR.

6. Emission factor for state is not calculated. It should be made available to DOE to clearly validate this value. Emission factor for India is not as per "Tool for emission factor for the system".

BPCL Response: Detailed Emission reduction calculation sheet has been submitted to DOE for verification.

TUVR Response: The EF is validated and the assessment is provided in the FVR.

7. Electricity generated by the project, auxiliary consumption, transmission losses, transformer losses, net electricity exported to India, net electricity exported to the grid. These parameters to be monitored continuously and to be cross checked with sale receipts.

BPCL Response: Supporting documents for the same has been provided to DOE for verification

TUVR Response: This is more a verification issue and to be checked during verification. However, the information pertaining to capacity, generation have been verified from the PO and DPR.

8. The Meth mentions that if investment analysis option is used, apply the following:

a. Apply an investment comparison analysis, as per Step 3 of the .Combined tool to identify the baseline scenario and demonstrate additionality., if more than one alternative is remaining after Step 2 and if the remaining alternatives include scenarios P1 and P3;

b. Apply a benchmark analysis, as per Step 2b of the .Tool for the demonstration and assessment of additionality. If more than one alternative is remaining after Step 2 and if the remaining alternatives include scenarios P1 and P2.

But PP failed to apply like this. Pls. clarify.

PLF should be based on EB48 Annex 11 guideline which says The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company); But PDD doesn't demonstrate how PLF has been arrived at.

BPCL Response: Detailed PLF calculation and supporting documents are submitted to DOE for verification.

TUVR Response: The inputs parameters for investment analysis have been taken from DPR which has been prepared by Tata Consulting Engineers, a third party engineering company. The same has been checked.

9. Whether PLF includes machine shutdown, machine availability. Whether grid availability is accounted for in the calculation of gross generation. To my surprise, critical parameter like PLF is missing from the PDD. How DOE has allowed this.

BPCL Response: Detailed calculation of PLF consideration is provided in the financial spread sheet.

TUVR Response: The detailed generation calculation have been checked from the ER sheets and financial sheets;

10. Common practice analysis should be based on EB 39 Annex 10 (Additionality tool). Each step of common practice analysis should be fulfilled as per tool.

BPCL Response: As per the EB guidelines necessary changes have been made in the PDD

TUVR Response: The common practice analysis is not a requirement for SSC projects.

11. Emission reduction calculation should be based on EB 50 Annex 14 “Tool for emission factor for the electricity system.

BPCL Response: As per the EB guidelines necessary changes have been made in the PDD

TUVR Response: All the guidelines related to the ER calculations have been checked and found ok.

12. Whether only one set of main meter, check meter set is enough for three projects. The monitoring parameters need to be checked by DOE.

BPCL Response: Necessary information provided to the DOE during site visit

TUVR Response: The metering arrangement is a main and check meter and as per PPA arrangement. The same is agreeable.

13. The main meter and check meter technical parameters like accuracy level, make, etc. needs to be mentioned in the PDD.

BPCL Response: Necessary information have been incorporated in the PDD

TUVR Response: The revised PDD has been found to include the above.

14. Layout of power transmission lines from the generation to the consumer with the metering system is not shown. It should include the distance of transmission lines. DOE has to check the meters are installed to monitor electricity generated, net electricity used in Bhutan, net electricity exported to India. Pls. clarify.

BPCL Response: Necessary information have been incorporated in the PDD

TUVR Response: The same has been checked during site visit and found ok.

15. The status of the construction & commission of the project is not stated in the PDD.

BPCL Response: Necessary information have been incorporated in the PDD

TUVR Response: The project information is post decision making, however the same is verified during site visit.

16. What is the basis of calculation for transmission loss, auxiliary consumption and transformer losses? What is the length of transmission line?

BPCL Response: Supporting documents for for transmission loss, auxiliary consumption, transformer losses and lenth of the transmission line are submitted to DOE for verification

TUVR Response: All the supporting documents have been checked and assessment provided in the FVR.

Submitted by: Jhon Pereira

1) DOE to ensure that the PDD values are consistent and ensure that the CDM project is a genuine project.

2) DoE to check the Detailed Project Report and Feasibility Report which is submitted to the other agencies and Banks by Project owner and ensure that the values match with the DPR/FR submitted to DoE also.

3) Careful study must be done so that the DPR/FR is not in different versions made and submitted with different purposes to different agencies, which is totally unacceptable, illegal and unethical.

4) Project owner should show some undertaking letter from bank manager to DoE stating that both DPR's are same. These kinds of letters should not be accepted and entertained by DoE at face value, but must be checked independently. While collecting the DPR/FR from banks and other agencies, all DPR/FR pages should be counter signed by Banks and other agencies so that the real DPR/FR given to other parties by the PP/Consultant is same as the one submitted to DOE.

5) DPR/FR values must be probed fully. DOE must take a written undertaking from the PP/Consultant about the list of parties to whom this DPR/FR is submitted and for what purposes. Then DOE should cross check with all the parties and confirm that the same DPR/FR is submitted to all the parties correctly without any changes. DOE must not accept any reports and undertakings from PP/Consultant. DOE must make independent evaluation and use totally different parties without informing the PP or Consultant to cross check the facts.

6) DOE to write to the party who prepared the DPR/FR which is submitted to the banks and other agencies and the same is verified against the one submitted to the DOE by PP/Consultant.

- 7) DOE must not entertain this project any more if found the DPR/FR is tampered with at any point in time. PP can not give different DPR's and FR's. They must submit only the one given to Banks and other agencies while obtaining loans and decision making time.
- 8) Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects? If not this project should be rejected right away by DOE by terminating the contract forthwith. If yes, where is the proof? What is the date of the evidence document from bank? Is this document printed now a days or earlier. DOE to independently check the same. If the document is available from Bank it must be checked from all angles so that it is genuine and not forged and date changed by putting back dated. This is normally done, DOE to be aware of this please. Please check the communication the PP had during that time with banks, emails and postal receipts and the weights and dates mentioned on the receipts. Do not believe in courier bills and receipts since these can be cooked up easily. Insist on government owned postal service receipts only. If the project is fully equity project then on what basis the PP has invested full equity in to the project while considering the CDM revenue? DOE to check the same in detail and bring out the facts. Is there any past record of this PP to invest or not to invest at returns what he is talking about in this project? Proper evidences must be reviewed and digged out by the DOE and take decision on the project based on established facts. Do not ask documents from PP, DOE to collect the same from different sources to do independent evaluation.
- 9) Is the project equipment purchased second hand equipment or sourced from cheap foreign sources? If yes, the issue must be probed by DOE since invoices will invariably be inflated and forged. Total project costs mentioned by PP will not be the same as originals. Hence no additionality. These facts must be probed in full by DOE by checking all documents and money transactions along with bank statements and certified accounts by a legally acceptable financial analyst.
- 10) From DOE side which auditor has done marketing and business development for acquiring this business of validating this project? With whom he or she was co-ordinating at PP or CER buyer? The same person who has done the marketing and business development to acquire the business do validation or participate in any manner what so ever in the validation process? One cannot do like that. It is against the accreditation rules and norms followed since ages. DOE should send auditors from different offices or countries to do this validation audit. DOE must take care of impartiality and accreditation rules. Due to the targets set by the DOE managements auditors are doing marketing and meeting clients and giving promises that the project will be taken care. Is it acceptable and fair? This must be stopped. No auditor should do marketing. Only non-auditing staff should do marketing. DOE to ensure the same please.
- 11) If applicable only: Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier. DOE to check the same through independent sources also. Once some bundles are non-additional and getting negative validation from a DOE, PP is rolling out the same project as an individual project which is not a CDM project at all. DOE to verify the same from independent sources and also take undertaking in the form of an affidavit from the PP's that any misrepresentation or false statement with respect this would attract strict legal action from UNFCCC and DOE. Furthermore the registered project must be de-registered in case of any future findings contradicting the submissions made by the project owner.
- 12) DOE to be more careful so that this is a genuine CDM project. What is the exact project cost? The project cost is covering what? Each value considered must be validated with proof. The machinery is second hand purchased or fresh and new from an OEM? In either case DOE to check all the quotations, proposals, purchase orders, invoices, way bills, transport bills, proof of payments like bank statements. DOE to check with banks by way of written confirmation the amount transacted, to whom the money is paid, when the money is paid, is the party paid is the correct party as shown in the purchase orders. It may so happen that the values, party names, dates are fabricated and misrepresented in this project. DOE should terminate their contract for this project immediately. This is the only way out to protect the value of CDM process. If the PP is purchasing second hand or second quality equipment and inflating the purchase order values and invoices, this must be probed thoroughly and real values to taken for additionality calculation. Then I'm sure the additionality is not there at all in such a situation.

13) How is the base line defined in this project? Is Base line hypothetically defined with no proper evidences and proper justification? In such case, DOE cannot take the base line as suggested by the PDD. Please check that there are real emission reductions beyond the real and factual base line. It may so happen that this project qualifies for no CER's. DOE cannot assume values and things as giving by this PP. Whatever values are considered throughout the project in all documents including the real DPR (not the one prepared for CDM, the one given to the banks and others), they must be validated, verified and double checked. Do not ask PP for DPR. Ask the parties who have been given DPR by the PP. Get directly from the bank and others by each page of the DPR and Feasibility report signed. Such document can be considered as a real DPR or FR. UNFCCC CDM process cannot be degraded by fabricating and misinterpreting the project base line and additionality.

Submitted by: Jhon Pereira

BPCL Response: The points (Serial no. 01 to 13) mentioned by the stakeholder is not specific about Manjandka Project and it Is relevant instruction given to the DOE for Validating the project and it is no where linked to the project activity, Hence PP is not responsible for the queries.

TUVR Responses for the points 1 to 13: All the parameters, supporting evidences, DPR and other documents have been verified and checked. The assessment on the points related to Emission Reductions, investment analysis has been provided in the FVR. Wherever essential and required relevant CARs/CLs have been raised and closed. All the relevant references have been provided in the FVR.

1. Is the project equipment purchased second hand equipment or sourced from cheap foreign sources? If yes, the issue must be probed by DOE since invoices will invariably be inflated and forged. Total project costs mentioned by PP will not be the same as originals. Hence no additionality. These facts must be probed in full by DOE by checking all documents and money transactions along with bank statements and certified accounts by a legally acceptable financial analyst.

2. From DOE side which auditor has done marketing and business development for acquiring this business of validating this project? With whom he or she was co-ordinating at PP or CER buyer? The same person who has done the marketing and business development to acquire the business do validation or participate in any manner what so ever in the validation process? One cannot do like that. It is against the accreditation rules and norms followed since ages. DOE should send auditors from different offices or countries to do this validation audit. DOE must take care of impartiality and accreditation rules. Due to the targets set by the DOE managements auditors are doing marketing and meeting clients and giving promises that the project will be taken care. Is it acceptable and fair? This must be stopped. No auditor should do marketing. Only non-auditing staff should do marketing. DOE to ensure the same please.

