VALIDATION REPORT

Energy Development Company Limited

6 MW Harangi Phase –II Hydro Power Project in Karnataka, India

SGS Climate Change Programme
SGS United Kingdom Ltd
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Date of Issue:	**Project Number:**
30-03-2010	CDM.VAL1823
Project Title:	
6 MW Harangi Phase –II Hydro Power Project in Karnataka, India	
Organisation:	**Client:**
SGS United Kingdom Limited	Energy Development Company Limited
Publication of PDD for Stakeholders Consultation	
Commenting Period:	20/05/2008 – 18/06/2008
First PDD Version and Date:	01, dated 12/05/2008
Final PDD Version and Date:	05, dated 15/03/2010

Summary:

Energy Development Company Limited has commissioned SGS to perform the validation of the project: 6 MW Harangi Phase –II Hydro Power Project in Karnataka, India

Methodology Used: AMS –I.D.

Version and Date: Version 13 dated 14/12/2007

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

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, follow up actions (e.g. site visit, telephone or e-mail interviews) and also the review of the applicable simplified methodology and underlying formulae and calculations.

The report and the annexed validation describes a total of 08 findings which include:

- 04 Corrective Action Requests (CARs);
- 04 Clarification Requests (CLs);
- No Forward Action Requests (FARs); and

All findings have been closed satisfactorily. The project:

- ☒Will be recommended to the CDM Executive Board with a request for registration OR
- ☐Negative Validation Opinion will be issued and the validation report shall be sent to the CDM Executive Board.(state the open CAR/NIR numbers)

Subject:			**Document Distribution**
CDM Validation			
Validation Team:			
Sanjay Banerjee– Lead Assessor Shivaji Chakraborty– Assessor Sanjay Banerjee– Local Assessor & Sectoral Scope Expert Abhishek Mahawar – Expert (Financial)			☒ No Distribution (without permission from the Client or responsible organisational unit)
Technical Review:	**Trainee Technical Reviewer:**		
Date: 22-03-2010 and 27-03-2010 Name: Joe Sun	Name: NA		☐ Limited Distribution
Authorised Signatory:			
Name: Siddharth Yadav Date: 30th March 2010			☐ Unrestricted Distribution
Revision Number:	**Date:**	**Number of Pages:**	
0	02/03/2010	89	
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Abbreviations

CAR	Corrective action request
CAPEX	Capital Expenditure
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification request
CO_2e	Carbon Dioxide Equivalent
CPP	Captive Power Project
BSPL	Boom Systems Private Limited
BPLR	Bank Prime Lending Rate
DCS	Distributed Control System
DPR	Detail Project Report
DOE	Designated Operational Entity
DNA	Designated National Authority
EB	CDM Executive Board
EDCL	Energy Development Company Limited
EPC	Engineering Procurement and Construction
EIA	Environment Impact Assessment
FAR	Forward action request
GHG	Greenhouse gas(es)
GOK	Government of Karnataka
HEP	Hydro-Electric Project
HESCOM	Hubli Electricity Supply Company Limited
HCA	Host County Approval
IA	Implementation Agreement
IDC	Interest During Construction
IPP	Independent Power Project
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
KERC	Karnataka Electricity Regulatory Commission
KPTCL	Karnataka Power Transmission Company Limited
KREDL	Karnataka Renewable Energy Development Limited.
MAT	Minimum Alternate Tax
MoV	Means of Verification
MW	Mega Watt
NGO	Non-Governmental Organisations
ODA	Official Development Assistance
PDD	Project Design Document
PLF	Plant Load Factor
PPA	Power Purchase Agreement
PP	Project Proponent
SSC PDD	Small Scale Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

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Annexes:

1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Energy Development Company Limited to perform a validation of the project: 6 MW Harangi Phase –II Hydro Power Project in Karnataka, India.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM), Validation and Verification Manual version 01.1 and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The proposed project activity is installation of a green field 6 MW small hydropower plant, Harangi Hydro-Electric Project (HEP) Phase-II by Energy Development Company Limited (EDCL). The project activity is aimed at the utilization of the additional hydro power generation potential by utilizing the excess spill water of the Harangi Dam constructed across Harangi River during peak season. The proposed project would be operational only during the monsoon season. The tail race of the Harangi Phase-I acts a source of water for the intake to the proposed project (6MW-Harangi Phase-II). The power generated would be step up to 66KV and evacuated to the Southern Grid of India through Hubli Electricity Supply Company Limited (HESCOM) which falls under Karnataka Power Transmission Company Limited (KPTCL) grid, *i.e.*, the state grid of Karnataka for which power purchase agreement has already been signed in 2007. By generating electricity from renewable technology 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.

In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology AMS I.D version 13. 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 total emission reductions from the project are estimated to be 51,540 tCO2e over a 10 year crediting period, averaging 5154 tCO2e 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 change.

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

Signed on Behalf of the Validation Body by Authorized Signatory

Signature: 

Name: Siddharth Yadav

Date: 30th March 2010

2. Introduction

2.1 Objective

Energy Development Company Limited has commissioned SGS to perform the validation of the project: 6 MW Harangi Phase –II Hydro Power Project in Karnataka, India with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, 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 Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The proposed project activity is a green field small hydro based renewable energy generation project which will harness the generation potential of the additional water resource due to the excess spill over of the Harangi dam constructed across Harangi River during the peak monsoon season. The tail race of the Harangi Phase-I acts a source of water for the intake to the proposed project (6MW-Harangi Phase-II), The project activity in fact utilizes the excess hydro power generation potential and the net head available and is expected to generate 6MW electricity to be supplied to the Karnataka State Electricity Board which is the part of the southern regional grid of India. The project activity involves the implementation of a 6MW turbine for generation of power during the overflow season and thus mitigates the generation of electricity which would have happened due to the implementation of coal based thermal power plant in the absence of the project.

2.4 The Names and Roles of the Validation Team Members

Name	Role
Sanjay Banerjee	Lead Assessor
Shivaji Chakraborty	Assessor
Abhishek Mahawar	Expert (Financial)
Sanjay Banerjee	Local Assessor
Sanjay Banerjee	Sectoral Scope Expert

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project document version 01 dated 12/05/2008 and the subsequent versions 02 dated 02/02/2009, version 03 dated 15/01/2010, version 4 dated 26/02/2010 and version 5 dated 15/03/2010 (final version). The assessment is performed by trained assessors using a validation protocol attached as Annex 2 Table 2

The site visit was performed on 05/07/2008.

The execution team on the site visit checked the methodological applicability, baseline, project additionality; PDD related documents and the results are summarized in Annex I: Local Assessment checklist.

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual, Version 1.1 dated 04 December 2009. It serves the following purposes:

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

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

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

The completed validation protocol for this project is attached as Annex 2 to this report

3.3 Findings

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

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

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR).** A CAR

is issued, where:

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

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

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

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

The Host Party for the proposed project activity is India. India ratified the Kyoto protocol on 26th August 2002. The letter of approval no. 4/15/2008-CCC, dated 18/09/2008/4/ has been issued by the Host country DNA and the same document was received by SGS on 02/02/2009 from the project proponent directly. The letter of approval is clear, transparent and confirms the ratification year of the Host Party, voluntary participation of the proposed CDM project activity and contribution to sustainable development to the Host country. The aforementioned letter of approval does not contain any additional information regarding the PDD of the proposed project activity.

A Letter of Approval from Host Country was not available during initial PDD review, so **CAR01** was raised. In response to CAR01, the project participant has submitted a copy of the Host Country Approval (HCA) letter issued by the Director (CC) of the Ministry of Environment and Forests, Government of India. The HCA (No. 4/15/2008-CCC, dated 18/09/2008) issued by Indian DNA (Ministry of Environment & Forest, Government of India), was cross checked with the original HCA letter and was found to be consistent. The DNA of India, DNA Address and Contact Person was referred from (http://cdm.unfccc.int/DNA/index.html#I) and was found to be consistent with the HCA letter. The HCA letter clearly stated the four major requirements as indicated by Para 45 of EB51 Annex 3 (Validation and Verification Manual version 1.1) which was checked and it could be concluded that India is a Party to the Kyoto Protocol; the participation in the proposed CDM project activity is voluntary and assists India in sustainable development. The letter of approval has also indicated the precise title that is being submitted along with this validation report and is unconditional. The project title as mentioned in the HCA letter was found to be in line with the title mentioned under section A1 of the PDD web hosted for global stake holder's comments towards the CDM project activity. This is in accordance with paragraphs 51-53 of VVM 1.1. Hence **CAR 01** was closed out.

4.2 Participation Requirements

The Host Party for this project is India. India has ratified the Kyoto Protocol on 26th August 2002 and is allowed to participate in CDM projects (http://maindb.unfccc.int/public/country.pl?country=IN). Energy Development Company Limited has been approved by Indian DNA to participate in this project. The participation requirements to the Kyoto Protocol and contribution to the sustainable development of the host country are confirmed from the Host Country Approval letter (No. 4/15/2008-CCC; dated 18/09/2008)/4/ issued by the DNA of India (Ministry of Environment & Forest, Government of India). The participation has been approved by the Indian DNA; the same has been verified on the basis of the HCA letter issued by the India DNA which is unconditional. This is in accordance with paragraphs 51-53 of VVM 1.1.

No Annex I Party has been identified in the PDD and the same has been also verified by cross checking the project investment details and it has been validated that the project activity does not involve any investment/contribution from Annex I county at project registration phase. As no Annex I Party is currently involved into the current project activity therefore no further Letter of Approval from Annex I Country is involved at registration phase. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it should be noted that before CER can be transferred to an Annex I Party, a Letter of Approval will need to be submitted. Thus the same was accepted. Furthermore the project proponent also submitted the declaration on non-involvement of ODA (self declaration letter dated 04/08/2008)/35/ same has been checked and was found to be satisfactory

CL 02 was raised for obtaining the Modalities of Communication by the Project Participants with the CDM-EB and the UNFCCC Secretariat which is a mandatory requirement for submission of the Project activity to the CDM-EB with a request for registration. The Project Participant has provided the same dated 11/01/2010 /5/ which was found to be in line with the information regarding the particulars provided in the Annex 1 of the Project Design Document leading to a closure of **CL 02** satisfactorily.

4.3 Project Design Document including Project Description

The proposed project activity is a green field small hydro based renewable energy generation project which will harness the generation potential of the additional water resource due to the excess spill over of the Harangi dam constructed across Harangi River during the peak monsoon season. The tail race of the Harangi Phase-I acts a source of water for the intake to the proposed project (6MW-Harangi Phase-II).The project activity in fact utilizes the excess hydro power generation potential and the net head available and is expected to generate 6MW electricity to be supplied to the Karnataka State Electricity Board which is the part of the southern regional grid of India. The power generated would be stepped up to 66 kV, and transmitted by means of existing 66 kV line from Harangi Phase –I Power house to Khushalnagar substation. The project is located on the Harangi River near Hudgar Village of Somawarpet Taluk in District Kodagu in Karnataka. The same was validated during the site visit. The geographical co-ordinates of the project activity have been verified from Google Earth as Latitude- 12°29'34'' N and Longitude-75° 54'20'' E.

The technology used in the project activity is available in India and no transfer of technology is involved.

The project technical description along with the specification of the project activity as mentioned in the PDD has been cross checked from project equipment purchase order/[12]/. The plant and machinery of the project consists primarily Horizontal Kaplan (Propeller) and synchronous generator with brushless excitation.

During the validation site visit it was found that the project activity was not commissioned. The requirement of an extensive initial training and maintenance efforts in order to work, as presumed during the project period, was checked and verified while carrying out the validation site visit by conducting interviews and discussions with the operating personnel of the existing 9 MW hydro power project Harangi Phase-I at the power plant site. The employees engaged with assigned roles and responsibilities for running the plant were interviewed and found to have adequate knowledge and experience in the said job. The additional man power upon employment would be imparted on job internal training sounds logical hence may be considered acceptable. Thus the basic knowledge and expertise required to run the plant is found justified. This is in accordance with paragraphs 59-63 of VVM 1.1.

4.4 Eligibility as a Small Scale Project

The proposed CDM project activity is a small hydro power project set up of turbine of 6MW capacity. In view of the fact that the project's capacity is less than 15 MW, it is eligible for type I small scale CDM project activity and can apply a simplified baseline methodology. The project applies the baseline methodology stipulated for category I.D of the "simplified modalities and procedure for small scale CDM project activity". Thus it can be concluded that the proposed project activity falls under the small scale project activity and the project design description justifies the applicability criteria of approved small scale methodology AMS-I.D, version 13.

4.5 Applicability of selected methodology to the project activity

The proposed CDM project activity selected simplified methodology AMS-I.D, version 13 which applies five applicability criteria under AMS-I.D, version 13, methodology where first criteria refers the category which comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit. With respect to the above criteria the project activity is setting up of a hydro power plant which will generate 6MW electricity and evacuate the net electricity to the southern regional grid which in absence of the project activity would have been generated by the grid mix consisting of carbon intensive fossil fired generating units. Thus it justifies the first criteria which displaces the fossil fuel with the river water based renewable energy source.

The second criteria refers that the unit added 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 unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW. In view of the fact that the project's capacity is less than 15 MW, the project is eligible as type I small scale CDM project activity and ensures the applicability criteria under applied methodology. Further, the project has no such option of co-firing fossil fuel and as such the applicable criterion under applied methodology is not applicable for this project.

The third criteria is applied for that project activity which has combined heat and power (co-generation) systems, and those are not eligible as per the applicability criteria. The project activity is not a co-generation

project and according to the project activity technology this will generate electrical power from the river water. Thus the third criteria is not applicable for the project activity under consideration.

The Fourth criteria is applicable for those project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units. The proposed project activity in addition to the existing 9MW Harangi Stage-I and is a physically distinct project which is due to the fact that a new turbine is set up for the generation of power. Thus the fourth criterion applicable is justified

The last requirement under this methodology is for those project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category. To qualify as a small scale project, the total output of the modified or retrofitted unit shall not exceed the limit of 15 MW. As stated above proposed project is a new facility, therefore 5th applicability criteria is also not applicable for this project.

Thus in accordance with paragraph 69 of VVM 1.1 the applicability of the methodology has been validated.

4.6 Project Boundary

The project boundary includes the 6MW hydro power plant and its components from the cross regulator gates to the power evacuation system which includes cross regulator, approach channel. Intake gates, forebay, penstock, power house with generating equipments, escape gate, tail race canal and finally the power evacuation system. The southern grid is also considered as a part of the boundary as it would be affected directly by the project. This has been validated in accordance with paragraph 77 of VVM 1.1.

The GHG emission occurring within the project boundary is CO_2 and no other gases (contributing more than 1% of overall expected average) are involved during the project activity. The same has been verified during the course of validation. This has been validated in accordance with paragraph 76 of VVM 1.1.

4.7 Baseline Selection and Additionality

The project applies the approved small scale methodology AMS-I.D “Grid connected renewable electricity generation”, version 13. The baseline methodology is applicable since the project involves generation of 6 MW power using the water resources and displaces electricity from the southern regional grid of India.

The project qualifies as a small scale CDM project activity as it uses AMS-I.D, version 13 and the total installed capacity is 6 MW which is much less than 15 MW, as per Modalities and Procedures for the SSC CDM Project activities. The project proponent has identified the most likely baseline scenario as the equivalent power generation at the carbon intensive Southern Regional Grid of India, the baseline data regarding Indian Power Sector has been referred from the “CO_2 Baseline Database for the Indian Power Sector” Version 03, dated December 2007, published by Central Electricity Authority, Ministry of Power, Govt. of India (http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm)[14].

Based on the baseline options and combinations directed in the applied methodology the following is arrived as the most suitable and plausible baseline scenario as Alternative 1 “Continuation of existing scenario: equivalent amount of electricity in that case will be generated by the thermal power plant of the Southern Regional electricity grid. The selected baseline scenario is found to be as per the requirement of approved methodology, AMS-I.D, version 13. The selection of the southern regional grid as the grid system boundary for the project activity is in line with the EB’s guidance for large countries such as India. The emission reduction calculation was cross checked with the tool for calculation of emission factor as per the methodology AMS I.D version 13 and found to be consistent. The identification of the baseline has been verified in accordance with paragraphs 82-85 of VVM 1.1.

4.7.1 Additionality

The additionality of the proposed CDM project activity has been illustrated as per Attachment A to Appendix B of the simplified modalities and procedures for small scale CDM project activities.
The project activity mainly focuses additionality through Investment Barrier. The proposed project activity is small scale project and the additionality has been demonstrated through “Non-binding best practice examples to demonstrate additionality for SSC project activities”; EB35, Annex 34. The current project activity does not require following the Additionality Tool, version 5.2. According to the EB 35 Annex 34, the project proponent shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers i.e. Investment barrier, Access-to-finance barrier, Technological barrier, Barrier

due to prevailing practice and other barriers. In accordance with the stated requirement project proponent demonstrates additionality by discussing Investment Barriers.

Investment barrier:

The initial PDD represented an investment analysis to describe the financial unattractiveness through pay-back-period calculation with respect to the investment return expectation from project promoter's first experience on hydro project set up *i.e.* Harangi Phase-I at Karnataka, India.

As per the guidelines laid down by EB 35, Annex 34 project proponent has further demonstrated the project investment analysis through application of a benchmark analysis and Project Internal Rate of Return has been calculated.

Investment analysis: Input parameters:

On site the additionality has been discussed with the project proponent and the consultants as well. Further documents have been reviewed on site.