3. If applicable only: Is these machines, equipment was a part of any bundle of CDM activity envisaged and developed earlier. DOE to check the same through independent sources also. Once some bundles are non-additional and getting negative validation from a DOE, PP is rolling out the same project as an individual project which is not a CDM project at all. DOE to verify the same from independent sources and also take undertaking in the form of an affidavit from the PP's that any misrepresentation or false statement with respect this would attract strict legal action from UNFCCC and DOE. Furthermore the registered project must be de-registered in case of any future findings contradicting the submissions made by the project owner.

4. DOE to ensure that the PDD values are consistent and ensure that the CDM project is a genuine project

5. DoE to check the Detailed Project Report and Feasibility Report which is submitted to the other agencies and Banks by Project owner and ensure that the values match with the DPR/FR submitted to DoE also.

6. Careful study must be done so that the DPR/FR is not in different versions made and submitted with different purposes to different agencies, which is totally unacceptable, illegal and unethical.

7. DPR/FR values must be probed fully. DOE must take a written undertaking from the PP/Consultant about the list of parties to whom this DPR/FR is submitted and for what purposes. Then DOE should cross check with all the parties and confirm that the same DPR/FR is submitted to all the parties correctly without any changes. DOE must not accept any reports and undertakings from PP/Consultant. DOE must make independent evaluation and use totally different parties without informing the PP or Consultant to cross check the facts.
8. DOE to write to the party who prepared the DPR/FR which is submitted to the banks and other agencies and the same is verified against the one submitted to the DOE by PP/Consultant.
9. DOE must not entertain this project any more if found the DPR/FR is tampered with at any point in time. PP can not give different DPR's and FR's. They must submit only the one given to Banks and other agencies while obtaining loans and decision making time.

10. How is the base line defined in this project? Is Base line hypothetically defined with no proper evidences and proper justification? In such case, DOE cannot take the base line as suggested by the PDD. Please check that there are real emission reductions beyond the real and factual base line. It may so happen that this project qualifies for no CER's. DOE cannot assume values and things as giving by this PP. Whatever values are considered throughout the project in all documents including the real DPR (not the one prepared for CDM, the one given to the banks and others), they must be validated, verified and double checked. Do not ask PP for DPR. Ask the parties who have been given DPR by the PP. Get directly from the bank and others by each page of the DPR and Feasibility report signed. Such document can be considered as a real DPR or FR. UNFCCC CDM process cannot be degraded by fabricating and misinterpreting the project base line and additionality.

11. DOE to be more careful so that this is a genuine CDM project. What is the exact project cost? The project cost is covering what? Each value considered must be validated with proof. The machinery is second hand purchased or fresh and new from an OEM? In either case DOE to check all the quotations, proposals, purchase orders, invoices, way bills, transport bills, proof of payments like bank statements. DOE to check with banks by way of written confirmation the amount transacted, to whom the money is paid, when the money is paid, is the party paid is the correct party as shown in the purchase orders. It may so happen that the values, party names, dates are fabricated and misrepresented in this project. DOE should terminate their contract for this project immediately. This is the only way out to protect the value of CDM process. If the PP is purchasing second hand or second quality equipment and inflating the purchase order values and invoices, this must be probed thoroughly and real values to taken for additionality calculation. Then I'm sure the additionality is not there at all in such a situation.
12. Project owner should show some undertaking letter from bank manager to DoE stating that both DPR's are same. These kinds of letters should not be accepted and entertained by DoE at face value, but must be checked independently. While collecting the DPR/FR from banks and other agencies, all DPR/FR pages should be counter signed by Banks and other agencies so that the real DPR/FR given to other parties by the PP/Consultant is same as the one submitted to DOE.

13. Has the PP considered the CDM revenues while envisaging the project? Without CDM the project was not viable, is it right? This project is having a debt component? Then how bankers or lenders gave the loan? Have the bankers or lenders considered the CDM revenues while agreeing to give loan to this projects? If not this project should be rejected right away by DOE by terminating the contract forthwith. If yes, where is the proof? What is the date of the evidence document from bank? Is this document printed now a days or earlier. DOE to independently check the same. If the document is available from Bank it must be checked from all angles so that it is genuine and not forged and date changed by putting back dated. This is normally done, DOE to be aware of this please. Please check the communication the PP had during that time with banks, emails and postal receipts and the weights and dates mentioned on the receipts. Do not believe in courier bills and receipts since these can be cooked up easily. Insist on government owned postal service receipts only. If the project is fully equity project then on what basis the PP has invested full equity in to the project while considering the CDM revenue? DOE to check the same in detail and bring out the facts. Is there any past record of this PP to invest or not to invest at returns what he is talking about in this project? Proper evidences must be reviewed and digged out by the DOE and take decision on the project based on established facts. Do not ask documents from PP, DOE to collect the same from different sources to do independent evaluation.

Submitted by: Jhon Pereira

BPCL Response: The points (Serial no. 01 to 13) mentioned by the stakeholder is not specific about the Manjandka Project and it Is the instruction given do the DOE to How to Validate the project and it is no where linked to the project activity, Hence PP is not responsible for the queries.

TUVR Responses for the points 1 to 13: All the parameters, supporting evidences, DPR and other documents have been verified and checked. The assessment on the points related to Emission Reductions, investment analysis has been provided in the FVR. Wherever essential and required relevant CARs/CLs have been raised and closed. All the relevant references have been provided in the FVR.

1. Chronology of events does not speak about the status of project activity and LOI of E&M date not provided in the PDD except C.1.1 starting date of the project activity, DOE has to check.

BPCL Response: The chronology is included in the revised PDD.

TUVR Response: The revised PDD has been checked for the chronology and start date and found to be in compliance.

2. When is the board meeting and date of investment decision? It is not explicitly mentioned in the PDD.

BPCL Response: The chronology explains the same.

TUVR Response: The revised PDD has been checked for the chronology , investment decision and start date and found to be in compliance.

3. Why barrier analysis is not discussed in the PDD. If there is no barrier, then it should be mentioned in the PDD.

BPCL Response : The project additionally is based on investment analysis.

TUVR Response : The project argues on investment barrier and FVR addresses the same.

4. How benchmark is calculated and how IRR is calculated is not discussed at all in the PDD.

BPCL Response: All of them are provided in the PDD

TUVR Response : The FVR addresses all the above.

5. PLF should be based on EB48 Annex 11 guideline which says The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company); But PDD doesn't demonstrate how PLF has been arrived at.

BPCL Response: Detailed PLF calculation and supporting documents are submitted to DOE for verification.

TUVR Response: The inputs parameters for investment analysis have been taken from DPR which has been prepared by Tata Consulting Engineers, a third party engineering company. The same has been checked.

6. Whether PLF includes machine shutdown, machine availability. Whether grid availability is accounted for in the calculation of gross generation. To my surprise, critical parameter like PLF is missing from the PDD. How DOE has allowed this.

BPCL Response: Detailed PLF calculation and supporting documents are submitted to DOE for verification.

TUVR Response: The inputs parameters for investment analysis have been taken from DPR which has been prepared by Tata Consulting Engineers, a third party engineering company. The same has been checked.

7. Emission reduction calculation should be based on EB 50 Annex 14 “Tool for emission factor for the electricity system.

BPCL Response: As per the EB guidelines necessary changes have been made in the PDD

TUVR Response: All the guidelines related to the ER calculations have been checked and found ok.

8. The main meter and check meter technical parameters like accuracy level, make, etc. needs to be mentioned in the PDD.

BPCL Response: Necessary information have been incorporated in the PDD

TUVR Response: The revised PDD has been found to include the above.

Submitted by: Jhon Pereira

- PDD does not clearly describe the stakeholders involved in Project or the information provided to them. The PDD mentions stakeholders have been invited,” but no details which of these stakeholders actually participated in the process. The PDD does not describe the information provided to stakeholders with sufficient clarity, such as whether adverse environmental impacts were described along with the benefits that were mentioned.

BPCL Response: Supporting documents related to Stakeholder details, newspaper advertisements are submitted to DOE for verification

TUVR Response : The stakeholders consultation meeting and minutes have been checked and verified.

- The PDD does not explain about identified training, monitoring and maintenance as per the Technology requirements for contractors / engineers by the client. There is no mention of field quality Assurance systems & procedures that are available at site, field quality plans and their approval.

BPCL Response: Necessary information will be provided during verification

TUVR Response: The project monitoring parameters have been found to be ok with requirements of methodology.

- Time schedule of key events does not speak about the status of project activity and why DOE has taken so long days to just web host the PDD. What is the reason for the delay? This kind of delays shows how serious PP in getting CDM benefits.

BPCL Response: Detailed Chronology of events for the project and reason for the delay is incorporated in the PDD

TUVR Response: The same has been checked and found to be ok.

- Also the chronology of events do not mention any offer letter?.. Then how DoE has made due diligence that the project confirms to UNFCCC guidelines?.

BPCL Response: Detailed Chronology of events for the project is incorporated in the PDD

TUVR Response: The detailed chronology has been verified and found to be OK.

- There are neither links nor documents mentioned for proof of the parameters assumed for the IRR?

BPCL Response: Necessary information’s are provided in the revised PDD

TUVR Response; The same has been verified and found to be ok.

- How is PLF estimated to be in accordance to UNFCCC guidelines?

BPCL Response: detailed PLF calculations provided in the financial sheet

TUVR Response: The inputs parameters for investment analysis have been taken from DPR which has been prepared by Tata Consulting Engineers, a third party engineering company. The same has been checked.

- Also the tariff rate has been assumed based on rate existing at investment decision. But does it account for the escalation and why it has been assumed at a flat rate?

BPCL Response: Necessary supporting documents are submitted to DOE for verification

TUVR Response: The inputs parameters for investment analysis have been taken from DPR which has been prepared by Tata Consulting Engineers, a third party engineering company. The same has been checked.

- When is the board meeting and date of investment decision? It is not explicitly mentioned in the PDD.

BPCL Response: Detailed Chronology of events for the project is incorporated in the PDD

TUVR Response; The same has been verified and found to be ok.

Submitted by: Jhon Pereira

1. Description of the project boundary and graphical representation depicted in PDD is not adequately justified.

BPCL Response: The project boundary is incorporated in the PDD

TUVR Response; The same has been verified and found to be ok.

2. What is the debt-equity ratio of the proposed project activity?

BPCL Response: Debt is 70% & Equity is 30%, details are incorporated in the financials

TUVR Response; The same has been verified and found to be ok.

3. R&M expenses are not described in PDD/key parameters.

BPCL Response: Necessary information are incorporated in the financials

TUVR Response; The input parameters and assumptions have been checked.

4. What is the basis of calculation for transmission loss, auxiliary consumption and transformer losses? What is the length of transmission line?

BPCL Response: Supporting documents for calculation for transmission loss, auxiliary consumption & transformer losses are provided to DOE for verification

TUVR Response; The same has been verified and found to be ok.

5. Pls check Chronology of the PO date and starting date of the project activity.

BPCL Response: Detailed Chronology of events for the project is incorporated in the PDD

TUVR Response; The same has been verified and found to be ok.

6. Pls. check the base line of the project activity.

BPCL Response: PP has provided baseline as per UNFCCC guidelines

TUVR Response; The same has been verified and found to be ok.