Finally the data, rationales, assumptions, justifications and documentations provided have been cross checked and verified using local knowledge as well as sectoral and financial expertise. The data/ assumptions used for project IRR calculation have been cross checked with reference to the following references:

Parameters	Assumptions/sources of data	value
Capacity	Detail Project Report (DPR) for 6 MW Harangi Phase-II Hydro Electric Project /19/	6 MW
Capital cost with IDC	Capital Cost of Rs.148.45 million ; IDC & Finance Charges of Rs.6.32 million; All assumptions are considered from the DPR of 6MW Harangi Phase-II Hydro Electric Project;/19/ The capital cost and its break up details (Preliminary expenses of INR 154.77 million has been adopted from the Detail Project Report (DPR) for 6MW Harangi Phase II -Hydro Electric Project same was cross checked and found consistent. Total CAPEX value and detailed cost breakup has been also cross verified with reference to the project cost break-up details duly certified by third party Chartered Accountant firm- Mehta Paraj & Co dated 27/10/2005 and found consistent./10/ Interest During Construction (IDC) component of capital investment is a calculated parameter which has been calculated envisaging that the term loan will be taken in phase-wise manner. The summation of the interest component accumulated each year, calculated from the total term loan accumulated in that particular year represents the total IDC component. Please refer to the IRR computation sheet named "IRR_Version 03.2_10-02-10" /8/ worksheet named "Capitalized Cost" cell number E23-E27. The computation will give clarity on how the parameter has been computed. The calculation has been certified by the chartered accountant. The detailed break up of the CAPEX has been provided in the worksheet named "Base Cost Harangi E". The actual cost incurred is higher than the cost envisaged during the point of investment decision; the actual project cost has been verified as INR 14,845,217.05 with reference to the Capital Cost Certification for 6 MW Harangi Phase-II Hydro Electric Project dated 27/10/2005 by Mehta Paraj & Co. Chartered Accountants/10/	Rs.154.77 million
Debt Equity Ratio	The Debt Equity ratio has been adopted from the tariff order issued before the Karnataka Electricity Regulatory Commission in the	70:30

	matter of determination of tariff in respect of Renewable sources of Energy, dated 18/01/2005. The information has been cross verified and found to be consistent against the following official web link; http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc /38/	
Gross generation	The gross generation was adopted from the hydrological report which is a part of the Detailed Project Report by Boom System Private Limited dated 04/10/2005. Since the gross generation as per the hydrological report was found to be low, a third party assessment by ECI Renewable Energy Consultants Report was undertaken by the PP. The report by ECI Renewable Consultants was specified as 6.45 GWh which turned out to be further lower. Hence for the IRR estimation the gross generation was adopted as 6.48 GWh on a conservative side as per the DPR.	6.48 GWh
Net energy exported to grid/ Net Saleable energy	Calculated parameter assuming an outage of 5%, auxiliary consumption of 0.5% and transformation loss of 1% on Gross generation. *Consideration of outage loss of 5% has been validated through "GUIDELINES FOR FORMULATION OF DETAILED PROJECT REPORTS FOR HYDRO ELECTRIC SCHEMES, THEIR ACCEPTANCE AND EXAMINATION FOR CONCURRENCE" published by CEA."* *Weblink:* http://www.cea.nic.in/hydro/Special_reports/GUIDELINES%20for%20formulationof%20DPR%20for%20HE%20Schemes.pdf *[Please refer Page No. 40, clause 1.4 of Appendix – 1* /39/	6.06 GWh
Power selling rate/unit	This was adopted from the KERC Order (Pg14/31) dated 18/01/2005. Further the rate was cross checked against the Power Purchase Agreement executed between HESCOM and EDCL dated 12/04/2007 and found consistent. http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc /38/	Rs.2.80
O&M charges inclusive insurance	This was adopted from the KERC Order dated 18/01/2005. http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc /38/	1.5%
O&M escalation rate		5% per year
Depreciation for Building	Depreciation value of Buildings as 3.34% and Plant & Machinery as 5.28% has been adopted from the Companies Act, 1956 Schedules, same was checked and verified against the document made publicly available through the web link (http://www.mca.gov.in/MinistryWebsite/dca/actsbills/pdf/Companies_Act_1956_Part_2.pdf) /40/ and found correct.	3.34%
Depreciation for Machineries		5.28%
Min Alt. Tax (MAT)	As per Income Tax Act 1961 http://www.indianembassy.org/newsite//doing_business_in_india/fiscal_taxation_system_in_india.asp /41/	8.42%
Income Tax Rate	As per Income Tax Act 1961 (http://www.indiainbusiness.nic.in/investment/taxation.htm) /42/	33.66%

Validation of Data Sources:

Particulars of Data Sources & Parameters Considered	**Mode of Validation**
Detail Project Report (DPR) for 6 MW Harangi Phase-II Hydro Electric Project /19/	The Detailed Project Report prepared by M/s Boom Systems Private Limited as appointed by M/s EDCL was cross checked against the Letter of Award conferred on M/s Boom Systems Private Limited by EDCL (Ref no. EDCL/BSPL/08-05/392 dated 26/08/2005) /6/ in original and considered

Data / Value Adopted: • Capacity (6 MW) • Capital cost with IDC (INR 154.77 million) • Gross generation (6.48 GWh) • Debt Equity Ratio (70:30)	acceptable. The Detailed Project Report was checked in original during the document review as part of the validation site visit and was found consistent. The total CAPEX value and detailed cost breakup as mentioned in the DPR has also been cross verified against an assessment by an independent third party Chartered Accountant firm- Mehta Paraj & Co dated 27/10/2005 /10/ nd found consistent. The Capital cost with IDC as mentioned in the financial analysis by the independent third party Chartered Accountant firm- Mehta Paraj & Co dated 27/10/2005 was validated and cross checked by a telephonic call with Mr. Paraj Mehta in person and found consistent. Hence accepted. The other three parameters namely gross generation, debt equity ratio and capacity of the hydro power project as adopted was likewise validated and found in accordance with the values mentioned in the DPR prepared by M/s Boom Systems Private Limited. The Gross generation was further validated against the hydrological study report conducted by ECI Renewable Energy Consultants (P) limited dated 20/10/2005 /36/ .The original copy of the letter of contract by M/s EDCL to M/s ECI Renewable Energy Consultants (P) Limited (Ref no.EDCL/ECI/HAR-II/405 dated 11 October 2005) /47/ towards providing an assessment and a second opinion on the estimated low generation as mentioned in the DPR prepared by Boom Systems Private Limited was cross checked and found consistent. The Office Memorandum issued by Karnataka Renewable Energy Development Limited, a Government of Karnataka Enterprise (No. KRED/06/Harangi Tail race escape HEP/2007/754 dated 02/04/2007) /26/ has specifically mentioned that the technical clearance for the 6 MW Harangi Phase-II project activities was accorded based on the Detailed Project Report prepared by M/s Boom Systems Pvt Limited and submitted by the PP. This document was verified and found to be consistent. Hence accepted.
KERC Order dated 18/01/2005 /38/ Data / Value Adopted: • Debt Equity Ratio (70:30) • Power selling rate/unit (Rs 2.80) • O&M charges inclusive insurance (1.5%) • O&M escalation rate (5% per year)	The tariff order issued before the Karnataka Electricity Regulatory Commission in the matter of determination of tariff in respect of Renewable sources of Energy dated 18/01/2005 /9/ was cross checked and validated against the document made available at the official web link: http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc /38/ and found correct. The date of the Government order as 18/01/2005 was during the conceptualization phase and found to be consistent with the Board Resolution dated 29 October 2005 /20/ of the project activity.
Companies Act, 1956 /40/ Data / Value Adopted: • Depreciation for Building (3.34%) • Depreciation for Machineries (5.28%)	Depreciation value of Buildings as 3.34% and Plant & Machinery as 5.28% has been adopted from the Companies Act, 1956 Schedules, same was checked and verified against the document made publicly available through the web link (http://www.mca.gov.in/MinistryWebsite/dca/actsbills/pdf/Companies_Act_1956_Part_2.pdf) /40/ and was found to be correct.

CEA Guidelines [39] Data / Value Adopted: • Outage (5%) • Auxiliary consumption (0.5%) • Transformation loss (1%).	The "GUIDELINES FOR FORMULATION OF DETAILED PROJECT REPORTS FOR HYDRO ELECTRIC SCHEMES, THEIR ACCEPTANCE AND EXAMINATION FOR CONCURRENCE" published by CEA" was cross checked against the active official web link: http://www.cea.nic.in/hydro/Special_reports/GUIDELINES%20for%20formulationof%20DPR%20for%20HE%20Schemes.pdf [Please refer Page No. 40, clause 1.4 of Appendix – 1] [39] and found to be adopted the value / data of the parameters correctly.
Applicable Tax Rates Data / Value Adopted: • Min Alt. Tax (MAT) (8.42%) • Income Tax Rates (33.66%)	The following active official Web links as mentioned below were cross checked and found consistent. http://www.indianembassy.org/newsite//doing_business_in_india/fiscal_taxation_system_in_india.asp [41] This was further cross verified against a third party document made publicly available in the following web link: http://www.ajaygarg.com/RATES%20OF%20INCOME%20TAX.doc [48] http://www.indiainbusiness.nic.in/investment/taxation.htm . [42]

Investment analysis: Benchmark selection:

The benchmark value for project investment analysis has been considered as Benchmark Prime Lending Rate (BPLR) of the Indian Public Sector Banks according to Reserve Bank of India (RBI) in the financial year 2005-2006, which is the year for project conceptualisation and subsequent project decision. The benchmark value 10.25% has been cross checked with the Reserve Bank of India web portal http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/87456.pdf [43] and found satisfactory. The RBI document "Table 74: Structure of Interest Rates" as validated, states that the Prime Lending Rate during the period the financial year 2005-2006 was between 10.25%-10.75percent. However the weighted average prime lending rate during the same period was 10.7%. The same was also cross checked from the Annual Report 2006-2007 of RBI (http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/79541%20.pdf; pp. 21) [44] where it is clearly mentioned till the FY 05-06 *i.e.* till March'06 the weighted average PLR of Indian Public Sector Banks was 10.7% and that of private sector banks was 12.4%. Hence a PLR of 10.25% was accepted to be on the conservative side. Therefore, consideration of benchmark value was found to be in line with the guideline laid down by EB 51 Annex 58 thus accepted.

Appropriateness of the selected Benchmark for the project activity:

As per the GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS (EB 51 Annex 58)

Clause13: Guidance: In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on publicly available data sources which can be clearly validated by the DOE. Such data sources may include local lending and borrowing rates, equity indices, or benchmarks determined by relevant national authorities. The DOE's validation of such benchmarks shall also include its opinion of the suitability of the benchmark applied in the context of the underlying project activity.

The IRR for the project activity is compared to the Prime Lending Rate (PLR) published by the Reserve Bank of India (RBI). The RBI as the National Banking Authority, Government of India publishes the average PLR of the five major nationalized banks in India. The projects in India would be borrowing debt at a rate equal to or higher than the PLR. Hence only those projects would be financially attractive, where the IRR of the project is higher than the rate of borrowing on debt (i.e. higher than the PLR). Accordingly, if any project's IRR does not exceed the PLR, it could be considered a financially unattractive project. The prevalent Reserve Bank of India, which is a publicly available data source in line with the clause 13 of EB 51 Annex 58, PLR, was

10.25%– 11.25% as per the RBI Annual Report 2005-06, Page 79, Table 1.58. (http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72286.pdf). To consider the most conservative benchmark, 10.25 % was taken as the benchmark to the project and no risk premium was added to it. Thus the benchmark chosen as PLR of the Reserve Bank of India could be considered as a suitable benchmark for this project to assess the financial feasibility of the project. Since this was in accordance with the guidelines as mentioned above it has been accepted as a suitable benchmark for the project activity.

Investment analysis: IRR Calculation and Conclusion:

The green field hydro power project would be operational only during the peak monsoon season hence the returns from the project activity would be considerably low compared to the hydro power projects which are operational through out the year. The IRR was computed based on the 25 years technical life time of the project activity (the technical life of the turbo generator set being considered as 25 years based on the Manufacturers Certification dated 24/05/2007) /50/ in accordance to the then prevailing guidelines on investment analysis EB 41 annex 45 and subsequently the current guideline as per EB51 annex 58.The IRR value thus arrived seems to be realistic for the seasonally operational hydro power project as further explained below.

The basic assumptions considered and adopted to arrive at the IRR was from the detailed project report which was prepared by a third party M/s Boom Systems (P) Ltd contracted by the project proponent. The values applied for some of the major input parameters were also cross checked and reconciled against the active official web links providing information towards such realistic value adoption. The values and information as specified in the DPR were cross checked against the documents available in the public domain and were found to be consistent. The PP has no control over the data sources available in the public domain prevailing during the adoption. Thus could be hereby concluded that the IRR value thus arrived at for the project activity seems to be realistic, hence accepted.

The PP had initially provided information on the financials in the web hosted PDD with respect to pay back which was 13 years for the project. Based on the cash flows of the Harangi Phase-I project the company had set 8 -10 years as the internal acceptability limit for paybacks of several small hydro projects under taken by the company. This was validated against the Board resolution of the hydro project undertaken by the PP namely Ullunkal Hydro power projects-UN reg no. 2937 and the information made available in the web hosted PDD of Karikkayam hydro power project available through the below mentioned web link and found correct: (http://cdm.unfccc.int/UserManagement/FileStorage/SU31R9WZ4MBA8IYQ6JCPGKT2HVX75L)

In due course of validation of Harangi Phase-II the technical life time of the project activity was found to be 25 years according to the manufacturer's certification (M/s Boom Systems Pvt Limited dated 24/05/2007)/50/ provided. PP was requested to provide the IRR which is a suitable financial indicator for the project in accordance to EB 41 annex 45 dated August 2008 which was immediately available after the validation site visit conducted in the month of July 2008 (precisely on 05/07/2008). The PDD was web hosted during 20 May – 18 June 2008 with pay back as the financial indicator for the project activity. Thus in line with the guideline as per EB 41 annex 45 and the technical life time of 25 years for the project as validated against the turbine manufacturers certification , the IRR was computed for the entire technical life time of the project activity which is 25 years. This was in accordance to the then prevailing guidelines on investment analysis as per Clause 3 of EB 41 annex 45 and subsequently the current guidelines on investment analysis as per clause 3 of EB 51 Annexe 58. Thus it was considered accepted.

The project IRR has been validated as 7.94% which is much below the benchmark value of 10.25% of the Public Sector Banks according to Reserve Bank of India in the year 2005-2006 which was cross checked from Reserve Bank of India web portal (http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/87456.pdf)/43/ and found satisfactory.

Thus the project activity is not financially viable and is additional due to financial calculations. The project cost and investment analysis related other assumptions have been checked which was available at the time of conceptualization of project activity and found consistent.

The project IRR value was verified as mentioned below –

IRR calculation	
Benchmark IRR	Project IRR
10.25%	7.94%

Investment analysis: Sensitivity analysis:

The sensitivity analysis has been demonstrated for the most sensitive parameters in order to check the influence of the following factors in the project IRR calculations. In sensitivity analysis the variables chosen are the gross generation, project cost and electricity tariff. The estimated units of electricity generated by the hydro power project activity grossly depends on the availability of the water and relative effect of power plant gross generation on the project IRR is significant along with the direct impact of deflection in project cost. The power tariff rate which is directly related to the project revenue is fixed as per the Karnataka Electricity Regulatory Commission for a period of 10 years subject to a revision on the eleventh year by the Commission; The same was cross checked against the tariff order issued before the Karnataka Electricity Regulatory Commission in the matter of determination of tariff in respect of Renewable sources of Energy, dated 18/01/2005. The information has been cross verified and found consistent against the following official web link; http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc /38/ and was found to be justified.

Gross Generation vis-à-vis Plant Load factor:

The hydrological and detailed project report for the 6MW Harangi Phase-II hydro electric generation shows that the plant is operational only when there is excess water in the existing 9MW Harangi Phase-I. Further, the plant generates power only during the peak monsoon season with average excess spillage being considered based on the hydrology of the location which is dependant on the rainfall directly. As a result, the gross generation of the plant is around 6.48 Mu during the entire year as per the detailed project report by Boom Systems Private Limited. Due to this low generation level, the approach for the estimation of IRR is based on the gross generation rather than on the plant load factor approach.

The gross generation was adopted from the hydrological report which is a part of the Detailed Project Report by Boom System Private Limited dated 04/10/2005. Since the gross generation as per the hydrological report was found to be low, a third party assessment by ECI Renewable Consultants (P) Limited /36/ dated 20/10/2005 was undertaken for the project activity by the PP. The report by ECI Renewable Consultants (P) Limited has specified the estimated gross generation as 6.45 GWh which turned out to be further lower than the gross generation as specified in the Detailed Project Report carried out by M/s BSPL. From the above estimated gross generation by ECI Renewable Consultants (P) Limited /36/ dated 20/10/2005 the PLF was calculated and found to be 12.27%.

The PLF was calculated and estimated based on the third party assessment report by M/s ECI Renewable Consultants (P) Limited contracted by the Project Proponent M/s EDCL and was found to be in line with the guideline as published in the EB 48 annexe 11 clause 3 (b) as follows;

Ex-ante definition of the plant load factors:

> *3. The plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options:*
>
> *(a) 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);*

Thus the PLF values as calculated based on the input figures of gross generation from the third party assessment report of M/s ECI Renewable Consultants (P) Limited dated 20/10/2005 and from Detailed Project report dated 04/10/2005 carried out by M/s BSPL for the project activity turned out to be 12.27% and 12.33% respectively. However the gross generation for the project activity which would be operational on a seasonal basis was considered in the IRR estimation during the conceptualization stage and for carrying out sensitivity analysis as well as demonstrated below. Since PLF in both the cases is calculated based on the estimated gross generation figures as a direct function, all assumptions and considerations to arrive at the project IRR and sensitivity analysis has considered gross generation instead of PLF for the project activity.

Hence for the IRR estimation the gross generation adopted as 6.48 GWh from the DPR was found to be conservative. This is in accordance to paragraph 109 of VVM1.1.

Sensitivity Analysis

The following table will provide the clear and transparent overview after the variance of the sensitive parameters as per the EB guidelines:

Sensitivity Analysis		
		Project IRR
Gross Generation	10%	9.40%
	-10%	6.38%
Project Cost	10%	6.29%
	-10%	9.85%
Tariff	10%	9.40%
	-10%	6.38%

A chosen range of variation of the % change in the gross generation and Project Cost (in the range between -10% to +10% and its effect on the project IRR were found to be as per the Guidance on the Assessment of Investment Analysis (EB 51, Annex 58). The outcome of the sensitivity analysis is found to be robust against the Internal Rate of Return determined prior to decision making for the project case subject to the said variable and variation range, thus accepted.

Thus it has been found to be justified that the benchmark for the project IRR could only be met while considering the revenue generated from the sale of carbon credits. It is clearly imperative that the project activity could only sustain with the assistance from the CDM revenues which was cross checked against the financial analysis work sheets and the revised final version of the PDD dated 15/03/2010 and found to have been correctly incorporated. This is in accordance with the means of validation as per paragraphs 110 & 111 of VVM 1.1.

4.7.2 Prior Consideration of the Clean Development Mechanism

The Start Date of Project Activity has been demonstrated as 19th April 2007 based on the purchase order placed by EDCL to M/s Boom Systems Private Limited for purchase of Turbo Generator (Ref No: EDCL/BSPL/LOA/293) dated 19th April 2007./12/

This has been considered taken as the start date for the project activity in accordance with the EB 41 paragraph 67 which defines the start date of a CDM project activity as: “the earliest date at which either the implementation or construction or real action of a project activity begins”. Moreover in accordance to the EB 41 it was further clarified that “the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity”

The consistency of the project start date with the discussion of the project additionality was not transparent. Also, how and when the CDM was taken into serious consideration as per EB 41 Annex 46 guideline which further was revised as EB 49 Annex 22 in the decision to go ahead with the project activity along with the detail CDM project milestone activities was also not clear especially on the following reason:

- The starting date of the project activity as demonstrated under section C.1.1 in the initial version of the web hosted PDD version 01 was 29/10/2005
- Further explanation was required regarding selection of project start date and the appropriateness of the same with project start date definition.
- How and when the CDM was taken into serious consideration in the decision to go ahead with the project activity was not clear and the same was required to be properly substantiated.

Thus **CAR 03** was raised to have clarification along with reliable evidences on the above points.

Start date for the current project activity has been re-determined by the project proponent as 19/04/2007 and the equipment purchase order dated has been considered as the project start date. The reported project start date has been found to be in line to the EB 41 Meeting Report, Para 67 being the earliest date at which the implementation of the project activity begins and the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. It was thus accepted. This is in accordance with paragraph 98 of VVM 1.1.

Below mentioned CDM project chronology table provides clear evidences towards CDM consideration prior to the start date of the project activity i.e. awareness of CDM, Board approval for the project activity under CDM consideration and the real action taken to implement the project activity.

The CDM project chronology and supporting documentary evidences have been reviewed and prior CDM knowledge and serious CDM consideration for the proposed project activity has been demonstrated in the following milestone activities –

TABLE: 1

CDM Project milestone activities	Timeline	Documentary evidences reviewed
Awareness of CDM		
Quarterly newsletter issued by CII-ENVIS titled "Green Business Opportunities"	Issue Jan-March 2005	http://www.sustainabledevelopment.in/publications/sustainability_tomorrow/archive/1.pdf /16
An article in The Hindu titled "Nod for 100 CDM projects" highlighting the additional revenue from CER transactions in the international market.	September 2005	http://www.hindu.com/2005/09/16/stories/2005091604681400.htm /17
Rejection of Loan Application for the 6 MW Harangi Hydro power project from Yes Bank and advocating the option of availing CDM revenues	10/10/2005	Letter from Yes Bank dated 10/10/2005 rejecting loan for the project /18
Board Approval with the Consideration of CDM		
CDM consideration by the Board of Directors of M/s Energy Development Company Limited	29/10/2005	Copy of Original Board Minutes /20/
Continuing and Real Actions Undertaken		
Internal Communication: Letter from Mr. L.K. Sadani to Mr. A. Banerjee advising to initiate the process of CDM consultant appointment.	14/11/05	Email communication /21/
Initiation of the process for appointment of consultants for CDM advisory services.	20/03/06	Email from CDM consultant to EDCL /21/
Communication between the CDM consultant and EDCL	27/03/2006 & 06/04/2006 & 20/04/2006	Email Communications /21/
EDCL expresses their concern for the delay in achieving the necessary clearances like Implementation Agreement and technical Clearence to go ahead with the implementation of the main project activity. Intimating the CDM consulting firm regarding the appointment of the CDM consultant once the mandatory clearences for implementation	27/04/2006	Email from EDCL to CDM consultant /21/

of the project activity are achieved..		
Govt of Karntaka (GOK) Energy Dept. Sanctions the 6 MW hydro electric project (Harangi Phase – 2) in favour of EDCL	31/05/2006	Proceedings of Government of Karnataka. Government Order No: EN 182 NCE 2006. /22/
Implementation Agreement signed with GOK Energy Dept.	06/07/06	
Subsequent email communications between EDCL and the CDM consultant.	24/07/2006 & 26/07/2006	Email communications between EDCL and CDM consultant /21/
Clearance for Fisheries Department	14/09/2006	Fisheries Clearance:Ref No:INL/5/2006-07 /23/
Consent for Establishment and clearance from Water and Air Pollution by Karnataka State Pollution Control Board	16/09/2006	PCB Clearances: Ref No: KSPCB /EO (MYS)/DEO/AEO-4/LG/CFE/2006-07 /24/
Communication from EDCL to CDM consultant related to appointment of CDM consultant	16/01/2007	Email from EDCL to CDM consultant /25/
Proposal from CDM consultant to EDCL	30/01/2007	Email from CDM consultant to EDCL /25/
Email Communications between EDCL and CDM consultant	27/02/2007 & 30/03/2007	Email from CDM consultant to EDCL /25/
Technical clearance accorded by Karnataka Renewable Energy Development Limited to EDCL	02/04/2007	Technical Clearance by KREDL:Ref No: KRED/06/Harangi Tail race Escape HEP/2007/754 /26/
Power Purchase Agreement between HESCOM and EDCL	12/02/2007	PPA dated 12/04/2007 /28/
Work Order for appointment of CDM consultant	16/04/2007	Ref No:EDCL/E&Y/CDM/LOA/04/2007-08/001 /13/
Letter of Award for Project Engineering – Planning and Complete Design Cum Engineering and Construction of Civil- H&M-Power Evacuations works, Design, Manufacture,supply cum supervision services for complete Electromechanical equipments on EPC Basis" for Power Generation Equipment (Turbine Generator set) of 1X6 MW Harangi Stage-II Hydro Electric Project	19/04/2007	Start date of the project
Secretary Energy Department writes to the Secretary Water Resource Department for immediate allotment of land for Harangi Phase-II	15/02/2008	Letter dated 15/02/2008 Ref: EN314 NCE 2007. /32/
Appointment of DOE	14/05/08	Validation Services Agreement executed between EDCL Limited and the appointed DOE /33/
PDD web hosted for Global Stakeholder Consultation	20/05/08 to 18/06/08.	http://cdm.unfccc.int/Projects/Validation/DB/KX1MNTZLORNR8CU48XL3DGLAQT1GGY/view.html
Allotment of land to EDCL by Cauvery Neeravari Nigama Limited (Govt of Karnataka)	04/06/08	Ref No: KA/HRD/PBC/Harangi/EDCL/2008-09/1287-92
Presentation at Ministry of Environment and Forests (MoEF), Government of India for obtaining Host Country Approval (HCA)	13/08/08	Invitation Letter from Ministry of Environment and Forests (MoEF),

The proceedings of the Government of Karnataka. Government Order No: EN 182 NCE 2006 was passed on 31/05/2006 for enhancement of capacity from 9 MW to 15 MW by introduction of an additional 6 MW Harangi Phase-II plant in the escape channel of the existing system of Harangi-I mini hydro electric project was checked and verified against the original copy of the document during the validation site visit. The application by M/s EDCL to The Principal Secretary, Government of Karnataka, Department of Energy with a Copy to the Managing Director, Karnataka Renewable Energy Development Limited, a Government of Karnataka Enterprise (Letter ref no. EDCL/BLR/F-78/2006-07/83-85) dated 04/05/2006 was cross checked and verified against the Board Resolution dated 29/10/2005 and found consistent in terms of timelines for CDM consideration and relevant Government approval. Thus it can be concluded that the project was considered with the CDM benefits.

Further the Office Memorandum issued by Karnataka Renewable Energy Development Limited, a Government of Karnataka Enterprise (No. KRED/06/Harangi Tail race escape HEP/2007/754 dated 02/04/2007) has specifically mentioned that the technical clearance for the 6 MW Harangi Phase-II project activities was accorded based on the Detailed project Report prepared by M/s Boom Systems Pvt Limited and submitted. This was once again cross checked against the Implementation Agreement executed between Government of Karnataka, Department of Energy and M/s EDCL on 06 July 2006 which categorically refers to the proceedings of the Government of Karnataka. Government Order No: EN 182 NCE 2006 dated 31/05/2006. Thus it is evident that this particular letter (Government Order No: EN 182 NCE 2006 dated 31/05/2006) was submitted to the Local government after the CDM consideration dated 29 October 2005. All the documents as mentioned above were cross checked during the document review process and were found to be consistent.

The real and parallel action for the CDM project activity milestone and the gap analysis as per the EB 49 Annexe 22 has been demonstrated by the PP as follows:

TABLE: 2

CDM Project milestone activities	Timeline	Gap between two real action (from the previous action)
Quarterly newsletter issued by CII-ENVIS titled “Green Business Opportunities”	Issue Jan-March 2005	
An article in The Hindu titled “Nod for 100 CDM projects” highlighting the additional revenue from CER transactions in the international market.	September 2005	Six months
CDM consideration by the Board of Directors of M/s Energy Development Company Limited	29/10/2005	One month
Internal Communication: Letter from Mr. L.K. Sadani to Mr. A. Banerjee advising to initiate the process of CDM consultant appointment	14/11/05	One month
Initiation of the process for appointment of consultants for CDM advisory services.	20/03/06	Four months
Communication between the CDM consultant and EDCL	27/03/2006 & 06/04/2006 & 20/04/2006 & 27/04/2006	One month
Govt of Karntaka (GOK) Energy Dept. Sanctions the 6 MW hydro electric project (Harangi Phase – 2) in favour of EDCL	31/05/2006	One month
Implementation Agreement signed with GOK Energy Dept.	06/07/06	One Month
Subsequent email communications between EDCL and the CDM consultant.	24/07/2006 & 26/07/2006	Fifteen days
Consent for Establishment and clearance from Water and Air Pollution by	16/09/2006.	Two months

Karnataka State Pollution Control Board		
Communication from EDCL to CDM consultant related to appointment of CDM consultant	16/01/2007	Four months
Proposal from CDM consultant to EDCL	30/01/2007	Fifteen days
Power Purchase Agreement between HESCOM and EDCL	12/02/2007	One month
Work Order for appointment of CDM consultant	16/04/2007	Two months
Letter of Award for Project Engineering – Planning and Complete Design Cum Engineering and Construction of Civil-H&M- Power Evacuations works, Design, Manufacture,supply cum supervision services for complete Electromechanical equipments on EPC Basis" for Power Generation Equipment (Turbine Generator set) of 1X6 MW Harangi Stage-II Hydro Electric Project	19/04/2007	Start date of the project
Appointment of DOE	14/05/08	One year one month

With the above chronology of the CDM project activity it is evident that no gap between real and parallel action for the consideration of CDM to the CDM project inception has not been more than one year one month at a stretch and as such is within the time frame laid down by the guidelines of EB 49 Annex 22 which says "In validating proposed CDM project activities where: a) there is less than 2 years of a gap between the documented evidence the DOE shall conclude that continuing and real actions were taken to secure CDM status for the project activity" stands applicable and is fulfilled. Hence the chronology is accepted. This has been verified in accordance with paragraph 101 (a) & (b) of VVM 1.1.

With reference to the above mentioned chronology of the project milestone activities and the supporting documents, it has been found justified that CDM revenue was considered in the decision to implement the project activity and project participant has demonstrated continued and real actions were taken to secure CDM status for the project in parallel with its implementation as per guidelines set in EB 49 Annex 22. Therefore with reference to the above mentioned discussions, the awareness and prior knowledge along with the serious CDM consideration for the project activity has been found to be evident. Therefore **CAR 03** was closed out.

4.7.3 Identification of alternatives (if applicable)

As mandated by the methodology AMS-I.D Version 13, the project participants have identified the credible alternatives as per the guideline mentioned under applied methodology. The project promoter identified all credible and realistic alternatives to the project activity as follows:

Alternative 1: Continuation of existing scenario

Alternative 2: The proposed project activity not undertaken as a CDM project activity

The list of alternatives to supply the above mentioned results, which are also presented in the current version of the PDD, includes the project activity undertaken without being registered as CDM project. The remaining alternative presented does include all plausible scenarios taking into account the local and sectoral situations for the mentioned results. The list of alternatives is therefore considered complete.

Alternative 1 has been observed as the common scenario for the electrical power generation sector of southern regional grid of India, thus this option has been considered further for arriving at the baseline scenario.

Alternative 2 has not been considered as the viable option due to the financial unattractiveness (as discussed in the following part of this report) without considering CDM revenue.

Identification of the most plausible baseline alternative via the alternatives-elimination-route as well as the appropriateness of such alternative is being assessed against proper evidences. Based on the baseline options and combinations directed in the applied methodology the following is arrived as the most suitable and plausible baseline scenario as Alternative 1 "Continuation of existing scenario" i.e. in the absence of the project activity electricity generated by the present fossil fuel fired grid connected thermal power plants", which is deemed to be most plausible for the proposed CDM project activity.

For identified baseline scenario the mandatory law and regulation in the host country has been verified and found in compliance with all laws and regulations of the host country India. The baseline alternative identified is inline with the applied methodology and found plausible for implementation at the project site.

This has been carried out in compliance with paragraph 105 of VVM 1.1.

4.7.4 Investment analysis (if applicable)

Current project activity is small scale activity and the additionality of the same has been demonstrated through Investment barrier analysis following guidelines laid down by "Non-binding best practice examples to demonstrate additionality for SSC project activities"; EB35, Annex 34. Please refer to the Section 4.7.1 of this report above for the detailed discussion on the financial additionality of the project activity as demonstrated by the PP and subsequently validated by the DOE.

4.7.5 Barrier analysis (if applicable)

The proposed project activity is a small scale project and as per guidelines EB 35 Annex 34 i.e. "Non-binding best practice examples to demonstrate additionality for the SSC project activities", project proponent described the barrier analysis and identified the related barriers which are restricting the implementation of the project. In order to establish additionality of the project, the project proponent has considered investment barrier. Please refer Section 4.7.1 of this report for detail discussion on Investment barrier and IRR calculations. However, **CAR 04** was raised due to the following reason in connection to the additionality discussion in the initial web hosted version of the PDD dated 12/05/2008.

During the initial review of the PDD the PP was requested to provide the information with regard to the following additionality issues:

Investment Barrier:

- The Project participant was requested to provide the proof for the investment required towards the total project cost for the implementation of the project activity along with the source of funds and the related terms and conditions, made available to the project activity for its implementation.
- The PP was requested to clarify and provide justification towards the company's internal benchmark for similar projects.
- The project participant was requested to clarify why payback period has been considered as the financial indicator to judge the financial viability of the project activity and the Internal rate of return not been considered which happens to be more widely used for the said assessment.
- The internal bench mark considered as 8-10 years with respect to payback period for the existing 9 MW power plant and correlating the same with the 6 MW power project under consideration was not found to be clear and properly justified.
- The PP was requested to provide the detail calculation to arrive at the pay back period of the 6 MW power project as 13 years.
- The PP was requested to provide documentary evidence towards the power tariff and the escalation clauses along with all other evidences considered with respect to energy generation, operation & maintenance and depreciation parameters provided in the PDD.
- A detailed comparative analysis with and without CDM consideration subject to sensitivity analysis for the project activity was requested from the PP.

Other Barrier:

- The PP was requested to provide documentary evidence towards land acquisition process along with additional land acquired for the implementation of the project activity.
- The supportive documentary evidence towards the claim of the Government failing to fix up the revenue of the land procured by the PP was requested for.

In response to **CAR04**, the project proponent has further represented the project additionality with reference to the guideline laid down by "Non-binding best practice examples to demonstrate additionality for SSC project activities"; EB35, Annex 34. Investment barrier has been demonstrated as the prime barrier towards project implementation and all other barrier discussion has been withdrawn in the revised version of the PDD.

The project investment barrier analysis has been duly demonstrated through project investment analysis, selecting Project IRR as financial indicator and applying benchmark analysis approach. The investment analysis approach followed was found in line with the relevant guideline of UNFCCC.

The initial IRR computation sheet provided by the PP showed the project IRR to be 9.16% for the project activity. In due course of validation the PP was requested to address the following issues

- Interest and Loan repayment was not deducted in the calculation of tax. Further clarification as to how the tax was calculated without taking into consideration the cost of financing was requested for.
- The financial assessment for the project was not done for the project life period
- Profit subject to regular tax was wrongly calculated. The exemption under 80 IA from the taxable income was to be deducted.
- Fair Value of asset was not added separately.

In response the PP revised the IRR sheets accordingly adopting the changed requested for and the same was cross checked against the assumptions and found consistent. During the course of validation, the IRR of the project turned out to be 7.94% which was accepted based on the assumptions and the benchmark provided.

IRR calculation during the course of Validation	
Initial Project IRR	Final Project IRR
9.16%	7.94%

All the assumption used for project investment analysis was cross checked and found justified and valid during the time of project decision making stage. The project IRR value has been validated as 7.94% against the selected benchmark value of 10.25%. The benchmark value for project investment analysis has been considered as Benchmark Prime Lending Rate (BPLR) of the Indian Public Sector Banks according to Reserve Bank of India in the financial year 2005-2006, which is the year for project conceptualisation and subsequent project decision. The benchmark value 10.25% has been cross checked with the Reserve Bank of India web portal (http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/87456.pdf)[43] and found satisfactory.

The documents namely Letter from EDCL to Principle Secretary Energy Dept requesting to intervene & request Secretary Water Resources Dept. to release land pending dated 09/01/2008 and Note from Secretary Energy Dept. to Secretary Water Resource Department for immediate allotment of land dated 15/02/2008 was cross checked against the original documents during the validation site visit and subsequent interviewing the project proponent on-site and was found to be consistent. Further, it is evident from the above documents that the project activity could not be commenced due to the delay in the disbursement of the land allotment from the Government which is project specific. Hence it was found to be evident that these barriers are justified in the context of the project activity being delayed hence hereby accepted.

Hence, **CAR04** was closed out.