Submitted by: Jhon Pereira

Submitted by: Parineeta Dandekar, South Asia Network on Dams, Rivers and People, Pune

In the entire PDD, there is no section on Prior CDM Consideration benefits by the board of the Company (BPCL). The reason for this glaring omission is clear:

According to the website of Karnataka Renewable Energy Development Limited (KREDL), which is a part of Karnataka Power Ministry, the project was allotted to BPCL in 24.05.2001 (GO Nos: DE 74 NCE 1999) and was actually commissioned in 27.06.2009. Hence, it shows the project as clearly non additional as the CDM scheme itself started in 2005, much after the project was allotted.

BPCL Response: We hereby clarify that BPCL initially got GO approval for 5 MW in 24.05.2001 (GO Nos: DE 74 NCE 1999), later BPCL has made hydrology study and requested “The principle secretary & KREDEL” officials to increase the install capacity to 10 MW on 27.02.2002. However Government order issued 10.04.2002 (GO no. DE 74 NCE 99) for capacity enhancement to 10 MW.

BPCL has provided project status details to KREDL and also requested to KREDL regarding GO extension of time limit as and when required. Copies of relevant status reports and GO Approvals for extension of time limit have been submitted to DOE for verification

TUVR Responses: The project has been validated based on decision making time and relevant investment analysis. The assessment is provided in the FVR.

However, the PDD states in Section C Duration of Project Activity, C.1.1. Starting date of the project activity: “15th January, 2007 The date of the Award of contract for Supply of Electro Mechanical equipment to M/s Jyoti Ltd. has been considered as the start date of the project activity.”

This is shocking and misleading information given by the proponent, when the project was actually allotted in 2001.

BPCL Response: Kindly refer above response

TUVR Response: The start date is the PO and is in line. □

BPCL website also displays this project as a commissioned project: <http://www.bhorukapower.com/manjanadka.htm>. It says “BPCL has started PDD hides relevant information about the project: The PDD does not provide basic project parameters like height of the dam, reservoir area, length of river submerged in the reservoir, length of pen stock, tail race, head race, length of transmission lines, Without perusal of this data, the project cannot receive CDM credits.

It is surprising to see that the proponent has chosen to hide this significant data from the UNFCCC.

Nor does the PDD give any information on: Area of revenue, private and forest land submerged.

BPCL Response: Project technical equipment details and Project relevant parameters will be incorporated in the revised PDD. Supporting documents for the technical parameters will be provided to DOE for cross verification.

TUVR Response; The same has been verified and found to be ok.

High Court order banning mini hydel projects in Karnataka Western Ghats:

Looking at the huge unrecorded impacts of mini hydel projects on the ecology and sociology of the Western Ghats, which are a UNESCO World Heritage Site,

Karnataka High Court has actually passed a stay order on construction of mini hydel projects in Western Ghats in Uttara Kannada Region of Karnataka. Although this project does not fall in Uttara Kannada, it is a part of Western Ghats. Minutes of KREDL Meeting in 2011 shows that the Agency will not allot any projects affecting Forest or Revenue lands. This indicates the ecological sensitivity of the region and the CDM Board should not issue CDM Credits to a project affecting these ecological values, without any mitigation measure in place.

BPCL Response: Before commission of the project BPCL has received all relevant Government statutory

approvals. However BPCL has keeping in a mind to not to harm environment we appointed a third party to conduct study on “Rapid Environmental impact assessment (REIA) and Environmental management plan (EMP)”. Copy of REIA & EMP report will be submitted to DOE for verification.

TUVR Response: The Govt sanctions and clearances have been checked. The EIA, the approvals have been checked and found ok.

Proximity to Bramhagiri Wildlife Sanctuary: Manjaadka Stream originates from the Bramhagiri Hills which is protected area of Brahmagiri Wildlife Sanctuary. The project is set extremely close to the sanctuary and will have a huge negative impact on the wildlife. However, the Sanctuary gets no mention in the entire PDD

BPCL Response: Before commission of the project BPCL has received all relevant Government statutory approvals. However BPCL has keeping in a mind to not to harm environment we appointed a third party to conduct study on “Rapid Environmental impact assessment (REIA) and Environmental management plan (EMP)”. Copy of REIA & EMP report will be submitted to DOE for verification.

TUVR Response: The Govt sanctions and clearances have been checked. The EIA, the approvals have been checked and found ok.

Stakeholder consultation does not mention date or go into any discussion about the concerns raised by the stakeholders:

Section E on Stakeholder comments is an incomplete section in the PDD. The proponent has not clarified the date on which the consultation took place, nor has the proponent stated a single ‘concern’ raised by the community. It is clear that the stakeholders have raised concerns, which are unaddressed by the proponent.

BPCL Response: Stakeholder meeting has been conducted on June 02, 2008. Copy of the stakeholder meeting and newspaper advertisement copy will be submitted to DOE for verification

TUVR Response: The same has been verified and found to be ok.

Huge Local Opposition to Mini hydel Projects in Western Ghats:

Having suffered impacts of hundreds of mini hydel projects coming up along Western Ghats, local communities have come together to oppose this development. In a recent meeting organised on the 4th and 5th of August 2012 in Subramanya about 47 kms from Sulya town near Manjanadka Project, over 60 participants adopted the ‘Subramanya Declaration’ which calls for no Mini Hydel Projects without proper regulation and especially declaring forests in Kumaradhara Netravathi Basin as Protected Areas, upgrading their status from Reserve Forests. Please find the Meeting Report on Mini Hydel Projects and Subramanya Declaration as Annex 1.

BPCL response: BPCL has taken all proper regulation to operate the project activity and commissioned the project on 27.06.2009 and project got positive opinion from stakeholders attended during CDM stakeholder meeting and project also received positive opinion from Village punchayath.

TUVR Response: The same has been verified and found to be ok.

Misleading Claims about Social, Economic and Environmental Well Being:

The PDD states that the project will result in Social Well-being through generating local employment. The experience of this region is that MHPs generate very little local employment. The only employment opportunity is during the construction phase, which is temporary and arbitrary. There are no lasting social

benefits to the local region which is impacted by the project. All the infrastructure development mentioned in the PDD is limited to its project, no mention of any other social infrastructure development is made. On the other hand, this sort of infrastructure development impinges upon forest land, community land and grazing land.

BPCL response: BPCL has done various social welfare and environmental welfare activities. The detailed about these activities will be provided to DOE for verification. Manjanadka project has provided local employment opportunity during project construction and also during project operation. The Manjanadka project is totally having 32 numbers of employees during operation of the project, out of those 27 employees are local employees, that means company has given 85% of employment opportunity for locality. Supporting documents of employee details and welfare activities details will be submitted to DOE for verification.

TUVR Response: BPCL's employment has been interviewed and found ok.

Any claims about local electrical supply are also false as the proponent does not commit even a fraction of the electricity generated for local welfare. As it is a grid connected project, all the electricity is evacuated into the main grid, with no benefits to the locals.

BPCL response: As per Power Purchase agreement between BPCL and KPTCL, we have to sell power generated from the project to KPTCL grid and KPTCL will distribute the power to the public based on available demand, which is standard practice for all power generation companies in India.

TUVR Response: The PP has a PPA with Chamundeshwari Electricity Supply Corporation Limited and is tariff based supply.

The proponent, BPCL, which according to its claims is *"today the leader in Small Hydro in the country, having implemented 120 MW consisting of 15 hydro stations and 3 wind power plant"* ³refuses to commit even a fraction of CDM credits to social welfare. This indicates that even a commissioned plant looks at CDM credits as nothing but easily pocketable profits.

BPCL response:

We would like to inform you that Bhoruka as an Industrial group has been in the field for the last more than four decades with the activities spread across the country. The founder Shri P. D. Agarwal who was a great philanthropist and humanitarian felt that industrial houses must look beyond Profitability of the companies and care for the underserved and under-privileged people especially in the rural areas. During his life time number of educational institutions and socio-economic activities got started. After him his able son Shri S.N. Agarwal and his wife Smt. Uma Agarwal with great vigor and enthusiasm carried his will forward.

Bhoruka Group has made it clear in its mission statement that it would set aside 5% of its profit for welfare activities. To carry on its social responsibility it has established four trusts namely, Bhoruka Charities, Prabhudan Rural Development Trust, Ved Education Trust and Vikassanum Education and Welfare Trust. To ensure socio-economic transformation, Bhoruka welfare has promoted 380 'self-help groups' involving around 6500 women at Shahapur, Rajankollur, Mandagere and Hemmige, in three districts viz, Gulbarga, Mandya and Mysore with prime focus on women empowerment and self-sustainability.

In the education front, Bhoruka welfare has set up two schools at Rajankollur and Shahapur in Gulbarga district and one at Shivpur in Koppal district. Bhoruka welfare has also adopted a government school at Hemmige in Mysore district, two at Dakshina kannada district and a high school at Rajankollur in Gulbarga district.

Informal education is also provided through training in tailoring, embroidery, knitting, horticulture, floriculture to women and motor winding, electrical appliances' repairs, automobile repairs to men.

Bhoruka welfare runs its own 3 english medium co-educational schools in Gulbarga and Koppal Districts.

Adopted 5 rural Government schools for comprehensive development at Hemmige (Mysore dt), Nidle, Kalanjai in Dhakshina kannada and Rajankollur in Gulbarga district Since 2001 the year of adoption the trusts have spent about Rs Twenty lacs on this project. Around 3000 students have benefited by this scheme

- Govt.High School Nidle
- Govt.Middle School Kalanjai
- Govt.High School Rajankollur
- Govt.Middle School Rajankollur
- Govt.Primay School, Hemmige

THE GOVERNMENT OF KARNATKA HAS SET UP COMMITTEES FOR UPGRADATION OF INDUSTRIAL TRAINING INSTITUTES IN THE STATE THROUGH 'PUBLIC PRIVATE PARTNERSHIP' AND BHORUKA WELFARE HAS BEEN SELECTED AS PARTNER TO HEAD THE INSTITUTE MANAGEMENT COMMITTEES AT KOPPAL AND BELGAUM DISTRICTS

More details about Bhoruka welfare activities visit: <http://www.bhorukawelfare.org/>

TUVR Responses: The claims and the web-based information has been checked and with some local interviews the above explanation seems to be agreeable.

Environmental wellbeing: the PDD makes absolutely no mention about the height of the weir, area submerged, whether it falls in forest area, environmental flows to be released at all time, measures taken for mitigating impacts on fish and wildlife, etc. and in the absence of all this vital information, claims to have no environmental impacts. This is clearly unacceptable.

Nor does the PDD give any details of the rapid environment impact assessment and the measures of mitigating environmental impacts.

Technological wellbeing: The PDD also says that the project contributes to technological wellbeing as it sets precedence for similar clean tech projects in the region. Western Ghats of Karnataka, especially the district Uttara Kannada, Dakshin Kannada and Kodagu (where this project falls) have numerous commissioned MHPs and the impacts of these are so great that local communities have actually demanded to 'HALT MHP development prior to regulation'. These three districts together have more than 234 proposed MHPs, according to KREDL (<http://www.kredltest.in/hydrereport.aspx>). While some maybe cancelled, many of these will be commissioned.