For detail discussion on project additionality and investment analysis please refer to Section 4.7.1 of this validation report above.

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4.7.6 Common practice analysis

Current project activity is small scale activity and the additionality of the same has been demonstrated through Investment barrier analysis following guidelines laid down by "Non-binding best practice examples to demonstrate additionality for SSC project activities"; EB35, Annex 34.

4.8 Application of Baseline Methodology and Calculation of Emission Factors

According to the applied methodology AMS-I.D, version 13, the project proponent has correctly calculated all the necessary equations to calculate project emission, baseline emission, leakage and thus emission reduction.

The project activity primarily aims to generate electricity from hydro technology by using the river water. As per the requirement of the applied Baseline methodology, the project activity used the following equation:

$BE_y = EG_y * EF_{GRID}$

Where,

BE_Y=Baseline Emissions due to displacement of electricity during the year y (in tCO_2)

EG_Y=Net units of electricity substituted in the grid during the year y (in MWh)

EF_{GRID}=Emission Factor of the grid (tCO_2/MWh) calculated *ex-ante* and fixed for the entire crediting period.

After the detailed analysis of the above mentioned equation project activity meets the entire requirement as stated in the methodology and provided all the parameters in the current version of the PDD in terms of ex-ante and ex-post in the respective section of the PDD i.e. section B.6.2 and B.7.1. The project activity describes the following parameter as ex-ante:

EF_{GRID} = Emission Factor of the grid (tCO_2/MWh) calculated *ex-ante* and fixed for the entire crediting period

The grid emission factor value 0.85tCO_2/MWh for Southern Regional Grid of India has been from the "CO_2 Baseline Database for the Indian Power Sector" Version 03, December 2007, published by Central Electricity Authority, Ministry of Power, Govt. of India (http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm) /14/ and found consistent.

This has been carried out in compliance with paragraphs 89 & 90 of VVM 1.1.

In the initial webhosted version of the PDD for the Global Stakeholder Consultation, the combined margin grid emission factor data for the southern regional grid was not correct as per the baseline carbon dioxide emission database/ version 3.0, dated December 2007 provided by the Central Electricity Authority. The Project Proponent was requested to clarify the same and **CAR05** was raised for suitable corrective action.

Further the PP has considered the corrected value of the combined margin grid emission factor data for the southern regional grid as per the baseline carbon dioxide emission database/ version 3.0, dated December 2007 provided by the Central Electricity Authority and was found to be consistent. Hence **CAR05** was closed.

The ex-ante emission reduction calculation excel sheet was not provided by the project proponent hence the same was requested for and **CL06** was raised for providing the same for validation. The project proponent further provided the excel worksheet for the ex-ante emission reduction. The same was checked for consistency and was found in concurrence with the applied value of combined margin grid emission factor data for the southern regional grid as per the baseline carbon dioxide emission database/ version 3.0; dated December 2007 provided by the Central Electricity Authority during estimation of emission reduction and was found to be consistent. Hence **CL06** was closed. The estimated emission reductions values were further updated in the subsequent revised versions of the PDD and were found to be correct and hence accepted.

4.9 Application of Monitoring Methodology and Monitoring Plan

The project applies the approved monitoring methodology AMS-I.D, version 13, "Grid connected renewable electricity generation" for Type I – Renewable Energy Projects, according to Appendix B of the "Simplified modalities and procedures for small-scale CDM project activities. Given that the emission factor is estimated

and fixed ex-ante in the line with the monitoring methodology AMS-I.D, version 13, the data to be monitored are the electricity supplied by the project activity.

The net electricity supplied to the grid will be monitored by main meter and check meter. Data registering procedure of total electricity generated and auxiliary electricity will be available in the Distributed Control System (DCS), furthermore the readings will be recorded directly in the Central Control Room on daily basis. The recorded data will be cross checked with the sales invoice. Detailed monitoring methodology and management plan for the data storage have been reviewed during site visit and found in line with the revised version of the PDD.

The project proponent identified the following parameter as the monitored data after the implementation of the project activity as *ex-post*:

EG_Y=Net units of electricity substituted in the grid during the year y (in kWh)

The aforementioned all the parameters have been utilized to determine the baseline emission calculation and further discussed the emission reduction by applying the equation

Emission reduction = Baseline emission – Project emission – Leakage

Where, Project emission is considered as zero, as the project would not utilize any fossil fuel during operation. In the project activity, there is no transfer of energy generating equipment from another activity and no transfer of the existing equipment to another activity hence no leakage is considered.

Based on the above discussion it was found that the proposed project activity fulfils entire monitoring requirement of the applied methodology and well supported with the assumed data mentioned in the baseline emission calculation procedure. Thus the values used in the baseline calculation are being considered reasonable in the context of the proposed project activity.

As per the methodology AMS I D version 13, the monitoring of the project requires the metering of the electricity generated by the renewable technology. The PP has included the metering of the gross generation of electricity at the generation end in line with the requirement of the methodology. However, the amount of electricity that is exported to the grid which is the net saleable energy effectively forms the basis of the estimation of the emission reduction as the same can be considered to be amount of electricity from renewable source and deemed to be considered replacing the fossil fuel intensive southern grid. The same has been found logical and hence accepted.

This has been carried out in compliance with paragraph 123 of VVM 1.1.

CL07 was raised as there was a discrepancy with respect to the state body mentioned in annex 4 in respect of monitoring the net electricity exported to the grid and the information provided under section B.7.1 of the PDD.

In response the PP clarified that the PP has signed a Power Purchase Agreement (PPA)[/28/] with Hubli Electricity Supply Company Limited (HESCOM). Further it was clarified that HESCOM is the nodal agency of Government of Karnataka responsible for purchase of power from Independent Power Producers of the area on behalf of KPTCL (Karnataka Power Transmission Company Limited), the entity responsible for operations of the local grid of Karnataka. Hence, though the PPA of EDCL is with HESCOM, the project will ultimately export power to the KPTCL grid which is a part of the Southern Regional Electricity grid.

Based on the clarifications provided the Power Purchase Agreement executed between EDCL & Hubli Electricity Supply Company Limited (HESCOM) was cross checked with the official web site of Karnataka Power Transmission Company Limited and found that though the PPA of EDCL is with HESCOM, the project will ultimately export power to the KPTCL grid which is a part of the Southern Regional Electricity grid. Thus the **CL07** was closed out.

CL08 was raised to obtain substantiation on the procedure identified for day to day records handling and the related performance documentation. Also, procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems was to be clarified by the PP. The PP was requested to provide information regarding internal audit procedures required to be executed for GHG project compliance with operational requirements.

In response the PP clarified that the procedures towards day-to-day record handling system have been elaborated and included appropriately in Annex 4: Monitoring Plan of the subsequent revised and final version of the PDD. Hence considered accepted.

The QA/QC procedures with regard to the procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems for the project activity have also been elaborated in Annex 4: Monitoring Plan of the revised final version of the PDD. The same was cross checked and found to be consistent with the requirement. Hence was accepted.

The information related to internal audit procedures required to be executed for GHG project compliance with operational requirements, have also been detailed in Annex 4: Monitoring Plan of the revised final version of the PDD. The same was cross checked and found to be consistent and hence accepted. Thus **CL08** was closed out.

4.10 Environmental Impacts

The proposed CDM project activity contributes to generation of green power, thus the project activity is expected to have only beneficial impacts on the environment and no adverse impacts are foreseen. There is no local and national legislative mandate for carrying out an environmental impact assessment study for such project activity. The relevant statutory clearances /24/,/26/,/29/,/30/, have been reviewed and verified by the DOE and were found to be in line with host country environmental legal requirements.

The notification by the Ministry of Environment and Forests was cross checked against their official website http://envfor.nic.in/legis/eia/so1533.pdf /45/and found that the 6MW Harangi Phase-II project activity does not fall under the purview of the project requiring mandatory EIA study.

The justification towards non requirement of a mandatory EIA study for the current project activity have been cross checked against the web site:http://envfor.nic.in/divisions/iass/notif/eia.htm and found satisfactory. The official website of the Ministry of Environment and Forest clearly specifies that EIA study is made mandatory under the Environmental Protection Act, 1986 only for project activities involving investment of Rs 50 crores and above. The project activity of EDCL involves investment of Rs 15.47 crores approximately and is therefore exempted from the EIA study. The Detailed Project Report dated 04/10/2005 for the project activity was cross checked for the total project cost which is Rs 15.47 crores during the validation site visit and found to be correct. Thus the non requirement of an EIA study for the project activity is hereby considered acceptable. Further it was ascertained that the project activity will not result in any adverse environmental effect and will not create any trans-boundary environmental impacts.

This has been carried out in compliance with paragraph 131 of VVM 1.1.

4.11 Local Stakeholder Comments

The project proponent has considered the following stake holders mentioned below:

- Elected body of representatives administering the local area (village Panchayat)
- Local clubs and Non-Governmental Organisations (NGOs)
- Contractors

During validation of the site visit it has been verified that the identified local stakeholders have been informed and requested to express their views and provide their feedback on the same. The PP has provided the copy of written communication letters/15/ issued to the local stakeholders informing them regarding the project activity to be set up and the time, date and venue of the interactive session organized for the same requesting them to join and provide their feedbacks.

The notice was circulated on 03/03/2008 (EDCL/BLR/78B/2007-08/1040 dated 03/03/08) and written feedback was received from the stakeholders who were found to be relevant and hence accepted.

The positive comments and feedback provided by the local stake holders regarding the project activity to be set up by Energy Development Company Limited have been reviewed /34/and discussed during the validation site visit by on-site interviews, and no negative comments towards the project activity have been observed.

This has been carried out in compliance with paragraphs 127 and 128 of VVM 1.1.

5. Comments by Parties, Stakeholders and NGOs

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

5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the SGS website http://cdm.unfccc.int/Projects/Validation/DB/KX1MNTZLORNR8CU48XL3DGLAQT1GGY/view.html and was open for comments from 20 May 2008 until 18 Jun 2008. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all Comments Received

No comments were received during the global stakeholder commenting period

Comment Number	Date Received	Submitter	Comment
NIL	NA	NA	NA

5.3 Explanation of How Comments Have Been Taken into Account

No comments were received during the global stakeholder commenting period

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
05/07/2008	Mr. Sanjeev Saraf Mr. L.K. Sadani	Executive Director Advisor	Project proponents view on CDM project activity and project design and monitoring plan.
05/07/2008	Mr. Sanjeev Saraf Mr. L.K. Sadani	Executive Director Advisor	Awareness towards the project activity and type and extent of socio- economic and environmental well being by the project activity.
05/07/2008	Mr. Mohar Sen Ms. Payal Ghosh	CDM Consultant	Baseline and Additionality

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

/1/ PDD, version 01, dated 12/05/2008 (web hosted)
/2/ PDD, version 02, dated 02/02/2009 ; PDD, version 03, dated 15/01/2010 & PDD version 04 dated 26/02/2010 (intermittent)
/3/ PDD, version 05, dated (15/03/2010) (Final)
/4/ HCA letter4/15/2008-CCC, dated 18th September 2008
/5/ Modalities of Communication dated 11/01/2010

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

/6/ Letter to Boom Systems Private Limited for DPR of the project letter (Reference: EDCL/BSPL/08-05/392 dated 26th August 2005)
/7/ Harangi ER calculation excel sheet (Final)
/8/ IRR calculation excel sheet version 01
IRR calculation excel sheet version 02
IRR calculation excel sheet version 03
IRR calculation excel sheet version 03.1
IRR calculation excel sheet version 03.2 and
IRR calculation excel sheet version 03.3.
/9/ Tariff Order Karnataka State Electricity Regulatory Commission, dated 18/01/2005.
/10/ Chartered Accountant (Mehta Paraj & Co.; ICAI M. No. 58617) Certified financial calculations, dated 27/10/2005
/11/ http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72286.pdf)..
/12/ Letter of Award for the Turbo-generator set to Boom Systems Private Limited, letter ref. no. EDCL/BSPL/LOA/293 dated 19/04/2007
/13/ CDM consultant appointment, EDCL letter reference no. EDCL/E&Y/CDM/LOA/04/2007-08/001, dated 16/04/2007.
/14/ Central Electricity Authority, Ministry of Power, Govt. of India (http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm Version 03, December 2007
/15/ Stakeholder Invitation notice ref: EDCL/BLR/78B/2007-08/1040 dated 03/03/08
/16/ CII-ENVIS titled “Green Business Opportunities” – Issue Jan-March 2005 http://www.sustainabledevelopment.in/publications/sustainability_tomorrow/archive/1.pdf
/17/ http://www.hindu.com/2005/09/16/stories/2005091604681400.htm
/18/ Loan Rejection letter from Yes Bank dated 10/10/2005
/19/ Hydrology DPR prepared by M/s Boom Systems Pvt. Ltd dated 04/10/2005
/20/ Extract of minutes of meeting of Board of Directors of M/s Energy Development Company Limited on 29/10/2005
/21/ Email communication between CDM consultant and EDCL on 14/11/2005, 20/03/2006, 27/03/2006, 06/04/2006, 20/04/2006, 27/04/2006, 24/07/2006 and 26/07/2006
/22/ The Proceedings of Government of Karnataka. Government Order No: EN 182 NCE 2006 dated 31/05/2006 as the approval letter from Govt. of Karnataka (GOK) Energy Dept
/23/ The document for clearance for Fisheries Department Ref No. INL/5/2006-07 dated 14/09/2006
/24/ Establishment and clearance from Water and Air Pollution by Karnataka Stake Pollution Control Board Ref No: KSPCB /EO (MYS)/DEO/AEO-4/LG/CFE/2006-07 dated 16/09/2006
/25/ Communication between CDM Consultant and EDCL between 16/01/2007, 30/01/2007, 27/02/2007, 30/03/2007
/26/ Technical clearance accorded by Karnataka Renewable Energy Development Limited to EDCL (Ref no: KRED/06/Harange Tail race Escape HEP/2007/754 dated 02/04/2007)

/27/ Work order for appointment of CDM consultant ref: EDCL/E&Y/CDM/LOA/04/2007-08/001
/28/ Power Purchase Agreement dated 12/04/2007, signed between Hubli Electric Supply Company Limited and EDCL
/29/ Approval of Water Resources Dept. Govt of Karnataka on 21/08/2007
/30/ Environmental Clearance document ref: FEE 241 ECO 2007 dated 04/02/2008
/31/ Forwarding Letter dated 14/02/2008 to the Ministry of Environment and Forests; Government of India from EDCL for Host Party Approval
/32/ Note from Secretary Energy Dept. to Secretary Water Resource Department for immediate allotment of land dated 15/02/2008 Ref No: EN 314 NCE 2007
/33/ Contract Agreement between EDCL and SGS India Private Limited dated 14/05/2008
/34/ Codava National Council letter dated 2/04/2008 to EDCL
/35/ ODA (self declaration letter dated 04/08/2008)
/36/ Hydrological Study for Harangi Phase II by ECI Renewable Energy Consultants (P) Limited dated 20/10/2005
/37/ VVM version 1.1 EB 51 Annex 3
/38/ http://www.kerc.org/order2005/Order%20on%20NCE%20Tariff%20(FINAL).doc
/39/ http://www.cea.nic.in/hydro/Special_reports/GUIDELINES%20for%20formulationof%20DPR%20for%20HE%20Schemes.pdf
/40/ http://www.mca.gov.in/MinistryWebsite/dca/actsbills/pdf/Companies_Act_1956_Part_2.pdf
/41/ http://www.indianembassy.org/newsite//doing_business_in_india/fiscal_taxation_system_in_india.asp
/42/ http://www.indiainbusiness.nic.in/investment/taxation.htm
/43/ http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/87456.pdf
/44/ http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/79541%20.pdf
/45/ http://envfor.nic.in/legis/eia/so1533.pdf
/46/ http://envfor.nic.in/divisions/iass/notif/eia.htm
/47/ Letter of contract by M/s EDCL to M/s ECI Renewable Energy Consultants (P) Limited (Ref no.EDCL/ECI/HAR-II/405 dated 11 October 2005)
/48/ http://www.ajaygarg.com/RATES%20OF%20INCOME%20TAX.doc
/50/ Manufacturers Certification dated 24/05/2007 (Technical lifetime of the turbo generator set)

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for "6 MW Harangi Phase-II Hydro Power Project in Karnataka, India"

It serves as a "**reality check**" on the project that is completed by a local assessor from SGS India.

Issue	**Findings**	**Source/Means of Verification**	**Further Action / Clarification / Information Required?**
Host Country Approval letter ensuring the participation requirements being met by the project activity.	Host Country Approval letter from the Ministry of Environment & Forests (Indian DNA) towards the CDM project activity could not be provided by the PP during the document review process of the validation site visit. Hence a CAR was raised.	The Host Country approval letter from the Indian DNA (Ministry of Environment and Forests) was not provided during the validation site visit, hence CAR 01 was raised.	~~CAR 01 was raised.~~ CAR 01 closed out.
The appropriate Modalities of Communication for the project activity have to be submitted by the Project participant before submitting a request for registration.	The letter on the Modalities of Communication with the Executive Board and the UNFCCC Secretariat signed by the project participant could not be provided by the PP during the document review process of the validation site visit. Hence the correctness of the contact information of PP as provided in the PDD Annex 1 could not be checked. A CL was raised.	The Modalities of Communication was not provided during the validation site visit, hence CL 02 was raised.	~~CL 02 was raised.~~ CL 02 closed out.
Provide the applicable ownership documents or licenses which allow the implementation of the project at that site	The following documents were checked and verified against the hard copies provided as hereunder; 1. Technical clearance: KREDL / 06 / Harangi HEP, dated 28/03/2007 2. Irrigation and water resource clearance dated 21/08/2007 3. Fisheries Clearance: INL/5/2006-07 dated 14/09/2006 4. Environment and Ecology department Clearance: FEE 241 ECO 2007, dated 04/02/2008 5. Water Clearance dated 21/08/2007	The documents were provided in original during the validation site visit which was checked and verified and found satisfactory. 1. Technical clearance: KREDL / 06 / Harangi HEP, dated 28/03/2007 2. Irrigation and water resource clearance dated 21/08/2007 3. Fisheries Clearance:	Review and submission. No further action required.