Incentives: Apart from procedural incentives including Single Window Clearance (Karnataka Renewable Energy Policy 2009-14) Small Hydro Projects in India receive a number of incentives from the Centre as well as various states which include:

Financial support given by: Ministry of New and Renewable Energy at 1.2 crores of first MW and 20 lakhs for each additional MW (Small Hydro Program, Government of India, 2009, Ministry of New and Renewable Energy, Small and Small hydro Projects,

Sixteenth Report to the Standing Committee on Energy)

As per the Environment Impact Assessment Notification, 2006, Mini Hydel Projects (less than 25 MW) are exempt from Environment Impact Assessment, Environment Management Plans or Public Hearing. This itself is a huge incentive to the sector.

The Small Hydro Schemes in Karnataka receive a preferential tariff at Rs. 3.40 per unit without any escalation for the first 10-year period from the date of signing of PPA (KERC Tariff Order 2009). Karnataka especially enjoys high tariff as compared to Himachal Pradesh at rates of 2.50 to 2.95 per unit). In addition, according to the Karnataka Renewable Energy Policy 2009-14 (<http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0CFQQFjAC&url=http%3A%2F%2Fkredl.kar.nic.in%2FRenewable%2520Energy%2520Policy%2520Karnataka%2520Draft.doc&ei=lfS5T6SsLIXRrQe03oThB>)

w&usg=AFQjCNE ekkIz-YZ_6ZQY4HOvjAQ1nubEbQ) the state accepts a Renewable Energy Obligation and “is committed to procure & utilize the Renewable Energy power as required and determined by Government of Karnataka. Due grid strengthening will be undertaken to meet this commitment.”

Small hydro projects in Karnataka also enjoy tax rebates and revisions like with the Value Added Tax (VAT)

According to ICRA Report on Small Hydro in India, published May 2012 (www.icra.in/Files/ticker/SHP%20note-.pdf) favourable fiscal policies that have helped in accelerating Small Hydro development in India include:

- o accelerated depreciation benefit, o tax holiday under section 80 IA
- o Soft loans by Indian Renewable Energy Development Authority, o IREDA and nil/concessional customs/excise duty benefits),
- o state level incentives and financial support from MNRE

CDM credits have been listed not as a first benefit, but in the last. This clearly implies that CDM credits are not the limiting factor in the growth of SHPs, but just an added bonus.

The report states: “Under the Central Financial Assistance (CFA) Scheme of the Ministry of New and Renewable Energy, Govt of India (MNRE), capital subsidy is now provided to both private and State projects and for renovation & modernisation of SHP plants. Besides, technical support is being provided to SHP units through Alternate Hydro Energy Center (AHEC), IIT, Roorkee. MNRE is also organizing technical support towards survey and investigation, preparation of DPRs, project monitoring and training through Alternate Hydro Energy Center (AHEC), IIT, Roorkee.

Since January 2011, SHP projects totalling over 131 MW have been set up in the state of Karnataka. A supportive policy framework has been one of the key factors for achieving this rapid pace of project development. The Karnataka Renewable Energy Policy 2009-14 envisages 600 MW of SHP capacity additions by 2013-14, requiring 100-150 MW of addition every year.

All the above points make it amply clear that small hydro projects are being pushed hard at the centre as well as the state and receive many financial and procedural benefits. In a latest case, States have actually been selling power generated from small hydro projects by Independent power producers to other states at a very high tariff of 4.14 per unit. (<http://www.tribuneindia.com/2012/20120515/himachal.htm#2>) This has become possible because of the scheme of trading Renewable Energy Certificates, introduced in India by the Central Electricity Regulatory Commission.

This underlines the fact that small hydel projects in India enjoy a lot of incentives, which should be included in the cost benefit calculations, not doing that, as is the case with 10 MW Manjanadaka MHP PDD, means the project proponent is misleading everyone and should be disqualified.

IRR Majorly downplayed: Looking at the above subsidises and incentives, the IRR of 11.89% as stated in the PDD looks downplayed and incorrect.

Conclusion:

Looking at the all the points raised above, 10 MW Manjanadka MHP does not deserve CDM Credits. It is a clear example of non additionality along with huge ecological impacts and unaddressed social concerns. Granting CDM Credits to this project will raise a question mark about CDM process and criterion of additionality.

BPCL response: Technical details about the project and Chronology details will be incorporated in the revised PDD. Copy of the rapid environment impact assessment and the measures of mitigating environmental impacts will be submitted to DOE for verification. All the above analysis and investment analysis and documents related to the same has been given to DOE.

TUVR Responses: The revised PDD has been checked and found ok. The additionality has been checked and the assessment and opinion is given in the FVR.

Appendix A

CDM Validation Protocol

10 MW Manjanadka Hydro project, Karnataka, India

Report No. 01 997 9105071963

Table 1: Validation requirements

(based on § 37 of the CDM Modalities and Procedures and on CDM Validation and Verification Standard version 03.0)

Checklist question	Ref.	MoV ¹¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Approval(VVS Section 7.6, 7.7, 7.8 & 7.9)					
1.1 Have Letters of Approval have been provided from all involved Parties? If yes, indicate: <ul style="list-style-type: none"> – when and by which Party the LoA has been issued, with a clear reference to the LoA itself and any supporting documentation; – whether the LoA was provided to the DOE by the project participants or directly by the DNA; – the means of validation employed to assess the authenticity of the document; and – by a clear statement, that the DOE considers the LoA to be valid. 	UNFCCC CDM rules /I-01/ /P03/ /B01/	DR, I	It's a unilateral project. The Letter of Approval from the host party has not been submitted. Hence CAR-01 is raised.	CAR-01	OK
1.2 Are all Parties, who issued the LoA, Parties to the Kyoto Protocol <u>and</u> is this stated in the LoA?	UNFCCC CDM rules. /P03/ /B01/	DR	Same as above	CAR-01	OK

¹¹ MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

<p>1.3 Is every LoA from the Parties involved issued by an organisation listed as Designated National Authority (DNA) on the UNFCCC web site? <i>Indicate the official name of the DNA and contact person name.</i></p>	<p>UNFCCC CDM rules /I-01/ /P03/ /B05/</p>	<p>DR, I</p>	<p>Same as above</p>	<p>CAR-01</p>	<p>OK</p>
<p>1.4 Is the participation in the CDM project activity voluntary <u>and</u> is this stated in all LoAs? <i>Indicate the source of proof.</i></p>	<p>UNFCCC CDM rules. /P03/ /B05/</p>	<p>DR</p>	<p>Same as above</p>	<p>CAR-01</p>	<p>OK</p>
<p>1.5 Is the LoA unconditional with respect to 1.2 to 1.4?</p>	<p>UNFCCC CDM rules. /P03/ /B05/</p>	<p>DR</p>	<p>Same as above</p>	<p>CAR-01</p>	<p>OK</p>
<p>1.6 Is the title of the CDM project activity as given in the PDD identical with the title given in all LoAs and Modalities of Communication? <i>Provide Yes/No answer, and include details into Tables 2, 3 and 4 accordingly.</i></p>	<p>UNFCCC CDM rules. /P03/ /P04/ /B05/</p>	<p>DR</p>	<p>Same as above</p>	<p>CAR-01</p>	<p>OK</p>
<p>1.7 If any of provided LoAs contains additional specification of the CDM project activity (PDD version number, validation report version number, amount of ER, etc.) are those specifications valid and consistent with other documents?</p>	<p>UNFCCC CDM rules. /P03/ /B05/</p>	<p>DR</p>	<p>Same as above</p>	<p>CAR-01</p>	<p>OK</p>

1.8	Does the project activity involve any public funding from Annex I Parties? <u>If yes</u> , has Annex I Party provided a written confirmation that the use of such funding does not lead to the diversion of the official development assistance.	/P21/ /I-01/	DR, I	There is no Annex I party involved in the project activity.	OK	OK
2. Participation (VVS Section 7.6, 7.7 & 7.8)						
2.1	Are the Parties and project participants (PP) listed in the section A.3 of the PDD correctly <u>and</u> is this information consistent with the contact details provided in Annex 1 of the PDD?	PDD (A.3, Annex 1), /P03/	DR	Yes, the parties and project participants (PP) are listed correctly in the section A.3 of the PDD and the information is consistent with the contact details provided in Annex 1 of the PDD.	OK	OK
2.2	Has every Party involved approved the participation of each corresponding PP, either by means of a LoA or by a separate written document? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i>	PDD /P03/ /I-01/	DR, I	Refer section 1.1 above.	CAR-01	OK
2.3	Do all participating Parties fulfil the participation requirements as follows: a) Party has ratified the Kyoto Protocol b) Party has designated a Designated National Authority c) The assigned amount has been determined	PDD /P03/ /I-01/	DR, I	Refer section 1.1 above.	CAR-01	OK

<p>2.4 Do the letters of approval meet the following requirements?</p> <p>a) LoA confirms that Party has ratified the Kyoto Protocol</p> <p>b) LoA confirms that participation is voluntary</p> <p>c) The LoA confirms that the project contributes to the sustainable development of the host country?</p> <p>d) The LoA refers to the precise project activity title in the PDD</p> <p><i>In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic</i></p>	PDD /P03/ /I-01/	DR, I	Refer section 1.1 above.	CAR-01	OK
3. Project Design Document (VVS Section 7.10)					
<p>3.1 Is the PDD presented for validation based on the latest template available at the UNFCCC website?</p> <p><i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i></p>	PDD /B05/	DR	Yes, the PDD presented for validation is based on the latest template available at the UNFCCC website i.e., CDM-SSC-PDD – Version 03	OK	OK
<p>3.2 Has the PDD been established in accordance with the CDM requirements for completing PDDs issued by the CDM EB?</p>	PDD /B07/	DR	<p>The PDD has been established in accordance with the CDM requirements for completing PDD issued by the CDM EB.</p> <p>Certain correction were required and hence CL-01, CL-02, CL-03 and CL-04 is raised</p>	CL-01 CL-02 CL-03 CL-04	OK
4. Project Description (VVS Section 7.11)					

<p>4.1 Does the PDD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?</p> <p>4.1b) Is the description (incl. any process flow-charts, Spreadsheets etc.) complete, coherent and consistent with the provisions of the monitoring plan?</p> <p>4.1c) Is the project's location clearly defined?</p>	<p>PDD /P07/ /P11/ /P16/ /P19/ /B06/ /I-01/, /I-02/</p>	<p>DR, I</p>	<p>The PDD contains a description of project activity and its technical aspects. However, it needs to be clarified by the PP if the project activity consists of constructing a new reservoir CL-01 has been raised</p>	<p>CAR-03, CL-01, CL-04, CL-05</p>	<p>OK</p>
<p>4.2 In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals? <i>Provide Yes/No answer and indicate the documents which have been reviewed in relation to the issue.</i></p>	<p>PDD /P07/ /P11/ /P16/ /P19/ /B06/ /I-01/, /I-02/</p>	<p>DR, I</p>	<p>Yes, The project activity is a green field project and the PP has given specifications of the key equipments and design parameters of the project in the PDD.</p>	<p>OK</p>	<p>OK</p>
<p>4.3 Does the project activity reflects current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country? <i>Provide the description of how validation has been carried out and what comparisons have been made.</i></p>	<p>PDD (A.2 and A.4.2) /P16/ /I-02/</p>	<p>DR, I</p>	<p>The PP has employed horizontal Francis turbines which uses state of art technology for generation of electricity. The chosen technology result in a significantly better performance than other fossil fuel based power grid connected power plants, which are commonly used in the host country. Validation team has referred the host country current power generation practices and implementation status of current technology and found that the chosen technology reflects good practices and is a state of art technology.</p>	<p>OK</p>	<p>OK</p>