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
	6. Power Purchase Agreement between HESCOM & EDCL dated 12/04/2007 7. Govt Order: GO: EN 182 NCE 2006, Bangalore dated 31/05/2006 8. Land allotment agreement and lease deed: No KA/HRD/PEC/Harangi/EDCL/2008-09/1287-82, dated 04/06/2008 The above mentioned documents were cross checked against the original during the validation site visit and found satisfactory	14/09/2006 INL/5/2006-07 dated 4. Environment and Ecology department Clearance: FEE 241 ECO 2007, dated 04/02/2008 5. Water Clearance dated 21/08/2007 6. Power Purchase Agreement between HESCOM & EDCL dated 12/04/200 7. Govt Order: GO: EN 82 NCE 2006, Bangalore dated 31/05/2006 8. Land allotment agreement and lease deed: No KA/HRD/PEC/Harangi/ EDCL/2008-09/1287-82, dated 04/06/2008	
Provide technical specification of the project equipments installed along with the respective Purchase Orders	The Purchase Order of equipments placed to M/s Boom Systems Private Limited by EDCL: Ref: EDCL/BSPL/LOA/293 dated 19/04/2007 was cross checked during the desk review as a part of the validation site visit and found in line with the information provided in the PDD and was thus accepted	Purchase Order of equipments placed to M/s Boom Systems Private Limited by EDCL: Ref: EDCL/BSPL/LOA/293 dated 19/04/2007	Review and submission. No further action required.

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Please clarify whether there is any possibility regarding substitution of installed project technology by more efficient one during the entire crediting period.	The PP has provided an Undertaking dated 05/07/2008 towards no technology substitution for the project activity during the entire crediting period in the form of a hard copy which was checked, verified and found acceptable.	Self declaration from EDCL dated 05/07/2008	Review and submission. No further action required.
Detail documentary description and record of initial extensive training programme conducted should be provided by the project proponent.	The existing 9 MW power plant has been checked and verified during the validation site visit and the operators of the said power plant responsible for the operation and maintenance of the 6MW proposed power plant under consideration seems to be logical and hence accepted. The employees engaged with assigned roles and responsibilities for running the plant were interviewed and found to have adequate knowledge and experience in the said job. The additional man power upon employment would be imparted on job internal training sounds logical hence may be considered acceptable	Through interviews conducted during the validation site visits.	Review and submission. No further action required.
Provide the project implementation schedule for project activity and the associated risk of delay for project implementation against the selected crediting period.	The Communication from the Under Secretary, Energy Department to Secretary-Water Resources Department, Government of Karnataka (EN314 NCE 2007 dated 15/02/2008) was cross checked in original during the desk review as a part of validation site visit and found satisfactory. The document clearly mentions that there has been delay in land allotment which further delayed the implementation of the project activity. Further the land allotment agreement and lease deed: No KA/HRD/PEC/Harangi/EDCL/2008-09/1287-82, dated 04/06/2008 was cross checked during the validation site visit. A Self declaration dated 05/07/2008 by the Project Proponent has been provided which mentions that the project activity is expected to get commissioned before May 2009 as per the planned schedule	-Communication from the Under Secretary, Energy Department to Secretary-Water Resources Department, Government of Karnataka (EN314 NCE 2007 dated 15/02/2008). -Land allotment agreement and lease deed: No KA/HRD/PEC/Harangi/EDCL/2008-09/1287-82, dated 04/06/2008 -Self Declaration from EDCL dated 05/07/2008	Review and submission. No further action required.

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
The PP would have to provide documentary evidence in support of the claim that no public funding would be invested in the project activity.	The self declaration provided by the Project participant was checked and cross verified through interviews conducted during the validation site visit and document review process and considered acceptable	Self Declaration from EDCL dated 05/07/2008.	Review and submission. No further action required.
Please clarify whether the existing 9 MW power plant is developed under the CDM modalities and whether the 6MW power project is an independent project activity.	The Power Purchase Agreement between Karnataka Electricity Board and M/s EDCL dated 20 October 1999 was checked and found to be related to the Harangi Phase-I. The separate Power Purchase Agreement between HESCOM & EDCL dated 12/04/2007 for the 6MW Harangi phase II project was cross checked with the original PPA and found to be independent. Other relevant clearances to the 6MW project activity provided was also cross checked and found consistent. Thus it is accepted that the 6 MW project activity is independent of the existing 9MW Harangi Phase II project	PPA of Harangi Phase – I project dated 20/10/1999. -Power Purchase Agreement between HESCOM & EDCL dated 12/04/2007	Review and submission. No further action required
Provide an undertaking that the capacity of the project activity will not exceed the limits of the small scale project activity	The self declaration dated 05/07/2008 by the project proponent has been checked and verified and found satisfactory. The Declaration affirms that the size of the proposed project activity will remain within the limits of the small scale project activity.	Self declaration from EDCL dated 05/07/2008	Review and submission. No further action required.
Please clarify whether DG sets will be in use with in the project boundary	The PP has clarified that in all case scenarios there would be no dependence on fossil fuel other than consumption from the grid in case of any exigency situation. The clarification provided by PP was verified during the site visit and was deemed logical and hereby considered acceptable.	No document provided.	No further action required.

Issue	Findings	Source/Means of Verification	Further Action / Clarification / Information Required?
Provide the NOC and Consent issued by State Pollution Control Board	The Consent for Establishment and clearance from the Karnataka State Pollution Control Board towards the proposed project activity (Ref No. 3/KSPCB/EO (MYS) / DEO / AEO-4 / LG/CFE/2006-07/923 dated 16/09/2006) was cross checked and verified against the original document during the desk review as part of the validation site visit and was found to be satisfactory	Pollution Control Board Clearance: No. 3/KSPCB/EO (MYS) / DEO / AEO-4 / LG/CFE/2006-07/923 dated 16/09/2006.	Review and submission. No further action required.
Justify the claim of non requirement of mandatory EIA study for the project activity against objective evidence	The notification by the Ministry of Environment and Forests was cross checked against their official website http://envfor.nic.in/legis/eia/so1533.pdf and found that the 6MW Harangi Phase-II project activity does not fall under the purview of the project requiring mandatory EIA study.	http://envfor.nic.in/legis/eia/so1533.pdf	N/A
Provide information on how the stake holders have been consulted for the said project activity	The letter seeking feedback on the initiative of M/s EDCL for implementing the 6 MW proposed Harangi Phase-II hydro electric power project from the Kudu Mangalore Gram Panchayat, Codava National Council (NGO) was cross checked and found satisfactory. The local stake holders were also interviewed at the project site during the validation site visit and found satisfactory	-Letter seeking feedback from Gram Panchayat (Ref No. EDCL/BLR/78B/2007-08/1040 dated 03/03/08). -Letter seeking feedback from, Codava National Council (NGO) dated 03/03/08.	Review and submission. No further action required.
Please provide the feedback received from relevant local stakeholders consulted for the project activity	The written feed backs received from the relevant stake holders on the project activity were cross checked and interviews were conducted during the validation site visit which revealed support and appreciation for the initiative taken up by EDCL in implementing the 6 MW Harangi, Phase-II hydroelectric power project.	-Feedback letters from Employees of EDCL, Harangi, Karnataka dated 15th December 2007. -Feedback letters from Codava National Council (NGO) dated 02/04/2008 .	Review and submission. No further action required.

A.2 Annex 2: Validation Checklist

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion/CARs/CLs

Requirement	Reference	Comments	Conclusion/CARs/CLs
1. All Parties involved have approved the project activity 1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms 1.1.1. The country is a Party to the Kyoto Protocol 1.1.2. Participation is Voluntary 1.1.3. The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval 1.1.4. It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	Annex 3, Clean Development Mechanism, Validation and Verification Manual, Version 01 (from this point forwarded referenced as VVM) - 49a-d /54a-b/125 Paragraph 37 CDM Modalities and procedures	Both the parties have ratified the Kyoto Protocol and India has ratified the protocol on 26th August 2002 and is allowed to participate. The web link is http://unfccc.int/parties_and_observers/parties/items/2109.php http://maindb.unfccc.int/public/country.pl?country=IN No annex I Party is involved in the proposed CDM project activity at the stage of Registration. The Project will assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3. The project activity is likely to contribute to sustainable development of the non-Annex I Party, India. Letter of approval from Host Country (India) Designated National Authority (DNA) to be submitted by the project proponent CAR 01 was raised. .The Host Country Approval letter No. 4/15/2008-CCC, dated 18th September 2008 issued by the Government of India, Ministry of Forest and Environment to the Executive Director, of Energy Development Company Limited for the 6 MW Harangi Phase-II Hydro Power Project in Karnataka, India"in the District Kodagu, Karnataka has been provided in the form of a hard copy document. The same has been checked and found satisfactory. The CAR 01 was closed out.	~~CAR 01 raised~~ CAR 01 closed Y

Requirement	Reference	Comments	Conclusion/CARs/CLs
1.2. If the project participant(s) listed in the PDD published at international stakeholder consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41.	Pending Closure CAR 01	~~Pending Closure CAR 01~~ CAR 01 closed Y
1.3. The letter/s of approval are unconditional with respect to 1.1.1 to 1.1.4 above	VVM Para. 49/54	Pending Closure CAR 01. The LoA has been found to be on a voluntary basis	~~Pending closure CAR 01~~ CAR 01 closed Y
2. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 128 Marrakech Accords, CDM Modalities, §40	The PDD has been web-hosted in the UNFCCC website for invitation of comments on the project activity as the global stakeholder consultation process: Website: http://cdm.unfccc.int/Projects/Validation/DB/KX1MNTZLORNR8CU48XL3DGLAQT1GGY/view.html Start date: 20 May 08 Close date: 18 June 08 Number of comments received: 0 .	Y

Requirement	Reference	Comments	Conclusion/CARs/CLs
3. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The project has used version 3 of CDM-SSC-PDD format correctly	Y
4. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	The Modalities of Communication would have to be submitted by the Project participant before submitting a request for registration. CL 02 raised The same has been submitted by PP on 11/01/2010.	~~CL 02 raised~~ CL 02 closed Y

Table 2PDD

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	The project title used in the PDD version 01 is clearly enabling to identify the unique CDM project activity.	Y
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD section A.1	DR	The version number (01) and date of version (12/05/2008) has been properly mentioned in Section A.1 of the PDD.	Y
A.2. Description of the Project Activity				
A.2.1. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately?	VVM Para.59 PDD section A.2 see also A.4, A.4.3 and B.3	DR	As per the description provided under section A.2 of PDD version 01, the project activity is a small hydro power project of 6MW Capacity set up in order to tap the hydro power generation potential due to excess spill water of the existing Harangi dam constructed across Harangi river during the overflow season. The power generated would be evacuated by stepping up to 66 kV and transmitted by means of the existing 66 kV line from Phase-I Power house to the nearest substation.	Y
A.2.2. Does the information provide the reader with a clear understanding of the proposed CDM activity?	VVM Para.60 PDD section A.2 see also A.4, A.4.3 and B.3	DR	The same would be cross checked during site visit.	~~Site Visit.~~ Y
A.2.3. Is all information provided consistent and in compliance with the actual situation or	VVM Para.64 PDD section A.2 see also A.4, A.4.2 and B.3	DR	The same would be cross checked during site visit.	~~Site Visit.~~ Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
planning?				
A.2.4. Is all information provided consistent with details provided in further chapters of the PDD?	VVM Para.64 PDD section A.2	DR	Pending for closure of CAR's & CL's.	~~Pending~~ Y
A.3. Project Participants				
A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51 PDD section A.3	DR	The table under section A.3 of the PDD version 01 required for the indication of project participants has been applied correctly.	Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	VVM Para. 51 PDD section A.3	DR	All the information regarding project participants is consistent with details provided by further chapters of the PDD (in particular annex 1: contact information on participants in the project activity).	Y
A.4. Technical Description of the Project Activity				
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR	The information provided regarding the location of the project activity is clear. The project activity is situated near Hudgar Village of Somawarpet Taluk in District Kodagu in the State of Karnataka, in the Southern India. The geographical co-ordinates of the project activity are Latitude- 12°29'34" North and Longitude-75°54'20" East.	Y
A.4.2. Does the proposed CDM project activity	VVM Para.64	DR	The proposed CDM project activity does not involve the alteration of existing installation or process	~~LAC~~