<p>4.4 In cases where the project activity involves the alteration of an existing installation or process, does the PDD provide a clear description of the differences between the project and the pre-project scenario?</p> <p><i>Please, provide Yes/Now answer and update Tables 2, 3 and 4 accordingly, if there is anything unclear in the provided description.</i></p>	PDD /I-01/	DR, I	No, the project is a Greenfield project activity. Hence it does not involve any alteration of an existing installation.	OK	OK
<p>4.5 What type is the project?</p> <p>i) Project in existing facility or utilizing existing equipment(s)</p> <p>ii) Project is either a large scale project or a non-bundled small scale project with emission reductions exceeding 15 000 tCO₂e per year. In this case, a site visit must be performed.</p> <p>iii) Project is a bundled small scale project, with each project in the bundle with emission reductions not exceeding 15,000 tCO₂e per year. In such case the number of physical site visits may be based on sampling, if the sampling size is appropriately justified through statistical analysis.</p> <p>iv) The project is an individual small scale project activity with emission reductions not exceeding 15 000 tCO₂e per year. In this case, DOE may not conduct a physical site visit as appropriate.</p> <p>v) Greenfield project</p>	PDD /I-01/	DR, I	<p>i. This is a green field project activity.</p> <p>ii. Yes, This is a non bundled small scale project activity with emission reductions not exceeding 15000 tCO₂e per year. Site Visit has been conducted.</p> <p>iii. This is a non bundled small scale project.</p> <p>iv. This is a small scale project activity with emission reductions exceeding 15000 tCO₂e per. Site has been conducted.</p> <p>v. It is a green field project activity.</p>	OK	OK
<p>4.6 How was the design of the project assessed?</p> <p>i) Physical site inspection</p> <p>ii) Reviewing available designs and feasibility studies</p> <p><i>If a physical site inspection is not undertaken, justify why no site visit was undertaken:</i></p>	PDD /I-01/	DR, I	The project is a Greenfield project activity. Physical site visit has been conducted to confirm the design and same has been cross-checked with the technical specification submitted by PP.	OK	OK

4.7 Does the project qualify as a small scale CDM project activity as defined in paragraph 6(c) of decision 17/CP.7 on the modalities and procedures for the CDM?	PDD /I-01/	DR, I	The project is a small scale CDM project activity of capacity 10 MW. This is less than 15 MW, which is the maximum capacity for SSC projects as per the paragraph 6(c) of decision 17/CP.7 on the modalities and procedures for the CDM	OK	OK
<p>4.8 Is the small scale project activity a debundled component of a larger project activity in accordance with the rules defined in appendix C of the simplified modalities and procedures for small-scale CDM project activities?</p> <p><i>A proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:</i></p> <p><i>(a) With the same project participants;</i></p> <p><i>(b) In the same project category and technology/measure; and</i></p> <p><i>(c) Registered within the previous 2 years; and</i></p> <p><i>(d) Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.</i></p>	PDD /I-01/	DR, I	<p>Yes, PP has demonstrated the occurrence of debundling as per the “GUIDELINES ON ASSESSMENT OF DEBUNDLING FOR SSC PROJECT ACTIVITIES,”(Version 3.1) in section A.4.5 of the PDD.</p> <p>Validation team also cross checked with the DNA and UNFCCC and found there is no registered or on going CDM projects with the same project participant in the project region.</p>	OK	OK
5. Baseline and Monitoring methodology(VVS Section 7.12)					
5.1 General requirements (VVS Section 7.12.1)					
<p>5.1.1 Is the methodology used in the project activity approved by the CDM EB <u>and</u> is the selected version still valid?</p> <p><i>If during the course of validation the originally applied version of the methodology expires, a CAR shall be raised in Table 3 of the validation protocol. Any new requirements of the revised version of the methodology not yet validated in Table 2 of the validation protocol shall be validated in Table 3 as part of the assessment of the CAR raised.</i></p>	UNFCCC website, PDD /B02/	DR	Yes, PP has used the Approved Small Scale CDM methodology AMS ID version 17. which is available and valid at the time of validation.	Ok	OK

5.2 Applicability of the selected methodology (VVS Section 7.12.2)					
<p>5.2.1 Does the project activity qualify under the criteria for small-scale CDM project activities set out in § 6 (c) of decision 17/CP.7 and Annex II of the Modalities and Procedures for the CDM?</p> <p><i>Please provide Yes/No response and description of how this was validated.</i></p> <p><i>In case of calculated emission reductions varying over time, SSC-applicability limits must be met for every single year in any of the max. 3 subsequent crediting periods.</i></p> <p>5.2.1a) If the project applies a small-scale methodology, does the project also comply with the general guidelines to SSC CDM methodologies, which provides guidelines on equipment capacity, equipment performance/lifetime, baseline identification for type-II/III Greenfield project activities, sampling and other monitoring-related issues?</p>	<p>UNFCCC website, PDD (B.2) /B05/ /I-01/</p>	<p>DR, I</p>	<p>Yes. The renewable electrical generation capacity of the project activity is 10 MW which is below the qualifying limit of 15 MW as outlined in § 28 of Decision 1/CMP.2.</p>	<p>OK</p>	<p>OK</p>
<p>5.2.1.1 If yes, does the PDD extensively demonstrates and confirms that the small-scale project activity is not a debundled component of a larger project?</p> <p><i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures taken and data found during the procedure. Otherwise amend the Tables 2, 3 and 4 accordingly.</i></p>	<p>PDD(A.4.5) /B06/ /I-01/</p>	<p>DR, I</p>	<p>The PDD does demonstrate and confirm that this given small scale project activity is not a de-bundled component of larger project. Based on the onsite interview and background investigation through web research it can be concluded that this is the only project by the host project participants intending for CDM registration through validation.</p>	<p>OK</p>	<p>OK</p>

<p>5.2.2 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures. Otherwise amend the Tables 2, 3 and 4 accordingly.</i></p>	<p>UNFCCC website, PDD /B02/ /B03/ /I-02/</p>	<p>DR, I</p>	<p>Yes, The Project activity satisfies all the applicability conditions of the selected methodology AMS ID ver 17 and Tool to calculate the emission factor for an electricity system. Ver 2.2.1</p>	<p>Ok</p>	<p>OK</p>
<p>5.2.3 Is the selection of the applied baseline and monitoring methodology justified?</p>	<p>UNFCCC website, PDD /B02/</p>	<p>DR</p>	<p>Yes, AMS ID version 17 is applied and all the relevant applicability conditions are explained in the PDD for its application.</p>	<p>OK</p>	<p>OK</p>
<p>5.2.4 Is the selected methodology correctly quoted in all related documents?</p>	<p>UNFCCC website, PDD</p>	<p>DR</p>	<p>Yes</p>	<p>OK</p>	<p>OK</p>
<p>5.2.5 Does the PDD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? <i>Provide Yes/No answer. Indicate the sources or sinks of GHG, which were proved to be negligible. Otherwise amend the Tables 2, 3 and 4 accordingly.</i></p>	<p>PDD(B.3), Meth(/B02/) /I-01/</p>	<p>DR,I</p>	<p>The GHG emissions which are not accounted by the applied methodology within project boundary of the project activity during the implementation phase are not foreseen. Hence it is expected < 1 % of estimated annual CERs.</p> <p>The project is a renewable energy project and the only source of Baseline GHG emission is CO₂ at the grid. This is been accounted.</p> <p>The Project activity involves the operation of DG set hence the only source of Project GHG emission is CO₂. However the same has not been adequately described in the PDD. Thus CAR 05 has been raised in this context</p>	<p>CAR-05</p>	<p>OK</p>
<p>5.3 Project boundary(VVS Section 7.12.5)</p>					

5.3.1 Does the PDD correctly describe the project boundary? Are they clearly defined and in accordance with the methodology? <i>Provide Yes/No answer. And amend the Tables 2, 3 and 4, if needed.</i>	PDD (B.3) /B02/	DR	The section B.3 of PDD describes the project boundary correctly.	OK	OK
5.3.2 Does the PDD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	-	-	This section is not applicable for small-scale project as per PDD filling guidelines and the applied methodology.	OK	OK
5.3.3 In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, is the choice explained and justified by PPs?	-	-	This section is not applicable for small-scale project as per PDD filling guidelines and the applied methodology.	OK	OK
5.3.4 Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?	-	-	This section is not applicable for small-scale project as per PDD filling guidelines and the applied methodology.	OK	OK
5.4 Baseline identification(VVS Section 7.12.6)					
5.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the PDD?	PDD (B.4) /B02/	DR	Yes, Baseline for the project activity is In the absence of the project activity the equivalent amount of electricity would have been generated by the operation of existing/proposed grid connected power plants that are predominantly GHG intensive Thermal power plants.	Ok	OK
5.4.1.1 Is the identified baseline scenario plausible?	PDD (B.4, B.5) /B02/	DR	The most likely baseline scenario will be continuation of current scenario i.e. the additional power is supplied by current generating stations / and or new stations coming up in the grid which are mainly fossil fuel dependent.	Ok	OK

5.4.1.2 Are all assumptions stated in a transparent and conservative manner?	PDD /B02/	DR	The assumptions are stated in a transparent and conservative manner.	OK	OK
5.4.2 Does the selected methodology require the use of tools <u>and</u> does PDD reflects that correctly?	UNFCCC website, PDD /B02/ /B03/	DR	Yes, Methodology suggests use of Tool to calculate emission factor for an electricity system. PP has chosen the same and demonstrated in the PDD.	Ok	OK
5.4.2.1 Were all the tools applied correctly?	UNFCCC website, PDD /B02/ /B03/	DR	Same as above	OK	OK
5.4.3 In case the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, have all scenarios been considered <u>and</u> have no reasonable alternative scenario been excluded?	UNFCCC website, PDD /B02/	DR	Methodology suggests single baseline scenario i.e., equivalent amount of electricity would have been otherwise generated from the grid connected fossil fuel based power plants. PP has considered the baseline as per the methodology.	Ok	OK
5.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	PDD (B.4) /B02/	DR	Baseline has been chosen as per the paragraph 10 of the baseline methodology AMS-I.D Ver 17.	Ok	OK
5.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the PDD and other reference sources?	PDD (B.4) /B02/	DR	Yes, The identified baseline scenario is reasonable according to the PDD and all other reference sources.	Ok	OK
5.4.5 Does the PDD describe how the national and sectoral policies, macro-economic trends and political aspirations relevant to the baseline scenario have been identified and considered in the PDD?	PDD (B.5) /B05/	DR	No, Since the baseline scenario is most plausible as per the selected baseline methodology this is not required for the project activity.	Ok	OK

5.4.6 Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the project activity?	PDD (B.4) /B02/	DR	Yes, PDD provides a clear and verifiable description of the identified baseline scenario and activities that would take place in the absence of the project activity.	Ok	OK
5.5 Algorithm and/or formulae used to determine emission reductions(VVS Section 7.12.7)					
5.5.1 a) Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner to calculate emission reductions from the project activity? 5.5.1b) Are correct units applied and consistency between parameter dimensions and parameter value ensured? <i>See also Question 4.1.b) with respect to consistency of parameter values between calculation spreadsheets and PDD.</i>	PDD (B.6.1, B.6.3) /B02/	DR	Yes,all calculations applied according to the selected baseline methodology and in a complete and transparent manner. However PP needs to non-applicability of leakage as per the requirement of the applied methodology. CL-07 has been raised in this context	CL-7	OK
5.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?	PDD (B.6.1, B.6.3) /B02/	DR	Yes, The methodology allows PP two options for the selection emission factor for the baseline emission factor. PP has chosen the A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the “Tool to calculate the Emission Factor for an electricity system”	OK	OK

<p>5.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed CDM project activity and conservative?</p>	<p>PDD (B.6.2, Annex 3)</p>	<p>DR</p>	<p>Yes, PP has chosen ex ante option for Operating Margin Emission Factor $EF_{OM,grid,y}$, Build Margin Emission Factor $EF_{BM,grid,y}$, Combined Margin emission factor $EF_{CO2,grid,y}$, which will be fixed and not monitored through out the crediting period. The Combined Margin Emission Factor is calculated using the CEA data.</p> <p>All the assumptions, data sources and calculations were correctly applied and conservative.</p> <p>How ever CL-06 is raised in this context.</p>	<p>CL-06</p>	<p>OK</p>
<p>5.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters reasonable?</p>	<p>PDD (B.6.3, B.7.1)</p>	<p>DR</p>	<p>Yes, Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity will be determined after implementation of the project activity. PP has estimated 42.5% PLF with 0.5% Auxiliary, 0.5% Transformations, 3% Transmission and 1.5% Grid outage losses from 42.5% which is found feasible based on the given PLF at the project region.</p>	<p>Ok</p>	<p>OK</p>
<p>5.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the PDD?</p>	<p>PDD(B.6.3, B.7.1) /B03/</p>	<p>DR</p>	<p>The emission reduction for this type of project activity is equal to baseline emission, which is the direct product of expected electricity generation and grid emission factor. As grid emission factor is fixed, the electricity is the only variable having certain degree of uncertainty. CL 08 has been raised in this regard.</p>	<p>CL-08</p>	<p>OK</p>

5.5.6 Are the calculations documented according to the approved methodology and in a complete and transparent manner in calculating the project emissions? Have conservative assumptions been used when calculating the project emissions?	PDD(B.6.3, B.7.1) /B03/	DR	During the site visit it has been confirmed that DG set will be used in the project activity during emergency purposes. However the same has not been detailed in the PDD. CAR 05 has been raised in this regard.	OK	OK
5.5.7 Are uncertainties in the project emission estimates properly addressed?	PDD(B.6.3, B.7.1) /B03/	DR	During the site visit it has been confirmed that DG set will be used in the project activity during emergency purposes. However the same has not been detailed in the PDD. CAR 05 has been raised in this regard.	CAR-05	OK
5.6 Leakage					
5.6.1 Has the leakage been identified and calculated according to the approved methodology?	PDD /B02/	DR	Not applicable for this project activity as this is a Greenfield project and there is no transfer of equipment from another activity. However the same has not been explained clearly in the PDD. Thus CL 07 has been raised in this regard.	CL-07	OK
5.6.2 Have the leakage been addressed in complete, conservative and substantiated manner?	PDD /B02/	DR	Same as above	CL-07	OK
5.6.3 Are uncertainties in the leakage emission estimates properly addressed?	PDD /B02/	DR	Same as above	CL-07	OK
6. Methodology-related issues for afforestation or reforestation CDM project activities					
Add specific A/R requirements – if applicable!			Not applicable for this CDM project activity	O.K.	O.K.
7. Additionality (VVS Section 7.12.8)					

7 a) What approach/tool does the project use to assess additionality? Is this in line with the methodology? In case of small-scale CDM project activities, is Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities applied considering also the “Non-binding best practice examples to demonstrate additionality for SSC project activities”.	PDD(B.5)	DR	Project is a small scale CDM project activity and has followed the “Guidelines On The Demonstration Of Additionality Of Small-Scale Project Activities”, Version 09, Annex 27, EB 68 to demonstrate the additionality.	OK	OK
7 b) Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives? Is sufficient evidence provided to support the relevance of the arguments made?	PDD(B.5)	DR	Yes, all regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives	OK	OK
7 c) What is the project additionality mainly based on (Investment analysis or barrier analysis)?	PDD(B.5)	DR	Project additionality is based on Investment analysis	OK	OK
7.1 Prior consideration of the CDM (VVS Section 7.12.9)					
7.1.1 Is there documented evidence provided by the project participants on how and when the decision to proceed with the project activity was taken?	PDD /P10/ /I-01/	DR, I	Documents are requested from the PP and also to update the chronology of CDM events on the PDD. CAR 04 has been raised in this regard.	CAR-04	OK
7.1.2 Is the starting date of the project activity, reported in the PDD, in accordance with the “Glossary of CDM terms” and CDM VVS (§99)? <i>Note: Confirm the starting date indicated in C.1. is consistent within the PDD, in particular with respect to the project implementation history.</i>	PDD /P06/ /B05/ /I-01/	DR, I	The start date of the project activity is not in conformity with Glossary of CDM terms and CDM VVS as the same doesn't represent the earliest real action by the PP. Hence CL 05 is raised in this regard	CL-05	OK
7.1.3 Is the date stated in the provided evidence consistent with other available evidence (e.g. dates of construction, purchase orders for equipment)?	PDD /P06/ /B05/ /I-01/	DR, I	Yes, the start date is consistent with the evidence, viz., PO for hydromechanical works.	OK	OK

<p>7.1.4 If the project was not published and the starting date is on or after 2nd August 2008, was it possible to receive from UNFCCC secretariat and DNA a written confirmation that PPs previously informed the above entities on commencement of the project activity and of their intention to seek CDM status?</p> <p><i>Note: in case where PP has only informed DNA or UNFCCC, check if the project start date was under the first version of the “prior consideration of the CDM guidelines”</i></p>	PDD /P06/ /P10/	DR	<p>The start date of the project activity is before 2nd August 2008.</p> <p>CAR 04 is raised for The PP to evidence the seriousness and their intention of seeking for CDM.</p>	CAR-04	OK
<p>7.1.5 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were previously aware of CDM?</p>	PDD /B05/	DR	Same as above	CAR-04	OK
<p>7.1.6 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that CDM benefits have been a decisive factor in the decision to proceed with the project activity?</p>	PDD /B05/	DR	Same as above.	CAR-04	OK
<p>7.1.7 Does the individual or body that took the decision to proceed with the project activity have/had the authority to do so?</p>	PDD /P10/ /I-01/	DR, I	The individuals who had taken the decisions to proceed with the project activity have the authority to do so.	OK	OK
<p>7.1.8 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were taking continuing and real actions to secure CDM status for the project in parallel with its implementation?</p>	PDD /P06/ /P10/ /B05/	DR	Same as section 7.1.4	CAR-04	OK

7.1.9 In case there is a significant gap between the start date of the project activity and the commencement of validation, how was it possible for the project participant to commit funds to the project in advance of receiving a positive validation opinion?	PDD /P06/ /P10/ /B05/	DR	The project start date is stated to be 15/01/2007 and the validation commenced in February 2011. In this context, CL-05 has been raised.	CL-05	OK
7.1.10 How has the starting date of the project activity been determined? What are the dates of the first contracts for the project activity? When was the first construction activity?	PDD /P06/ /B05/ /I-01/	DR, I	The start date is determined with the contract for electro mechanical works.	CL-05	OK
7.1.11 Is the stated expected operational lifetime of the project activity reasonable?	PDD /B05/ /I-01/	DR, I	Operational lifetime of the project is considered as 25 years. CL 05 has been raised in this regard.	CL-05	OK
7.1.12 Is the crediting period start date, the type (renewable/fixed) and the length of the crediting period clearly defined and reasonable?	PDD	DR	Yes all are clearly defined in section C.1 and C.2 of PDD.	CL-05	OK
7.2 Identification of alternatives (VVS Section 7.12.10)					
7.2.1 Does the PDD identify and list credible alternatives to the CDM project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?			Methodology specified electricity generated from the regional grid as the baseline scenario. So no further analysis required to determine the baseline scenario.	Ok	OK
7.2.2 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a CDM project activity?			This section is not applicable for small-scale project as per PDD filling guidelines and the applied methodology.	Ok	OK

<p>7.2.3 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity?</p> <p><i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i></p>			<p>This section is not applicable for small-scale project as per PDD filling guidelines and the applied methodology.</p>	Ok	OK
<p>7.2.4 Is the exclusion of the alternatives for legal reasons justified?</p> <p><i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i></p>			<p>This section is not applicable for small-scale project as per PDD filling guidelines and the applied methodology.</p>	Ok	OK
<p>7.3 Investment Analysis (VVS Section 7.12.11)</p>					
<p>7.3.1 Are all sources of revenues (including savings) have been considered in the PDD and all calculations?</p>	PDD(B.5) /P09/ /B05/	DR	<p>Yes, All revenues have been considered for the investment analysis.</p>	OK	OK
<p>7.3.2 Is the type of investment analysis selected correctly in the PDD? Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?</p>	PDD(B.5) /P09/ /B05/	DR	<p>PP has selected Investment barrier analysis for demonstration of additionality. As per Guidelines on investment analysis Annex 05 EB 62 PP has chosen Benchmark analysis to prove the additionality. Project IRR has been chosen to determine the viability of the project to service debt. WACC has been chosen as benchmark. However CAR 04 has been raised in this regard.</p>	CAR-04	OK
<p>7.3.3 Is the selected financial indicator chosen and applied correctly? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence with the benchmark?</p>	PDD(B.5) /P09/ /B05/	DR	<p>Yes, Project IRR is projected in the PDD as financial indicator to demonstrate additionality. The computation of project IRR conforms to the guidance given by EB vide Annex 05, EB 62. However CAR-04 have been raised.</p>	CAR-04	OK

<p>7.3.4 Is the guidance on IRR calculation and assessment correctly applied?</p> <p><i>Note: Means of validation should be recorded. All input parameters need to be assessed and if possible compared with the input parameters applied by similar project activities. Special procedure (ICP-5-8-CDMJI-g2) applies for validation of input data derived from FSR/PDR or other governmentally approved project-specific study. A similar approach should also be taken for other project types. In case the validation team is not able to cross-check information with other similar projects activities for one or several of the input parameters, due to limited number of registered CDM projects being available, the team is required to determine and describe other information sources that are used by the validation team to make an assessment of the reasonableness of the respective input parameter.</i></p>	PDD(B.5) /P09/ /B05/	DR	<p>Yes, the guidance on IRR calculation has been applied correctly.</p> <p>However, in this context CAR-04 and CL-05 has been raised.</p>	CAR-04 CL-05	OK
<p>7.3.5 In case project participants use values from Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?</p>	PDD(B.5) /P09/ /B05/	DR	<p>Input values are based on the Detailed Project Report. The DPR has been submitted to the board of BPCL and the investment decision was made on the same. The time gap is less than a month between DPR and Board decision. Thus the period between the FSR date and the investment decision date was reasonably short and the FSR values did not change materially.</p> <p>However, CAR-04 is been raised</p>	CAR-04	OK
<p>7.3.6 Are all the values consistent between FSR and PDD <u>and</u> are inconsistencies properly justified?</p>	PDD(B.5) /P09/ /B05/	DR	<p>All the input values are consistent in the IRR spreadsheet and the DPR. However CAR 04 and CL 05 has been raised in this regard.</p>	CAR-04 CL-05	OK