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
involve the alteration of existing installations or process?	PDD section A.4			Y
A.4.3. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	VVM Para.64 PDD section A.4	DR	In the PDD it has been identified. The documentary evidence is required to be provided by the PP with regard to the ownership and relevant licenses and approvals allowing the implementation of such a project activity to establish and operate. ~~LAC~~ Y	
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR	The project correctly applies the category of the project activity as Scope 1 – Energy Industries (renewable / Non Renewable)	Y
A.4.5. Is all information provided in compliance with actual situation or planning as available by the project participants?	VVM Para.64 PDD section A.4	DR	This has to be checked during the site visit.	Site Visit. Y
A.4.6. Is the table required for the indication of projected emission reductions correctly applied?	VVM Para.64 PDD section A.4	DR	The table under Section A.4.3 of the PDD required for indication of the projected emission reductions has been correctly applied.	Y
A.5. Debundling				
A.5.1. Is the small-scale project activity a debundled component of a large scale project activity	VVM Para. 134c EB47 Annex 32	DR / site visit	As per the PDD version 01 the 6 MW hydro power plant would utilize the hydro power generation potential of the excess spill water of the Harangi dam constructed across Harangi river for the existing 9 MW power plant. The project participant would have to clarify whether the existing 9 MW power plant is developed under the CDM modalities and further whether the 6MW power project is an independent project activity. The same would have to be checked during the validation site visit.	~~LAC~~ Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
A.5.2. If the project is a debundled component of a larger project, does the larger project fall within the limits for small-scale CDM project activities	VVM Para. 134c	DR / site visit	Pending site visit	~~DR / site visit~~ Y
A.6. Public Funding				
A.6.1. Does the information on public funding provided conform to the actual situation or planning as presented by the project participants?	PDD section A.4.4	DR	The PDD states that no public funding will be invested in the project activity. The same should be checked during the site visit and PP should provide proper substantiation for the same.	~~LAC~~ ~~Pending Site Visit~~ Y
A.6.2. Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.4	DR	All information regarding Public Funding provided under PDD is consistent with details provided by further chapters of the PDD.	Y
A.6.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.4	DR	As per PDD no public funding from Annex I party has been identified for the project activity. Please refer section A.5.1 above.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B. Baseline and Monitoring Methodology				
B.1. Choice and Applicability				
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.68 PDD section B.1	DR	The PDD under the section B.1 refers to the Approved small scale methodology AMS-ID, version 13 dated 14 December 2007.	Y
B.1.2. Has the methodology (incl. the tools) been altered from the original version as referenced in the PDD?	VVM Para.69 PDD section B (B.1-B.2)	DR	The methodology (incl. the tools) bas not been altered from the original version as referenced in the PDD	Y
B.1.3. Does the project activity qualify as small scale project?	VVM Para. 134a	DR	The project qualifies as a small scale CDM project activity as it uses AMS I.D./Version 13 and the renewable energy output is 6 MW. The PP would have to provide an undertaking that the capacity of the project activity will not exceed the limits of the small scale project activity.	~~LAC~~ Y
B.1.4. Is the category(ies) of the project activity correctly identified in accordance with Appendix B to the simplified modalities and procedures for small-scale CDM project activities?		DR	The project activity is a 6 MW small hydro based renewable energy generation project to tap the hydro power generation potential of the excess spill water during overflow season from the existing Harangi dam constructed across Harangi river. The generated 6 MW electricity would be supplied to the state grid of Karnataka. Thus AMS-ID version 13 is applicable to the project activity.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.1.5. Is the selected simplified methodology applicable to the project activity in the PDD?	VVM Para.75/66a/68/73 PDD section B (B.1-B.2)	DR	Please refer Section B.1.4	Y
B.1.6. Does the project activity conform to one of the approved small-scale categories?	VVM Para. 134b	DR	Please refer section B.1.4	Y
B.1.7. Is the project activity a bundle of several small scale activities and if so does it contain any sub-bundles?		DR	As per the PDD, version 1 dated 12/05/2008 the project activity is an independent project and not a bundle of several small scale project activities.	Y
B.1.8. If the project activity is a bundle of several small scale activities, does the sum of the total bundle (including any subbundles) fall within the limits for small scale projects		DR	According to PDD Version01 project activity is not a bundle of several small scale activities.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.1.9. If the project activity is a bundle of several small scale activities, has the form with information related to the bundle been submitted and is it correctly used		DR	According to PDD Version01 project activity is not a bundle of several small scale activities.	Y
B.1.10. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.75/66b/68 PDD section B (B.1-B.2)	DR	Please refer section B.1.4	Y
B.2. Project Boundary				
B.2.1. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner? Is there information on GHG emissions in proposed CDM project activity boundary as a result of the implementation of the proposed CDM project activity which are expected to contribute more than	VVM Para.79/76 /67a PDD section B.3	DR	It encompasses the physical, geographical site of the renewable generation source. The project has been set up in the state of Karnataka and export electricity to the State grid which is a part of the Southern Regional Grid of India. As per the PDD version 01, the project boundary is clear according to the project category.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.				
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?	VVM Para.79 PDD section B.3	DR	The project has been set up in the state of Karnataka which belongs to the southern regional grid of India. The relevant grid has been correctly identified in accordance with the EB guidance.	Y
B.2.3. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para.78/79 PDD section B.3 also see section A.4.2	DR/site visit	The PDD version 01 clearly states about the project boundary which will facilitate the proposed GHG emission reduction but the same has to be checked during the site visit.	~~Pending Site Visit~~ Y
B.2.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para.76/79 PDD section B.3 also see section A.4.2	DR	Please refer Section B.2.1.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.3. Identification of the Baseline Scenario				
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	VVM Para.67b.80/82/86 PDD Section B.4/B.5	DR	The PDD has identified the most likely baseline scenario as the equivalent power generation at the carbon intensive Southern Regional Grid of India, which is found, justified.	Y
B.3.2. Are all tools/procedures in the methodology correctly applied to identify the most reasonable baseline scenario? This includes all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	VVM Para.81/82/86a-d/83/84 PDD Section B.4/B.5	DR	The project activity is small scale project activity and the discussion and determination of the chosen baseline is transparent and supported by the available power sector data adopted from Central Electricity Authority, Ministry of Power, Government of India.	Y
B.3.3. Is the choice of the baseline compatible	VVM Para.86b-c/95	DR	The baseline data regarding Indian Power Sector has been referred from the “CO2 Baseline Database for the Indian Power Sector” Version 03, December 2007, published	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
with the available data?	PDD Section B.4/B.5		by Central Electricity Authority, Ministry of Power, Govt. of India, made publicly available which is justified.	
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD Section B.4/B.5	DR	Please refer section B.3.1	Y
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.90/91 PDD Section B.4/B.5	DR	Please refer section B.3.1	Y
B.3.6. Is there a verifiable description of the baseline scenario? Does this include a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM Para.86e/85 PDD Section B.4/B.5	DR	Please refer section B.3.1	Y
B.4. Additionality				
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para.67d/95 PDD Section B.1/B.4/B.5	DR	The PDD in section .B.5 addressed the additionality as per the methodology. The project activity qualifies as small scale hence project proponent applied the Non binding best practice analysis as laid down in the EB 35, Annex-34 to demonstrate the additionality.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD Section B.1/B.4/B.5	DR	The proposed project activity is small scale project and as per EB 35, annex 34 guidelines project proponent carried out the Non-binding best practice examples to demonstrate additionality for SSC project activities. Thus the current project activity does not require using Additionality Tool.	Y
B.4.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete transparency to all available data and documentation?	VVM Para.93/91 PDD Section B	DR	The most plausible baseline alternative mentioned is continuation of generation in the Southern regional grid at the current emission levels, which has been found realistic.	Y
B.4.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project	VVM Para.102b PDD Section B.5	DR	The starting date of the project activity as per the PDD version 01 is 29/10/2005. Further explanation is required regarding selection of project start date and the appropriateness of the same with UNFCCC project start date definition. The proper documentary evidence towards the start date of the project activity needs to be provided by the project proponent. How and when the CDM was taken into serious consideration in the decision to go ahead with the project activity is not clear and the same has to be properly substantiated. CAR 03 was raised The detailed chronology of the project has been provided by the PP in accordance with EB 49 Annex 22 and the start date of the project has been revised to 19/04/2007 as	~~CAR 03 raied~~ CAR 03 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
activity			per the Letter of Award (Purchase Order) for supply of equipments place to Boom Systems dated 19/04/2007 ref:EDCL/BSPL/LOA/293 CAR 03 was closed out.	
B.4.5. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	VVM Para. 106, 107, 109 112a-c PDD Section B.5	DR	The project proponent has utilized the investment analysis procedure to demonstrate the additionality of the project activity in terms of IRR of the project for all the baseline alternatives. In addition to that project proponent also carried out the Non-binding best practice analysis as per EB-35, Annex-34, as the project falls under small scale.	Y
B.4.6. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 110 PDD Section B.5	DR	Please refer section B.4.5	Y
B.4.7. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this	VVM Para. 114 115a-b/116 PDD Section B.5	DR	As per Attachment A to Appendix B of the simplified modalities & procedures for Small Scale project activity, PDD demonstrates barriers by discussing Investment barriers, and other barriers:, Investment Barrier: • The Project participant would have to provide the proof for the investment required towards the total project cost for the implementation of the project activity along with the source of funds and the related terms and conditions,	~~CAR 04 raised~~ CAR 04 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?			made available to the project activity for its implementation. • The PP would have to clarify and provide justification towards the company's internal benchmark for similar projects. • The project participant would have to clarify why payback period has been considered as the financial indicator to judge the financial viability of the project activity and the Internal rate of return not been considered which happens to be more widely used for the said assessment.. • The internal bench mark considered as 8-10 years with respect to payback period for the existing 9 MW power plant and correlating the same with the 6 MW power project under consideration is not clear and properly justified. • The PP would have to provide the detail calculation to arrive at the pay back period of the 6 MW power project as 13 years. • The PP would have to provide documentary evidence towards the power tariff and the escalation clauses along with all other evidences considered with respect to energy generation, operation & maintenance and depreciation parameters provided in the PDD. • A detailed comparative analysis with and without CDM consideration subject to sensitivity analysis for the project activity needs to be provided. Other Barrier: • The PP would have to provide documentary evidence towards additional land acquired for the implementation of the project activity. The supportive documentary evidence towards the claim of the Government failing to fix up the revenue of the land procured by the PP would have to be provided. The PP further demonstrated the additionality in accordance with EB 35 Annex 34 with benchmark IRR and sensitivity analysis on the basis of EB 51 Annex 58 and was found to be consistent. Hence CAR 04 was closed out.	
B.4.8. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	Please refer B.4.4, pending closure of CAR 03	~~Pending~~ Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.4.9. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity. Do they also abide by the same applicable laws and legislations?	VVM Para. 105 PDD Section A.4.2/B.5	DR	The project additionality description includes relevant sectoral policies where applicable, but the Additionality of the project activity needs to be established to show the project activity is not the baseline scenario. Please refer B.4.4 above.	~~Pending.~~ Y
B.4.10. Has it been shown that the project is not common practice?	VVM Para. 119a/b PDD Section B.5	DR	Please refer section B.4.7	Y
B.4.11. What are they key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 118, 119c/d PDD Section B.5	DR	Please refer section B.4.7	Y
B.5. Application of the Simplified Methodology				
B.5.1. Has the simplified methodology been applied correctly for determining **baseline emissions**?	VVM Para. 91d PDD Section B (B.6.1 -B.71)	DR	The project proponent has applied the baseline methodology AMS-I.D version 13 correctly.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.5.2. Has the simplified methodology been applied correctly for determining **project emissions**?	VVM Para. 90/91d PDD Section B (B.6.2-B.71)	DR	The project emission calculation in the PDD has been done as per AMS ID / version 13. The equation applied for determining the project emission as mentioned in the PDD is in line with the approved methodology AMS ID/ version 13 used. Please clarify whether DG sets will be in use with in the project boundary.	~~LAC~~ Y
B.5.3. Has the simplified methodology been applied correctly for determining **leakage**?	VVM Para. 91d PDD Section B (B.6.2 -B.71)	DR	As per AMS-ID version 13 leakages will be considered if there is a transfer of energy generating equipment from another activity or if the existing equipment is transferred to another activity. As per Section B.6.1 of PDD version 01 the project activity involves electricity generation by utilizing the hydro potential of the excess spill water of the Harangi dam constructed across Harangi river to generate 6 MW hydro power .There are no anthropogenic emissions identified by sources outside the project boundary attributable to the project activity. The equipments used by the project activity are all newly procured and not transferred from any other project.	~~Pending.~~ Y
B.5.4. Where applicable, has the simplified methodology been applied correctly for the **direct calculation of emission reductions?**	VVM Para 88/91d PDD Section B (B.6.2 -B.71)	DR	The PDD explains all the methodological choices clearly. The steps and formulas mentioned in methodology are used correctly in the PDD.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.5.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	VVM Para.89/90/91 PDD Section B (B.6.2 -B.71)	DR	According to PDD version 01, the uncertainty level is low when calculating the GHG emissions because in the referred PDD version 01 section B.7.1, it is mentioned that the main meter is calibrated and sealed by HESCOM and check meter should be calibrated by project proponent. Net electricity exported to the grid will be monitored daily by EDCL on the basis of check meter reading and monthly joint meter reading will be taken by HESCOM and EDCL officials from main meter & check meter interconnection point and that can be cross checked by the monthly export bills generated by EDCL. Therefore the uncertainties in the GHG emissions estimates are properly addressed in the documentation.	Y
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD Sections B.5-C	DR	According to PDD version 01, the uncertainty level is not justifiable when calculating the GHG emissions because in the referred PDD version 01 section B.7.1, it is not mentioned about the uncertainty level of the data required calculating GHG emission. Therefore the uncertainties in the GHG emissions estimates are not properly addressed in the documentation.	Y
B.6. Ex-ante Data and Parameters Used				
B.6.1. Are the data provided in compliance with the methodology?	VVM Para. 91/67c PDD Section B.6.3B.6.4	DR	. In the Annex 3 of the PDD version 01, the combined margin grid emission factor data for the southern regional grid is not correct as per the baseline carbon dioxide emission database/ version 3.0, dated December 2007. The PP would have to justify the same. CAR 05 was raised The PDD version 04 dated 26/02/2010 was cross checked and found to have incorporated the Combined margin emission factor data for the southern regional grid as per the baseline carbon dioxide emission database/ version 3.0, dated December 2007 provided by the Central Electricity Authority. Thus CAR 05 is hereby closed out	~~CAR 05 raised~~ CAR 05 closed Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 91a/b PDD Section B.6.3/B.6.4	DR	Pending the closure of CAR 05	~~Pending~~ Y
B.6.3. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Pending the closure of CAR 05	~~Pending~~ Y
B.6.4. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 91c PDD Section B.6.3/B.6.4	DR	Please refer B.6.1	Y
B.6.5. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?	VVM Para. 90 PDD Section B.6.3/B.6.4	DR	2006 IPCC Guidelines for national Greenhouse Gas Inventories used for the calculation of baseline emission is current, transparent and reasonable. However, pending closure of point B.6.1	Y
B.6.6. If the project activity uses the PLF does it follow the guidance provided in EB48 annex 11?	EB48 Annex 11.	DR	The PP is required to demonstrate the use of consideration of PLF in line with the guideline EB 48 Annex-11. Pending closure CAR 04	~~Pending closure CAR 04~~ Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.7. Calculation of Emissions Reductions				
B.7.1. Has the simplified methodology been applied correctly for determining **emission reductions**?	VVM Para. 91d PDD Section A.4.3/B.6	DR	The PDD has applied the approved methodology (AMS-I.D version 13) correctly for determining the emission reductions. However the detail ex-ante emission reductions calculation worksheet is not available for cross check. CL 06 was raised. The excel sheet for the ER calculations was checked and cross checked with the information provided in the PDD version 04 dated 26/02/2010 and found consistent. Thus the CL 06 is hereby closed out	~~CL 06 raised~~ CL 06 closed Y
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	VVM Para. 91e PDD Section B.6	DR	Pending closure of CL 06	~~Pending~~ Y
B.7.3. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	PDD Section B.6	DR	Pending closure of CL 06	~~Pending~~ Y
B.7.4. Is the calculation of the emission reduction correct?	VVM Para. 91e PDD Section B.6	DR	Pending closure of CL06	~~Pending~~ Y
B.8. Emission Reductions				
B.8.1. Is the form/table required for the indication of projected emission reductions correctly applied?	PDD Section A.4.3/ Section B.6	DR	The project is expected to result in fewer GHG emissions than the baseline scenario.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.8.2. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	PDD Section A.4.3/ Section B.6	DR	The table at section B.6.4 required for the indication of projected emission reductions has been applied correctly in accordance with the Guidelines for completing CDM-SSC-PDD, version 05. According to the Section C of the PDD version 01, the project activity is yet to be commissioned and the start of 10 years fixed crediting period would be the project commissioning date (01/06/2010 or subsequent to the date of registration of the project, whichever is later, which is a future date.	Y
B.9. Monitoring Methodology				
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the simplified methodology. Has this data been interpreted and applied correctly?	VVM Para. 67e PDD Section B.7-B.8 see also Annex 4	DR	The monitoring plan of the PDD has followed the methodology in the context of the parameter to be monitored. In this project activity the only parameter to be monitored is the net electricity exported to the southern regional grid.	Y
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of	PDD Sections B and C	DR	The monitoring methodology applies the choice of both options for monitoring project and baseline emissions correctly.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
project and baseline emissions?				
B.10. Data and Parameters Monitored				
B.10.1. Does the monitoring plan in the PDD comply with the simplified methodology? Provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	VVM Para. 91a/91d/121/79 PDD Section B.7-B.7.2	DR	The description towards the data/ parameters monitored has been described under section B.7.1 of the PDD. The Monitoring Plan consists of metering the electricity exported to the southern regional grid of India, from the project activity and the data will be recorded by the main meter at the plant premises which will be sealed and calibrated by HESCOM.There is a check meter as well to the responsibility of the Project promoter. The determination procedure of electricity exported to the grid as mentioned in the annex 4 of the PDD, version 01 is complying with the monitoring methodology described in the Section B.7 of the PDD. But there exist a discrepancy with respect to the state body mentioned in annex 4 in respect of monitoring the net electricity exported to the grid. The PP would have to clarify the same. Further the PP was requested to address the monitoring parameters in line with the monitoring methodology AMS ID. Version 13. CL 07 was raised The Power Purchase Agreement between EDCL & Hubli Electricity Supply Company Limited (HESCOM) and the PDD version 02 dated 02/02/2009 was checked and cross checked with the official web site of Karnataka Power Transmission Company Limited and found that though the PPA of EDCL is with HESCOM, the project will ultimately export power to the KPTCL grid which is a part of the Southern Regional Electricity grid. The official web site of the Karnataka Power Transmission Company Limited, Government of Karnataka was cross checked and found that HESCOM is the nodal agency of Government of Karnataka responsible for purchase of power from Independent Power Producers. Thus the CL 07 is hereby closed out	~~CL 07 raised~~ CL 07 closed Y
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the simplified methodology	PDD Section B.7-B.7.2/B.6.2	DR	Please refer B.9.1	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
applied?				
B.10.3. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR	According to the description towards the monitoring plan provided under PDD, the GHG indicators will be possible to determine, as the monitoring plan does not involve any critical parameter to be monitored or any critical monitoring equipment to be used. However the project specific description towards the monitoring plan for the project activity is fully transparent.	Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1	DR	The description towards the data/ parameters monitored has been described under section B.7.1 of the PDD. The Monitoring Plan consists of metering the electricity exported to the southern regional grid of India, from the project activity and the data will be recorded by the main meter at the plant premises which will be sealed and calibrated by HESCOM. There is a check meter as well to the responsibility of the Project promoter. The determination procedure of electricity exported to the grid as mentioned in the annex 4 of the PDD, version 01 is complying with the monitoring methodology described in the Section B.7 of the PDD. However pending closure of CL 07	~~Pending~~ Y
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	PDD Section B.6.2-B.7.1	DR	In the PDD version 01, the monitoring methodology and description towards monitoring plan is stated under section no. B.7 of the referred PDD. The only measuring data is net electricity exported to the southern regional grid by the project activity is tabulated under section B.7.1, hence presented table ensures proper implementation of the monitoring plan. However pending closure of CL 07	~~Pending.~~ Y
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in	PDD Section B.5-B.7.2	DR	According to Annex 4 of the PDD version 01, the project proponent can not alter the readings of main meter as well as check meter because it is an on line process. Therefore the provision of intended or unintended changes in data records is not possible.	~~Pending site visit & CL 07 closure~~

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
a reliable and reasonably acceptable accuracy?			However the same would be verified during site visit and pending closure of CL 07	Y
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR	The project emission calculation in the PDD has been done as per AMS ID / version 13. The equation applied for determining the project emission as mentioned in the PDD is in line with the approved methodology AMS ID/ version 13 used. Please clarify whether DG sets will be in use with in the project boundary. Pending closure of CL 07	~~Pending site visit~~ Y
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures				
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	VVM Para. 121 Refer to all data within the PDD Inc. B.6.2-B.7.1	DR	The selection of data is complete.	Y
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	Refer to all data within the PDD Inc. B.4/B.7.2/Annex 4	DR	The uncertainty levels for each monitoring parameters have been determined in a correct and reliable manner.	Y
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	VVM Para 121	DR	The Monitoring Plan of the PDD has clearly mentioned the quality control and quality assurance procedures to ensure delivery of high quality data.	Y
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	VVM Para. 86d	DR	The monitoring data will be clearly reproducible and comparable and will not be dependent on site-specific adjustments.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19	DR	According to Annex 4 of the PDD version 01, the project proponent can not alter the readings of main meter as well as check meter because it is an on line process. Therefore the provision of overestimation of emission reductions not possible. However the same would be verified during site visit.	~~Pending Site visit.~~ Y
B.12. Operational and Management Structure				
B.12.1. Is the authority and responsibility of project management clearly described?	PDD Section B.8/Annex 1	DR	The PDD version 01 clearly signifies categorically the authority and responsibility of the project management towards the CDM project activity. In the section B.7.2 of the PDD the hierarchy of job responsibility is properly furnished.	Y
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8/Annex 1	DR	In the section B.7.2 of the PDD the hierarchy of job responsibility for registration, monitoring, measurement and reporting is provided clearly.	Y
B.12.3. Are procedures identified for training of monitoring personnel?	PDD Section B.8/Annex 1	DR	The same has been found to be consistent during site visit as the personnel involved were all involved in the Harangi Phase -1.	~~LAC~~ Y
B.13. Monitoring Plan (Annex 4)				
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	VVM Para. 122a	DR	The monitoring plan has been developed in a project specific manner, however pending closure of CL 07.	~~Pending~~ Y
B.13.2. Does the monitoring plan completely describe all measures	VVM Para. 122b	DR	The monitoring plan describes the measures to be implemented for monitoring all the parameters required. The information regarding the measures implemented to ensure	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?			data quality has been provided in the PDD.	
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	VVM Para. 122b	DR	The monitoring plan in the PDD provides specific information regarding the monitoring equipment that is, the energy meters and their respective positioning.	Y
B.13.4. Are procedures identified for calibration of monitoring equipment?	VVM Para. 122a-c	DR	The monitoring plan in the PDD provides specific information regarding the calibration of monitoring equipment.	Y
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	VVM Para. 122a-c	DR	The monitoring plan has clearly identified the procedures for maintenance of monitoring equipments and installations.	Y
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	VVM Para. 122a-c	DR	The procedure identified for day to day records handling and the related performance documentation needs to be further substantiated. CL 08 was raised The PDD version 02 dated 02/02/09 was checked and found to have incorporated the day to day record handling procedure in the Annex 4 of the PDD elaborately which seems to be satisfactory. Thus CL 08 is hereby closed out.	~~CL 08 closed~~ Y
B.13.7. Are procedures identified for dealing with possible monitoring	VVM Para. 122a-c	DR	No such procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems. Project proponent must clarify according to the monitoring plan of the PDD.	~~CL 08 closed~~.