7.3.7 Were all the values from FSR applicable and valid at the time of the investment decision?	PDD(B.5) /P09/ /B05/	DR	The values from DPR were applicable and valid at the time of investment decision.	OK	OK
7.3.8 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants or some verifiable circumstances that have lead to a change in the benchmark?	PDD(B.5) /P09/ /B05/	DR	Since the IRR without CDM benefits is lower than the benchmark, it could be reasonably assumed that the investment would not have been made at a return lower than the benchmark. However, in this context, CL 05 have been raised.	CL-05	OK
7.3.9 Is the Investment Analysis prepared in compliance with the latest version of the “Guidance on the Assessment of Investment Analysis” as provided by the CDM EB?	PDD(B.5) /P09/ /B05/	DR	Yes, the investment analysis prepared is in compliance with the latest version of the “Guidance on the Assessment of Investment Analysis”. However, in this context CAR-04 and CL 05 have been raised.	CAR-04 CL-05	OK
7.3.10 Do the project include all the data sources used (input & output / loss & profit) and list all the projects that have been used for cross-checking in accordance with VVS paragraph 95. Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the host country? Has salvage value been taken into account? Is working capital returned in the last year of operation? How are the PLF of the project assessed? How are output price assessed? How are O&M cost assessed?	PDD(B.5) /P09/ /B05/	DR	Project has not included the all data sources which is been used for input parameters. Hence CAR 04 has been raised in this account. As the investment analysis has been done for the entire project lifetime, the salvage value has been provided in the terminal year. However the salvage value accounts only for the terminal value, thus CAR 04 has been raised in this regard. Depreciation is considered in the Income Tax calculation however the CL 05 has been raised to provide the source of the depreciation.	CAR-04 CL-05	OK

<p>7.3.11 Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation between the parameters been considered?</p> <p>Is the range of variations (10% in default) is reasonable in the project context?</p> <p>Have the key parameters been vary to reach or cross the benchmark and have the likelihood of this to happen been justified?</p>	<p>PDD(B.5) /P09/ /B05/</p>	<p>DR</p>	<p>The PDD and related spreadsheet contain sensitivity analysis and they contain variation in parameters which may vary throughout the project life time. Generation, project cost and tariff has been subjected to a 10% variation on the negative and the positive side; O&M cost has been subjected to 10% variation on either side as well. The sensitivity analysis and the variation is in conformity with guidance of Annex 05, EB 62.</p> <p>However PP has to shown the variation of key parameters on which they IRR will cross the benchmark also unlikelihood of this to happen been justified. CAR 04 has been raised in this regard</p>	<p>CAR-04</p>	<p>OK</p>
<p>7.4 Barrier analysis (VVS Section 7.12.12)</p>					
<p>7.4.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis?</p>	<p>-</p>	<p>-</p>	<p>Project participant has not used barrier analysis. Since it is a small scale project and the additionality has been demonstrated through investment analysis, barrier analysis is not required.</p>	<p>N/A</p>	<p>-</p>
<p>7.4.2 Do the listed barriers exist <u>and</u> is their existence substantiated?</p> <p><i>Note:</i></p> <p><i>(a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or</i></p> <p><i>(b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?</i></p>	<p>-</p>	<p>-</p>	<p>Project participant has not used barrier analysis. Since it is a small scale project and the additionality has been demonstrated through investment analysis, barrier analysis is not required.</p>	<p>N/A</p>	<p>-</p>

7.4.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?	-	-	Project participant has not used barrier analysis. Since it is a small scale project and the additionality has been demonstrated through investment analysis, barrier analysis is not required.	N/A	-
7.5 Common practice analysis (VVS Section 7.12.13)					
7.5.1 If the PPs claim in the PDD that CDM project activity is the “first of its kind”, is it justified?	-	-	Project Participant has not claimed ‘first-of-its-kind’ barrier. Hence, this question is not applicable	N/A	-
7.5.2 Are the geographical boundaries of the project activity identified correctly?	-	-	Project participant has not used common practice analysis. Hence, this question is not applicable	N/A	-
7.5.3 Does the PDD provide an explanation why this region was selected and deemed more appropriate <u>and</u> is this explanation traceable and reliable?	-	-	Project participant has not used common practice analysis. Hence, this question is not applicable	N/A	-
7.5.4 Are there similar operational project activities, other than CDM activities, “widely observed and commonly carried out” in the defined region? <i>Note: Use official sources and local and industry expertise.</i>	-	-	Project participant has not used common practice analysis. Hence, this question is not applicable	N/A	-
7.5.5 In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?	-	-	Project participant has not used common practice analysis. Hence, this question is not applicable	N/A	-
8. Monitoring plan (VVS Section 7.12.14)					

<p>8.1 Are all parameters required by the selected approved methodology or tool identified <u>and</u> listed in the PDD? Note: not all methodologies indicate monitoring parameters in tabular form or by reference to the variables used in formulae; Nonetheless, all parameters indicated in the methodology and applicable to the project must be listed in the PDD, omissions due to non-applicability be justified.</p>	PDD /B02/	DR	Net electricity supplied to grid (export – import) is the identified parameter for the project activity in the monitoring plan. However, in this context, CL-08 is raised.	CL-08	OK
<p>8.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?</p> <p>Does the monitoring plan record data in the original form as generated, providing QA/QC procedures to be used on the measurement method?</p> <p><i>Note 1: if the measurement unit is different from the unit to be applied in the methodology, describe the actual measurement and any according conversion method to match the unit used in the methodology. Example: liquid fuels may be monitored as weight or volume. If measured as volume, the measurement method and equipment including the according unit (e.g., liter) shall be described in B.7.1, as well as the conversion into weight units as needed. Note 2: Data on invoices / delivery slips may be used for QA/QC purposes, but do not constitute an actual means of monitoring and thus cannot be applied as a source of data.</i></p>	PDD /B02/	DR	No the Section B.7.1 is not clear as per the requirement of the applied methodology. Hence CL-08 is raised.	CL-08	OK

8.3	Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools? See the NOTE in section 3.6.1 above!	PDD /B02/	DR	No CAR 05 has been raised in this regard.	CAR-05	OK
8.4	Is the measurement equipment for each parameter described and deemed appropriate? Are the locations of all measurement equipment clearly identified and consistently described, incl. process flow-charts contained in the PDD?	PDD /B02/	DR	Yes, the 0.2 class meters are used and are under the control of govt. Agency. These are calibrated once in a year.	OK	OK
8.5	Is the measurement accuracy addressed and deemed appropriate?	PDD /B02/	DR	Same as above.	OK	OK
8.6	Are procedures in place on how to deal with erroneous measurements <u>and</u> are the corrective actions identified?	PDD /B02/	DR	Same as above.	OK	OK
8.7	Is the frequency of measurement identified and deemed appropriate?	PDD /B02/	DR	Same as above	OK	OK
8.8	Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	PDD(B.7.1) /B02/ /B05/	DR	Same as above	OK	OK
8.9	Are the sampling, measurement methods and procedures defined?	PDD	DR	No measurements through sampling would take place.	OK	OK
8.10	Are procedures identified for maintenance of monitoring equipment and installations?	PDD	DR	Yes, procedures has been identified for maintenance of monitoring equipment and installations	OK	OK
8.11	Are the equipment calibration intervals identified and justified?	PDD (B.7.1)	DR	Yes, the calibration is done once in a year	OK	OK

8.12 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	PDD /I-02/	DR, I	The day-to-day procedure and record handling including storage area of records and how to process performance documentation is stated in the PDD for electricity.	OK	OK
8.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	PDD	DR	Yes, monitoring arrangements described in the monitoring plan is as per the project design However CL-08 has been raised	CL-08	OK
8.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	PDD (7.1, 7.2 and B.7.1) /B02/	DR	Yes. The reporting structure is well defined in the project PDD	OK	OK
8.15 Do the PPs make provisions for personnel training needs?	PDD(B.7.2) /P17/	DR	Yes, staff has been given training	OK	OK
8.16 Is the authority and responsibility of overall project management clearly described?	PDD /B05/ /I-01/	DR, I	Yes	OK	OK
8.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	PDD	DR	No emergencies are foreseen for this type of project activity.	OK	OK
8.18 Are procedures identified for review of reported results/data?	PDD (B.7.2)	DR	The procedure for review of monitored data is carried out through internal check.	OK	OK

8.19 Is the data archiving period for this project activity stated in the PDD and appropriate? <i>Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.</i>	PDD, /B02/, /B05/	DR	The data archiving period for this project activity is clearly stated in section B.7.1 of the PDD.	OK	OK
8.20 Is the monitoring parameters for all project emissions captured ?	PDD, /B02/, /B05/	DR	The parameter for the project emissions has not been described. Hence CL 08 has been raised in this regard.	CL-08	OK
8.21 Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	PDD, /B02/, /B05/	DR	The data archiving period for this project activity is clearly stated in section B.7.1 of the PDD.	OK	OK
8.22 Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	PDD, /B02/, /B05/	DR	Yes, section B.7.1 of the PDD explains the same.	OK	OK
8.2 Monitoring of the leakage					
8.2.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	PDD /B02/ /B05/	DR	NA for this project activity.	N/A	
8.2.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise shall also be considered.</i>	PDD /B02/ /B05/	DR	No, the non-applicability of leakage is not determined according to the meth. Hence CL-07 has been raised in this regard.	CL-07	OK
8.2.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?	PDD /B02/ /B05/	DR	NA for this project activity.	N/A	

9. Sustainable development (VVS Section 7.5)						
9.1	Does the LoA from the Host country DNA contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party?	/B06-b/	DR	LoA from the Host country DNA has not yet obtained. In this context, CAR-01 is raised.	CAR-01	OK
9.2	If PDD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	PDD(A.2)	DR	The view of the PP on the contribution of the project activity to sustainable development demonstrates the requirements under sustainable development criteria of host country in section A.2 of PDD. However, CL-02 is raised with respect to the mitigation measures planned/implemented to ensure wildlife habitat and fish migration by the PP	CL-02	OK
10. Stakeholders' consultation and comments (VVS Section 7.5 & 7.14)						
10.1	Were the stakeholders identified in appropriate and complete manner?	PDD /P12/ /I-01/	DR I	The identification of stakeholders was in appropriate and complete manner.	OK	OK
10.2	Are the identified stakeholders plausible?	PDD /P12/ /I-01/	DR, I	Yes, the identified stakeholders are plausible.	OK	OK
12.3	Does PDD describe the means being used to invite local stakeholder's comments?	PDD /P12/ /I-01/	DR, I	Yes, the PDD describe the means being used to invite local stakeholder's comments	OK	OK
12.4	Were those means appropriate?	PDD /P12/ /I-01/	DR, I	Yes, The means are appropriate which were also verified during site visit.	OK	OK

12.5 Was the project presented to the stakeholders in unbiased manner?	PDD /P12/ /I-01/	DR, I	Yes. The project presented to the stakeholders in unbiased manner.	OK	OK
12.6 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD /P12/ /I-01/	DR	The stakeholder consultation process is not required by regulations/laws in the host country for this type of project activity.	OK	OK
12.7 Is a summary of the stakeholder comments provided in the PDD?	PDD (E.2)	DR	Summary of the stakeholder comments has been provided in the PDD. However, CAR-10 is raised.	OK	OK
12.8 Has due account of any stakeholder comments been taken by PPs and reflected in the PDD?	PDD(E.3)	DR	Comments were received during the global stakeholder process for the project activity. All the queries of the local stakeholders were answered satisfactorily and the same has been reproduced in the section E.3 of the PDD.	OK	OK
11. Environmental impacts (VVS Section 7.13)					
11.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the PDD?	PDD /B06/	DR	As per the Ministry of Environment and Forests (Government of India) notification the project activity does not fall under the purview of the Environmental impact Assessment thus the project activity is exempted from the environmental clearances.	Ok	OK
11.2 Is an environmental impact assessment (EIA) required for the CDM project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	PDD	DR	Same as 11.1	Ok	OK

○ In case an EIA is required, has the EIA has been approved by local authorities and is the outcome accurately reflected in the PDD?	PDD	DR	Not applicable	-	-
11.4 Does the PDD include a brief description of the environmental effects of the project, including transboundary?	PDD /B06/	DR	Not applicable	-	-
11.5 Are those effects properly addressed in the design of the project activity?	PDD /B06/	DR	Not applicable	-	-
11.6 Does the project comply with environmental legislation in the host country?	PDD /B06/	DR	Yes	Ok	

Table 2: List of Requests for Corrective Action (CAR) and Clarification (CL)

Validation / Verification Standard

(25) The DOE shall raise a corrective action request (CAR) if one of the following occurs:

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

(26) The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

The wording of CAR/CL shall clearly address nonconformity or seek clarification, and avoid instructive / consultative language in order to prevent actual or perceived consultancy.

No.	CAR/CL	Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
1.	CL-01	The sub-station distance from the project site mentioned under Section A.3 of the PDD is incorrect.	PDD Sec A.3	The distance has been corrected.	Required change has been made in the PDD. CL-01 is thus closed.
2.	CL-02	The methodology name is missing. Also, the version no. of the Tool to calculate the emission factor for an electricity system is incorrect. Please correct the same throughout the PDD.	PDD Sec. B.1	Methodology name is now included. Version no. is also corrected.	Required changes have been made in the PDD. CL-02 is thus closed.
3.	CL-03	Project boundary diagram is required to be provided as per Annex 9 of EB66.	PDD Sec. B.3	Project boundary diagram is now included.	Required changes have been made in the PDD. CL-03 is thus closed.
4.	CL-04	The grid system mentioned is incorrect.	PDD Sec. B.4	Grid system corrected to NEWNE.	Required changes have been made in the PDD. CL-04 is thus closed.
No.	CAR/CL	Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
1.	CAR-01	LoA has not been submitted.	PDD Sec. F	LoA has been submitted to DOE.	The same was examined and found to be valid. CAR-01 is thus closed.
2.	CAR-02	The calculation of OM is incorrect. PP is requested to correct the same and revise relevant sections of the PDD accordingly. Also, only the	PDD Sec. B.4	OM calculation corrected. Section B.4 & B.6.1 has been revised.	Required changes have been made in the PDD.

		description of baseline scenario is required to be provided under Section B.4. Estimation of Baseline, Project & Leakage emission must be provided under Section B.6.1.			CAR-02 is thus closed.
3.	CAR-03	As the Start date of project activity is 15/01/2007 which is before 2nd August 2008, PP is required to provide a detailed chronology of events to demonstrate serious consideration of CDM as per Annex 13, EB 62. Please also correct the crediting period as the same is invalid.	PDD Sec. B.5	Chronology of events is now included.	Required changes have been made in the PDD. CAR-03 is thus closed.
4.	CAR-04	Description provided for project emissions is incorrect. Please correct the same.	PDD Sec. B.6.1	Project emission calculated.	Required changes have been made in the PDD. CAR-04 is thus closed.
5.	CAR-05	<ol style="list-style-type: none"> 1. Please specify the UOM in which the values are expressed in all the work sheets. 2. All the values given in work sheets shall be uniformly rounded off to nearest two decimals. 3. The Emission reduction given in PDD is 0.843 t Co2e / MWh whereas in the IRR workings, the Emission reduction considered is 0.856 t Co2e/ MWh. Please clarify. 4. The benchmark chosen as per PDD is WACC of 12.78%. But as per workings it is 14.47%. Please clarify with workings. 5. As per guidance 13 of Guidelines on the assessment of Investment Analysis (EB62, Annex5, ver 5.0) , the benchmark should be based on the parameters that are standard in the market. But Cost of debt is considered @10% being the rate applicable to the loan taken by PP. Please clarify. 6. Cell E7 needs to be corrected. 7. Is the same rate of depreciation of 5.28% applicable to all the assets under the Companies 	IRR spread sheet	<ol style="list-style-type: none"> 1. UOM of values now provided. 2. Values rounded off to two decimals. 3. ER corrected to 0.843. 4. Benchmark is corrected to 12.72%. 5. Rate of interest is now corrected. 6. Cell E7 corrected. 7. Civil work has been treated as plant. 8. MNRE subsidy will be directly paid to the lenders. PP has term loan shown in the repayment schedule. 9. Repayment corrected. <p>Relevant section of the PDD has been revised. Revised spread sheet submitted to DOE.</p>	Justification provided is convincing and acceptable to the validation team. The workings have been revised and the same has been verified and found to be correct/appropriate. CAR-05 is thus closed.

		Act,1956? Please clarify. 8. Evidence is required for MNRE capital subsidy. When and how the MNRE subsidy will be paid? 9. The total repayment exceeds the term loan for the project. Please clarify.			
6.	CAR-06	<p>Interest and Repayment Worksheet:</p> <p>1. In cell C10, the formula is not correct. To rectify. 2. The calculation of interest on average of balances of term loan outstanding is not correct. 3. Capital subsidy is assumed to be received in third year. What is the basis? Please clarify. 4. The repayment schedule shows a closing balance of Rs.27.25 million at the end of the term loan period which is not correct. Please clarify.</p> <p>IRR worksheet:</p> <p>5. Formula in Cells F20 to X20 appears to be wrong. Instead of linking to Assumption\$36, the cell assumption \$34 is linked. Please clarify. 6. Depreciation on all the assets for the purposes of books has been calculated @5.28% on SLM as per Companies Act, 1956. Is the same rate of depreciation applicable for all the assets? Please clarify. 7. In case if the project IRR is chosen as the financial indicator to establish additionality, Guidance 11 of Guidelines on the assessment of Investment Analysis (EB62, Annex 5, Ver.5.0) has recommended the use of pretax Project IRR.</p>	IRR spread sheet	<p>1. Formula corrected. 2. Calculation of interest is on average of balances of term loan outstanding is conservative. 3. PP will be eligible for the subsidy only after MNRE verifies the performance of the project. 4. Repayment schedule corrected. 5. Cells F20 to X20 coorrected. 6. PP has clarified that civil work is treated as plant. It is within the accepted accounting practices. 7. PP has chosen post tax project IRR as the financial indicator. PP has chosen the post tax WACC as the bench mark. It is appropriate to the financial indicator chosen. 8. Working corrected. 9. Working corrected. 10. Corrected. 11. Breaching values have been provided. 12. Corrected.</p> <p>Relevant section of the PDD has been revised. Revised spread sheet submitted to DOE.</p>	<p>Justification provided is convincing and acceptable to the validation team. The workings have been revised and the same has been verified and found to be correct/appropriate.</p> <p>CAR-06 is thus closed.</p>

		<p>The PP may calculate pretax project IRR.</p> <p>8. In cashflow statement MNRE subsidy of Rs.20.00 million has been shown as inflow. What are the terms and conditions of MNRE subsidy and how will it be disbursed to the PP? Please clarify.</p> <p>9. Claim for deduction under section 80IA of the Income tax Act,1961 is not in accordance with the provisions of that specific section. Please clarify.</p> <p>Sensitivity Worksheet:</p> <p>10. When the project cost is increased or decreased by 10%, there is no change in individual costs of assets, depreciable cost of assets, depreciation under companies act, depreciation under Income tax Act, 1961 and salvage value in cash flow statement. Please clarify.</p> <p>11. The details of variation in parameters which leads to a situation of crossing benchmark are not furnished in worksheet and PDD. Please provide the same in work sheet and PDD.</p> <p>12. By varying the parameters by + / - 10%, the results arrived at are not the same as given in the sensitivity analysis workings. Please clarify.</p>			
7.	CAR-07	Quantity of diesel consumed is required to be monited as per monitoring methodology.	ER Spread sheet	Monitoring parameter included.	Required change has been made in the PDD. CAR-07 closed.

Table 3: List of forward action requests (FARs)

Validation / Verification Standard

(27) The DOE shall raise a forward action request (FAR) during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

FAR number	Reference	Summary of project owner response	Validation team conclusion
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Appendix B

Certificates of Competence

Qualification

Kewat, Shailendra /

Emission Trading

United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:

(AuditorenRegNr)

Appointed:
(Zugelassen)

ja

Qualification Level:
(Qualifikationsstufe)

Lead Auditor

External:
(Externer)

Add. reviewer:
(Zusätzlicher Prüfer)

EAC Scopes:
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)

CDM 13 - Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

11/02/2011

Valid to:
(Gültig bis)

11/01/2014

Remarks:

Valid for TA1.2 & 13.1

Languages:

Qualification

Medhi, Ujjwala /

Emission Trading

United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

ja

Qualification Level:
(Qualifikationsstufe)

Trainee

External:
(Externer)

Add. reviewer:
(Zusätzlicher Prüfer)

EAC Scopes:
(EAC Branchen)

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

07/30/2012

Valid to:
(Gültig bis)

07/29/2015

Remarks:

Languages:

English

Hindi

Qualification

MP, Kanal /

Emission Trading

United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
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External: (Externer)	Add. reviewer: (Zusätzlicher Prüfer)
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EAC Scopes: (EAC Branchen)	CDM 01 - Energy industries (renewable - / non-renewable sources)
	CDM 03 - Energy demand
	CDM 06 - Construction
	CDM 13 - Waste handling and disposal
	CDM 15 - Agriculture

Add.
qualification:
(zus. Qualifikation)

First Appointment: (Erstberufung)	06/02/2012	Valid to: (Gültig bis)	05/02/2015
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Remarks: TA. 1.2, 3.1, 6.1, 13.1/13.2, 15.1

Languages: English
Tamil
Hindi