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems?			The QA/QC procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems for the project activity have been incorporated in the Annex 4 of the PDD version 02 dated 02/02/09 which was cross checked and seems to be satisfactory. Thus CL 08 was closed out.	Y
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	VVM Para.122a-c	DR	The PDD version 01 does not provide any information regarding internal audit procedures required to be executed for GHG project compliance with operational requirements. CL 10 was raised The Annex 4 of the PDD version 02 dated 02/02/09 was cross checked and found to have included the information regarding internal audit procedures required to be executed for GHG project compliance with operational requirements satisfactorily leading to the closure of the CL 08.	~~CL 08 closed~~. Y
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	VVM Para. 122a-c	DR	The PDD does not identify for project performance reviews prior to submission of data for verification. Pending closure of CL 08	~~Pending~~. Y
B.13.10. Describe the ability of the project participants to implement the monitoring plan.	VVM Para. 122c	DR	The same has to be checked during site visit	. ~~Pending~~. Y
B.14. Baseline Details				
B.14.1. Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR	As per the PDD version 01 dated 12/05/2008 the date of completion of the application of the baseline study is 12/05/2008 mentioned under the section B.8. The baseline study has been done by Energy Development Conpany Limited.	Y
B.14.2. Is this consistent with the time line of the PDD history?	Also see revision history of the PDD	DR	It seems to be consistent with the time line of the PDD history as completion date for baseline study and PDD Version 01 is 12/05/2008.	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR	The baseline power generation information regarding southern regional grid system of India mentioned in the annex 3 of the PDD is justified and all the data provided is traceable.	Y
C. **Duration of the Project / Crediting Period**				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 102a-c PDD Section C.1.1/C.1.2	DR	The starting date of the project activity as mentioned in the original PDD is 29/10/2005 and expected operational life time of the project activity is 25 years 0 months.	Y
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2	DR	The PP has stated that starting date of crediting period is 01/06/2010. The length of the first crediting period is 10 years 0 months which is fixed and the same is acceptable to DOE.	Y
C.1.3. Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section C.1.2/C.2.1.1/C.2.1.2	DR	According to the PDD version 01, the operational lifetime is exceeding the crediting period.	Y
C.1.4. Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a/ 98 PDD Section C.1.1/C.2.1.1	DR	The starting date of the project activity as mentioned in the original PDD is 29/10/2005 hence it is pre-existing project activity	Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
D. Environmental Impacts				
D.1.1. Does the project comply with environmental legislation in the host country?	VVM Para. 131/134d PDD section D	DR	NOC and Consent issued by State Pollution Control Board needs to be provided by the project proponent.	~~LAC~~ Y.
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 131 PDD section D	DR	The PDD states that EIA is not required for this project activity. The PP has to justify non requirement of mandatory EIA study for the project activity against objective evidence.	~~LAC~~ Y
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 131 PDD section D	DR/ Site visit	There is no such requirement of Host party for EIA for the project. Please refer D.1.2	~~LAC~~ Y
D.1.4. Will the project create any adverse environmental effects?	VVM Para. 131 PDD section D	DR	Please refer D.1.2	~~LAC~~ Y
D.1.5. Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 131 PDD section D	DR	Please refer D.1.1	~~LAC~~ Y
D.1.6. Have identified environmental impacts been addressed in the project design?	VVM Para. 131 PDD section D	DR	Please refer D.1.2	~~LAC~~ Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
E. Stakeholder Comments				
E.1.1. Have relevant stakeholders been consulted?	VVM Para. 128a PDD Section E.1	DR	The stake holders identified for the project activity as per the PDD are as follows: • Village Panchayat • Non-Governmental Organizations (NGO) • Local Clubs • Contractors The PP would have to provide information on how the above mentioned stake holders have been consulted for the said project activity.	~~LAC~~ Y
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 128a PDD Section E.1	DR	The PDD, version 01 does not state anything about the involvement of the media to invite comments by the local stakeholders on the project activity. In turn it states that the stakeholders were sent written notification on behalf of the project proponent for comments and feedback on the project activity. Invitation Letter issued towards Local Stakeholder Consultation procedure has to be provided by the Project Proponent.	~~LAC~~ Y
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 128b PDD Section E.1	DR	The requirement of stakeholder consultation process by regulations/laws in the host country is not clearly indicated in the version 01 of the PDD.	~~LAC~~ Y
E.1.4. Is a summary of the stakeholder comments received provided?	VVM Para. 128b PDD Section E.2	DR	As per the PDD version 01, local stakeholder consultation procedure has been carried out by the project proponent as a significant requirement under CDM modalities.	~~LAC~~ Y
E.1.5. Has due account been taken of any stakeholder comments	VVM Para. 128b	DR	The concerns and comments received from the local stakeholders have been described in the version 01 of the PDD.	~~LAC~~ Y

Checklist Question	Ref. ID	MoV*	Comments	Conclusion/ CARs/CLs
received?	PDD Section E.3		Feedback received from relevant local stakeholders to be provided by the project proponent.	

References

S.No	Title / Description	Reference No	Comments
1.	PDD version 01, Dated 12/05/2008, PDD version 2, dated 02/02/2009, PDD version 03 dated 15/01/2010, PDD version 4 dated 26/02/2010 and PDD version 05 dated 15/03/2010.	Table 2 sections A,B,C.,D,E.	The PDD has been checked to complete the desk top review of the project description and further details for CDM project activity configuration.
2.	AMS-ID version 13, dated 14 December 2007.	Table 2 section B.	This has been referred to validate the applicability of the project activity, project boundary, baseline and monitoring methodological choices.
3.	UNFCCC website (http://cdm.unfccc.int/index.html)	Table 1 section B	UNFCCC website has been referred to check the international stakeholder consultation procedure.

A.3 Annex 3: Overview of Findings

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	04	04	00

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CAR	Number:	01	Reference:	Table 1-3
Lead Assessor Comment:					
Please justify, how the project activity is fulfilling the participation requirements for Clean Development Mechanism project activities					
Project Participant Response:				**Date:** *02/02/2009*	
The proposed project activity is a hydro power plant located in Karnataka, India. The project activity fulfils the participation requirements for Clean Development Mechanism, as documented in the Host Country Approval to the project activity (No. 4/15/2008-CCC, dated 18th September 2008), whereby the Designated National Authority for India, Ministry of Environment and Forests, confirms that • *The Government of India has ratified the Kyoto Protocol in August 2002.* • *The participation of the project proponent in the proposed project activity is voluntary.* • *The project contributes to sustainable development in India.*					
Documentation Provided by Project Participant:					
-HCA Letter No. 4/15/2008-CCC, dated 18th September 2008					
Information Verified by Lead Assessor:					
The information regarding the participation requirement in the CDM project activity provided in the form of HCA from the Indian DNA has been checked and verified against the hard copy of the letter and found satisfactory					
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** 24/03/2009	
The Host Country Approval letter No. 4/15/2008-CCC, dated 18th September 2008 issued by the Government of India, Ministry of Forest and Environment to the Executive Director, of Energy Development Company Limited for the 6 MW Harangi Phase-II Hydro Power Project in Karnataka, India"in the District Kodagu, Karnataka has been provided in the form of a hard copy document. The same has been checked and found satisfactory. The CAR 01 was closed out.					
Acceptance and Close out by Lead Assessor: Closed				**Date:** 24/03/2009	

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CL	Number:	02	Reference:	Table 1-4
Lead Assessor Comment:					
The Modalities of Communication would have to be submitted by the Project participant					
Project Participant Response:				**Date:** *02/02/2009*	
The modalities of communication for the project activity under consideration have been submitted to the DOE.					
Documentation Provided by Project Participant:					
/Modalities of Communication for project activity with the Executive Board and the UNFCCC Secretariat dated 05/07/2008					
Information Verified by Lead Assessor:					
Modalities of Communication for project activity with the Executive Board and the UNFCCC Secretariat dated 05/07/2008					
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** *06/01/2010*	

The modalities of communication for the project activity submitted by the project participant has been reviewed and it was not found to be consistent with the format specified by the UN. The PP is further requested to submit the modalities of communication for the project activity in the recent format of the UN. CL 02 remains open.	
Project Participant Response:	**Date:** *11/01/2010*
The latest Modalities Of Communication as per the latest UN format is submitted to the DOE.	
Documentation Provided by Project Participant:	
MOC dated 11-01-10	
Information Verified by Lead Assessor:	
The Modalities of Communication dated 11/01/2010	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 08/02/2010
The Modalities of Communication dated 11/01/2010 was checked for consistency with the UNFCCC format and was found to be as per the requirement. The CL 02 was closed out.	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 08/02/2010

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CAR	Number:	03	Reference:	B.4.4.
Lead Assessor Comment:					
Provide proper documentary evidence towards the start date of the project activity. Please clarify and properly substantiate, how and when the CDM was taken into serious consideration in the decision to go ahead with the project activity. Please explain the selection of project start date and the appropriateness of the same with UNFCCC project start date definition					
Project Participant Response:				**Date:** *06/01/2010*	

- Start Date of Project Activity: Letter of Award by EDCL to M/s Boom Systems Private Limited for purchase of Turbo Generator (Ref No: EDCL/BSPL/LOA/293) dated 19th April 2007 is taken as the Start Date for the project activity. This is as per the EB 41 paragraph 75 which defines the start date of a CDM project activity as: "the earliest date at which either the implementation or construction or real action of a project activity begins". Moreover in accordance to the EB 41 it was further clarified that "the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity"

- Serious Consideration of CDM: Prior consideration of CDM (As per EB 49, Annex 22, paragraph 6 (a) and (b)).

"The project participant must indicate awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project".
The proposed project activity involves in introduction of 6 MW hydro power plant (Harangi Phase 2) in the Escape Channel of the existing system of Harangi Mini Hydel project (Phase 1). The proposed project activity was conceived by the project proponent in August 2005 and the Contract for preparation of the Detailed Project Report was awarded to M/s. Boom Systems Pvt Ltd on 26th of August 2005 (Ref No:EDCL/BSPL/08-05/392- Contract Order placed by EDCL to M/s. Boom Systems Pvt Ltd). A detailed project report outlining the availability of additional head during the monsoon season only along with feasibility of utilization of the same for power generation was prepared and submitted to EDCL. (Refer to the DPR prepared by M/s. Boom Systems Pvt Ltd). Although the project activity was unique and was technically feasible the revenue recovery rate was worked out to be very low owing to the fact that the project was to operate only during monsoon season. (Refer to the Technical Clearance for the Harangi Phase 2 project issued by KREDL (Ref No: KRED/06/Harangi Tail race Escape HEP/2007/754) .EDCL also approached financial institutions for funding of the proposed project activity but due owing to low returns and consequent high payback, banks were unwilling to fund the project. One such bank (Yes Bank) pointed out that project activity had the potential to earn CDM revenues and would consider the loan application provided EDCL would resubmit fresh proposal incorporating the CDM revenues.

On the 29th of October 2005, the Board decided to undertake the project through the CDM en route. (Original Copy of the Board Minutes of EDCL has been submitted to the DOE). This demonstrates the CDM awareness of the project proponent before the start date of the project activity i.e.19th April 2007.

"The project participant must indicate, by means of reliable evidence, that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation".The chronology of events have been tabulated below which establishes that real initiatives were taken for securing the project through the CDM route:

Details of events	Timelines	Documentary Evidence	Remarks
Awareness of CDM			
Quarterly newsletter issued by CII-ENVIS titled "Green Business Opportunities"	Issue Jan-March 2005	http://www.sustainabledevelopment.in/publications/sustainability_tomorrow/archive/1.pdf	Documents available in the public domain from where the Project Proponent became aware of CDM.
An article in The Hindu titled "Nod for 100 CDM projects" highlighting the additional revenue from CER transactions in the international market.	September 2005	http://www.hindu.com/2005/09/16/stories/2005091604681400.htm	
Rejection of Loan Application for the 6 MW Harangi Hydro power project from Yes Bank and advocating the option of availing CDM revenues	10.10.2005	Letter from Yes Bank	Yes Bank had rejected the application for loan for the project activity and advocating that the project has the potential to earn CDM revenues. (Third Party CDM Consideration).

Board Approval with the Consideration of CDM			
CDM consideration by the Board of Directors of M/s Energy Development Company Limited	29.10.2005	Copy of Original Board Minutes	Original Copy of the Board Minutes has been verified by the DOE.
Continuing and Real Actions Undertaken			
Internal Communication: Letter from Mr. L.K. Sadani to Mr. A. Banerjee advising against immediate consultant appointment	14.11.05	The project didn't have the implementation agreement and technical clearance, necessary for project implementation	
Initiation of the process for appointment of consultants for CDM advisory services.	20.03.06	Email from CDM consultant to EDCL (Copy of the same has been submitted to the DOE)	Introductory mail from CDM consultant to EDCL highlighting that the project can avail the CDM benefits.
Communication between the CDM consultant and EDCL	-27.03.2006 -06.04.2006 -20.04.2006	Email Communications (Copy of the same has been submitted to the DOE)	Subsequent negotiations between the CDM consultant and EDCL related to: 1. Meeting between EDCL and CDM consultants 2. Proposal sent by CDM consultants to EDCL 3. Follow up regarding the status of the CDM proposal by the CDM consultant
EDCL expresses their reluctance to go ahead with the appointment of CDM consultant as they are apprehensive about the implementation of the project.	27.04.2006	Email from EDCL to CDM consultant. (Copy of the same has been submitted to the DOE).	EDCL clearly communicated to the CDM consultant that since crucial clearances for the implementation of the Harangi hydro project viz Implementation Agreement and other technical clearances were pending, they would enter the CDM cycle once the clearances were obtained.
Govt of Karntaka (GOK) Energy Dept. Sanctions the 6 MW hydro electric project (Harangi Phase – 2) in favour of EDCL	31.05.2006	Proceedings of Government of Karnataka. Government Order No: EN 182 NCE 2006.	The Government of Karnataka sanctioned the accord to implement the 6 MW hydro power project in the existing escape channel for utilizing the surplus water available only during monsoon months.

Implementation Agreement signed with GOK Energy Dept.	06.07.06	Scanned Copy of the implementation Agreement signed with GOK Energy Dept. dated 06/07/2006	Implementation agreement dated 06/07/2006
Subsequent email communications between EDCL and the CDM consultant.	-24.07.2006 -26.07.2006	Email communications between EDCL and CDM consultant. (Copy of the same has been submitted to the DOE.	EDCL expresses their inability to move ahead with the appointment of CDM consultant for their project until the technical clearance (crucial for the project implementation) is obtained. Without these clearances, EDCL was uncertain about the project implementation.
Clearance for Fisheries Department	14.09.2006	Ref No:INL/5/2006-07	
Consent for Establishment and clearance from Water and Air Pollution by Karnataka State Pollution Control Board	16.09.2006	Ref No: KSPCB /EO (MYS)/DEO/AEO-4/LG/CFE/2006-07	
Communication from EDCL to CDM consultant related to appointment of CDM consultant	16.01.2007	Email from EDCL to CDM consultant. (Copy of the same has been submitted to the DOE).	EDCL expresses its interest to move ahead with the appointment of CDM consultants after receiving some clearances for the project
Proposal from CDM consultant to EDCL	30.01.2007	Email from CDM consultant to EDCL (Copy of the same has been submitted to the DOE)	
Email Communications between EDCL and CDM consultant	27.02.2007 30.03.2007		Email communication relating to the following 1.Follow up 2.Reply from EDCL for change in terms and conditions
Technical clearance accorded by Karnataka Renewable Energy Development Limited to EDCL	02.04.2007	Ref No: KRED/06/Harangi Tail race Escape HEP/2007/754	
Work Order for appointment of CDM consultant	16.04.2007	Ref No:EDCL/E&Y/CDM/ LOA/04/2007-08/001.	Appointment of CDM consultant for the hydro projects of -Harangi Phase 2, Karnataka -Ullunkal project,Kerela

Power Purchase Agreement	12.04.07		Signed between Hubli Electricity Supply Company Limited and EDCL
Letter of Award for Turbo Generator to M/s Boom Systems Private Limited	19.04.2007	EDCL/BSPL/LOA/293	This is taken to be the start Date for the project activity in line with EB 41 paragraph 67.
Approval of Water Resources Dept Govt of Karnataka received for establishment of Harangi Phase -2 & use of water for the purpose.	21.08.07		
Request made to Principle Secretary Energy Dept. to intervene & request Secretary Water Resources Dept. to release land pending revaluation of lease rent & its concurrence by Finance Dept.	09.01.08		
Request for Budgetary proposals from DOEs	30.01.2008	Email Communication to DOEs	
Environmental clearance.	04.02.08	Ref No: FEE 241 ECO 2007	
Submission of Project Design Document (PDD) and Project Concept Note (PCN) to Ministry of Environment & Forests (MoEF), Government of India-Application for Host Country Approval (HCA) from Indian DNA	14.02.08	Forwarding Letter to the Ministry of Environment and Forests, Government of India from EDCL	
Secretary Energy Dept. sends a note to Secretary Water Resource Department for immediate allotment of land.	15.02.08	Ref No: EN 314 NCE 2007.	The note explicitly states that EDCL has not been able to start construction of their project since the 1.2 acres of land were still pending for allotment.

A meeting is held with Secretary WRD by CEO EDCL along with Dy. Secretary WRD & Under Secretary Energy Dept. to apprise the Secretary of the urgency of the matter & time being lost by the Company & thereby loss of Generation to the State. Secretary WRD assures to relook into the matter.	06.03.08		
Appointment of DOE	14.05.08	Contract Agreement between EDCL Limited and the appointed DOE	
Global Stakeholder Consultation	20.05.08 to 18-06-08.	http://cdm.unfccc.int/Projects/Validation/DB/KX1MNTZLORNR8CU48XL3DGLAQT1GGY/view.html	
Allotment of land to EDCL by Cauvery Neeravari Nigama Limited (Govt of Karnataka)	04.06.08	Ref No: KA/HRD/PBC/Harangi/EDCL/2008-09/1287-92	
Presentation at Ministry of Environment and Forests (MoEF), Government of India for obtaining Host Country Approval (HCA)	13.08.08	Invitation Letter from Ministry of Environment and Forests (MoEF),	

- Selection of Project Start Date: The justification for the same as already been explained above.

Documentation Provided by Project Participant:

- Letter of Award by EDCL to M/s Boom Systems Private Limited (Ref No: EDCL/BSPL/LOA/293)
- Contract Order placed by EDCL to M/s. Boom Systems Pvt Ltd (Ref No: EDCL/BSPL/08-05/392
- DPR prepared by M/s. Boom Systems Pvt Ltd.
- Technical Clearance for the Harangi Phase 2 project issued by KREDL (Ref No: KRED/06/Harangi Tail race Escape HEP/2007/754
- Rejection of Loan Application for the 6 MW Harangi Hydro power project from Yes Bank
- Copy of the CDM Board Resolution of EDCL for 6 MW Harangi Stage 2.
- Besides this all documents pertaining to the Chronology of events as detailed above.

Information Verified by Lead Assessor:

Documentary evidence for awareness of CDM:
- Public domain website link : http://www.hindu.com/2005/09/16/stories/2005091604681400.htm
- Public domain website link:
http://www.sustainabledevelopment.in/publications/sustainability_tomorrow/archive/1.pdf

- Contract Order placed by EDCL to M/s. Boom Systems Pvt Ltd (Ref No: EDCL/BSPL/08-05/392)

- Loan Rejection letter from Yes Bank dated 10/10/2005

Documentary evidence for Board Approval and Consideration of CDM:

- Extracts of Board Meeting dated 29/10/2005
Documentary evidence for continuing and real actions undertaken:
- Email communication from CDM consultant with Mr. L.K.Sadani on 20/03/2006
- Email communication between consultant and EDCL dated 27/03/2006, 06/04/2006 & 20/04/2006
- Email from EDCL to CDM consultant on 27/04/2006
- Government Allotment order EN182 NCE 2006 dated 31.05.2006
- Email communication from CDM consultant to PP 24/07/2006
- Reply to CDM Consultant on 26/07/2006
- Clearance letter from Fisheries Department dated 14/09/2006 No.INL/5/2006-07
- Pollution clearance under Water and Air Act Received from KSPCB dated 16/09/2006 No.KSPCB/EO(MYS)/DEO/AEO-4/LG/CFE/2006-07/923
- Email communication from EDCL to CDM consultant dated 16/01/2007
- Proposal from consultant to EDCL dated 30/01/2007
- Email communication between EDCL and CDM Consultant dated 27/02/2007 and 30/03/2007
- Technical clearance accorded by MD KREDL dated 02/04/2007 No.KRED/06/Harangi Tail Race Escape HEP/2007/754
- Appointment of CDM consultant dated 04/04/2007 Ref: No EDCL/E&Y/CDM/LOA/04/2007-08/001
- Power Purchase Agreement between EDCL and Hubli Electricity Supply Company Limited dated 12/04/2007
- Letter of Award (Purchase Order) for supply of equipments place to Boom Systems dated 19/04/2007 ref:EDCL/BSPL/LOA/293
- Approval of Water Resources Dept Government of Karnataka received for establishment of Harangi Phase-2 & use of water for the purpose dated 21/08/2007
- Request made to Principle Secretary Energy Dept. to intervene & request Secretary Water Resources Dept. to release land pending revaluation of lease rent & its concurrence by Finance Dept dated 09/01/2008
- Approval to Environmental clearance received from Dept of Forest Ecology and Environment dated 04/02/2008 No. FEE 241 ECO 2007.
- Secretary Energy Dept. sends a note to Secretary WRD for immediate allotment of land No.EN314 NCE 2007 dated 12/02/2008
- Required Land allotted to EDCL by Cauvery Neeravari Nigama Limited (Govt of Karnataka) No/EA/HRD/PBC/HARANGI/EDCL/2008-09/1287-92 dated 04/06/2008

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** *08/02/2010*

The documentary evidences for the Awareness and Serious Consideration of CDM provided by the PP was cross checked for consistency in accordance with EB 49, Annex 22

- The documentary evidence for Quarterly newsletter issued by CII-ENVIS titled "Green Business Opportunities" – Issue Jan-March 2005 as document available on the public domain can be considered as a relevant source of information for awareness of CDM. Hence the same is accepted as a source of information for the PP for know-how of CDM.
- The public domain website link of newspaper Hindu of September 2005 was checked and was found to be containing information on CDM and thus can be considered as a document for awareness of CDM for the PP. The document is acceptable as a source of information for the PP for know-how of CDM.
- Loan Rejection letter from Yes Bank dated 10/10/2005 is reviewed and found to be acceptable as documentary evidence towards the effort by the PP for accrual of funds for the project. The bank (as third party) has mentioned the funding of the project through CDM route and as such can be considered as documentary evidence that CDM was considered during the conception of the project.
- The document Contract Order placed by EDCL to M/s. Boom Systems Pvt Ltd (Ref No: EDCL/BSPL/08-05/392 was reviewed and was found to have no relevance with the chronology provided. The PP is requested to clarify the information pertaining to which these documental evidences have been provided.
- The DPR prepared by M/s Boom Systems Pvt. Ltd has been provided by the PP. The PP has to further clarify the relevance of the same with regard to the chronology provided.
- Extract of minutes of meeting of Board of Directors of M/s Energy Development Company Limited on 29/10/2005 was reviewed and was found consistent as a documentary evidence for consideration of CDM and hence accepted.
- The PP is requested to provide documentary evidence for the internal communication between Mr. L K Sadani to Mr. A Banerjee against immediate consultant appointment.
- Email communication between CDM consultant and EDCL on 20/03/2006, 27/03/2006, 06/04/2006, 20/04/2006 and 27/04/2006 was verified. The series of email communications regarding the appointment of CDM consultant being initiated as per the Board Meeting and can be considered to be a continuation of real action for securing the CDM and hence accepted.
- The Proceedings of Government of Karnataka. Government Order No: EN 182 NCE 2006 dated 31/05/2006 as the approval letter from Govt. of Karnataka (GOK) Energy Dept. for the 6MW hydro electric project (Harangi Phase-2) in favour of EDCL was cross checked and found to be a mandatory and relevant approval for the project implementation hence was considered to be a continuation of real action. Hence the document was accepted.
- Email communication between EDCL and CDM consultant on 24/07/2006 and 26/07/2006 were accepted as the communications had relevance with the delay in appointment of CDM consultant following certain pending approvals and clearances.
- The PP is further requested to provide documentary evidence of the Implementation Agreement signed with GOK Energy Dept dated 06/09/2006
- The document for clearance for Fisheries Department Ref No. INL/5/2006-07 dated 14/09/2006 was reviewed and found to be relevant with the continued real action for the project and hence accepted.
- The document for Establishment and clearance from Water and Air Pollution by Karnataka Stake Pollution Control Board Ref No: KSPCB /EO (MYS)/DEO/AEO-4/LG/CFE/2006-07 dated 16/09/2006 was cross checked and found to be a mandatory and relevant step in the project execution and real action hence accepted.
- Communication between CDM Consultant and EDCL between 16/01/2007, 30/01/2007, 27/02/2007, 30/03/2007 were checked and were found relevant with the appointment of the CDM consultant and hence can be considered as communication related to securing the CDM project. The communications are considered to be acceptable.
- The document for Technical clearance accorded by Karnataka Renewable Energy Development Limited to EDCL dated 02/04/2007 Ref no: KRED/06/Harange Tail race Escape HEP/2007/754 was reviewed and was found to be consistent with the real action for the project and accepted.
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- The work order for appointment of CDM consultant ref: EDCL/E&Y/CDM/LOA/04/2007-08/001 was checked and was found to be relevant with the continued action for securing the CDM funds hence acceptable.
- Power Purchase Agreement dated 12/04/2007, signed between Hubli Electric Supply Company Limited and EDCL was checked and found to be relevant real action for the project and hence accepted.
- The letter of Award for Turbo Generator to M/s Boom Systems Private Limited ref: EDCL/BSPL/LOA/293 dated 19/04/2007 was found relevant as a real action in commissioning of the project. This can be considered as the first equipment purchased by EDCL for the project and hence acceptable as the project start date as well as for the real action of the project in line with EB 41 paragraph 67 as start date definition for CDM project activity.
- The document approval of Water Resources Dept. Govt of Karnataka on 21/08/2007 was checked and found to be relevant action for the project and accepted.
- The Request made to Principle Secretary Energy Dept. to intervene & request Secretary Water Resources Dept. on 09/01/2008 to release land pending revaluation of lease rent & its concurrence by Finance Dept was checked and found to be a relevant document towards real action for the project and accepted.
- The email communication to DOEs for inviting proposals for validation of the CDM project activity was checked and found relevant. Thus accepted.
- Environmental Clearance document ref: FEE 241 ECO 2007 dated 04/02/2008 was checked and found to be relevant and mandatory with the project real action for CDM project and considered to be acceptable.
- Forwarding Letter dated 14/02/2008 to the Ministry of Environment and Forests; Government of India from EDCL for Host Party Approval of the project was checked and found to be in line with the requirements as per the guidelines laid by the Indian DNA. The document is hence accepted.
- The documentary evidence of Note from Secretary Energy Dept. to Secretary Water Resource Department for immediate allotment of land dated 15/02/2008 Ref No: EN 314 NCE 2007 has been reviewed and found to be relevant as a parallel action towards implementation of the project along with real action for securing CDM and hence acceptable.
- The PP is further requested to provide documentary evidence against the meeting held on 06/03/2008 between Secretary WRD by CEO EDCL along with Dy. Secretary WRD & Under Secretary Energy Dept. to apprise the Secretary of the urgency of the matter & time being lost by the Company & thereby loss of Generation to the State. Secretary WRD assures to relook into the matter.
- The contract Agreement dated 14/05/2008 between EDCL and SGS India Private Limited was checked and found to be an important landmark in the process of securing the CDM project registration. The document is hence accepted.
- The version 1 of the PDD was webhosted for global stakeholder consultation at the UNFCCC website which was cross checked and found consistent.

The PP is further requested to provide the required documentary evidences against events mentioned in the chronology of the project as indicated above. CAR 03 remains open.

Project Participant Response:	**Date:** 10/02/2010.

- The Internal Communication email from Mr. L.K. Sadani to Mr. A. Banerjee has been submitted to the DOE.
- Most input parameters considered to arrive at the IRR for the project activity has been derived from the Detailed Project Report, apart from KERC Tariff Order. This justifies the significance of DPR before the Board Resolution of EDCL in October 2005.
- Copy of Implementation Agreement signed with GOK Energy Dept. dated 6th September,2006 has been submitted to the DOE.

Documentation Provided by Project Participant:

- Email from Mr L.K.Sadani to Mr.A.Banerjee dated 14th November 2005 - Implementation Agreement signed with GOK Energy Dept.
Information Verified by Lead Assessor:
- Email from Mr L.K.Sadani to Mr.A.Banerjee dated 14th November 2005 - Implementation Agreement signed with GOK Energy Dept.

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 26/02/2010
The documents submitted by PP was cross checked and found to be in line with the chronology of the project. The PP has not provided the document to substantiate for the meeting between Secretary Energy Dept and Secretary WRD dated 06/03/2008 and has removed the same from the chronology. The email communication of Mr. L K Sadani to Mr A Banerjee dated 14/11/2005 has relevance with the real and parallel action and has been considered to be an essential step towards the CDM project. Thus the document has been accepted as a real action in securing CDM project activity. Further the chronology of the project has been cross checked for prior consideration, parallel and real action and found to be in line with the UNFCCC EB 49 Annex 22 guideline and the gap between two real and parallel actions has been found to be within two years and the maximum gap has been found to be one year and one month. Hence CAR 03 was closed	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 26/02/2010

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CAR	Number:	04	Reference:	B.4.7
Lead Assessor Comment:					

Please clarify the following:

Investment Barrier:

- The Project participant would have to provide the proof for the investment required towards the total project cost for the implementation of the project activity along with the source of funds and the related terms and conditions, made available to the project activity for its implementation.
- The PP would have to clarify and provide justification towards the company's internal benchmark for similar projects.
- The project participant would have to clarify why payback period has been considered as the financial indicator to judge the financial viability of the project activity and the Internal rate of return not been considered which happens to be more widely used for the said assessment.
- The internal bench mark considered as 8-10 years with respect to payback period for the existing 9 MW power plant and correlating the same with the 6 MW power project under consideration is not clear and properly justified.
- The PP would have to provide the detail calculation to arrive at the pay back period of the 6 MW power project as 13 years.
- The PP would have to provide documentary evidence towards the power tariff and the escalation clauses along with all other evidences considered with respect to energy generation, operation & maintenance and depreciation parameters provided in the PDD.

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- A detailed comparative analysis with and without CDM consideration subject to sensitivity analysis for the project activity needs to be provided.

Other Barrier:

- Please provide documentary evidence towards land acquisition process along with additional land acquired for the implementation of the project activity.
- The supportive documentary evidence towards the claim of the Government failing to fix up the revenue of the land procured by the PP.

Project Participant Response:	**Date:** *02/02/2009*

- The proof of investment required towards the total project cost for the implementation of the project activity has been submitted to the DOE. The finance department of EDCL had come up with a proposal which was validated by an external auditor. The certificate of authentication by the auditor has been submitted to the DOE. However, it is to be noted that the proposed project activity is still in infant stage and financial closure of the project has not yet happened. As discussed in the response to NIR11 of this document, the financials of the project being not lucrative enough, the banks were unwilling to extend loan for the project activity. One of the banks advised the project proponent to take the project through the CDM cycle and resubmit the loan application. However, reconsideration of the loan application was subject to conditions as mentioned in the response to NIR11. With all the clearances and Host Country Approval in place, the project proponent is now approaching different banks for loans, and the financial closure for the project activity is yet to happen. Hence, the proof of the source of funds and related terms and conditions can not be submitted as on date. A tentative debt-equity structure has been conceptualized by EDCL and the assumptions underlying the tentative financial structure conceived have been explained to the DOE.
- EDCL has an existing 9 MW small-hydro project, Harangi Stage I, operational since 14th July, 1999. Based on the cash flows realised from their existing Harangi Stage-I hydro power project, the management of EDCL decided to set payback of 8-10 years as an internal acceptable limit for investments in all their renewable energy projects undertaken by EDCL. This is the conventional practice that has been followed by the Company throughout. The Copy of the Minutes of the meeting of the Board of EDCL explicitly stating the same has been submitted to the DOE. The same can also be verified from the Board Resolution of the other two hydro power projects subsequently taken up by EDCL –"Ullunkal" and "Karikkayan". For these two projects as well the payback of the projects has been compared with the payback for Harangi Stage I project which is the internal acceptability limit of the Company of 8-10 years. Copies of the Board Resolution for the Ullunkal and Karikkayam hydro projects have been submitted to the DOE. Besides this audited copy of the cash flows for Harangi Phase I has been submitted to the DOE
- The basis of judgment of the viability of all hydro power projects for EDCL has been pay-back period. As elucidated above, this can be verified from the Copies of Board Resolution of all hydro projects undertaken by EDCL. (The same has been submitted to the DOE). Financial feasibility of all renewable energy projects by EDCL are subjected to the same convention as detailed above. However, based on the DOE's input, the IRR of the project activity has been computed based on al assumption/parameters during the point of investment decision by the Board of Directors of M/s. Energy Development Company Limited The IRR for the project activity comes out to be 9.16% against the Benchmark Prime Lending Rate of Reserve Bank of India at 10.25%. For further details regarding the justification of the benchmark please refer to Section B.5 "Investment Barrier" of the PDD. The detailed IRR computation worksheet has been submitted to the DOE.
- The Project IRR has been computed to demonstrate additionality and is line with the "Guidelines on assessment of investment analysis", EB 51, Annex 58 and is compared to the Prime Lending Rate published by the Reserve Bank of India (RBI). http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72286.pdf
- Detail calculation sheet for arriving at the payback and the Project IRR has been submitted to the DOE.
- Documentary evidence towards the power tariff and the escalation clauses along with all other evidences considered with respect to energy generation, operation & maintenance and depreciation parameters has been submitted to the DOE.
- A detailed comparative analysis with and without CDM consideration subject to sensitivity analysis for the project activity has been submitted to the DOE.
- The relevant supportive document with respect to the delay in allotment of land for the project activity has been submitted to the DOE.

Documentation Provided by Project Participant:

- Audited Copy of cash flows of 9 MW Harangi Stage I
- Copies of Board Resolution of Ullunkal and Karikkayam hydro power project.
- Audited Copy of the pay back for 6 MW Harangi Stage II project
- IRR Harangi _Version 01 spreadsheet
- Annual Report of Reserve Bank of India: http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72286.pdf

Information Verified by Lead Assessor:

- Audited Copy of cash flows of 9 MW Harangi Stage I
- Copies of Board Resolution of Ullunkal and Karikkayam hydro power project.
- Audited Copy of the pay back for 6 MW Harangi Stage II project
- IRR Harangi _Version 01 spreadsheet
- Annual Report of Reserve Bank of India: http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72286.pdf

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 06/11/2009

Investment Analysis:
The IRR excel spread sheet was checked and the PP is requested to further substantiation while adopting values towards arriving at the IRR for the project activity.

- Interest and Loan repayment is not deducted in the calculation of tax. Please clarify how the tax has been calculated without taking into consideration the cost of financing.
- It is not clear why only 15 years period is taken for assessment. The financial assessment for the project should be done for the project life period.
- Profit subject to regular tax is wrongly calculated. Please deduct the exemption under 80 IA from the taxable income.
- Fair Value of the asset should be added separately during calculation of IRR.

Other Barrier:

- The documentary evidence of Note from Secretary Energy Dept. to Secretary Water Resource Department for immediate allotment of land dated 15/02/2008 Ref No: EN 314 NCE 2007 has been reviewed and found to be relevant as a constraint towards implementation of the project activity and hence considered acceptable.
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Project Participant Response:	**Date:** 12/11/2009

- Please refer to the guidelines of Investment Analysis as given in EB 41, Annex 45, and paragraph 9 where it is clearly mentioned that "The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR." Hence following the same guidelines cost of financing has not been included in the Project IRR calculation. However since the Revised Investment Analysis (Version 03) (EB 51, Annex 58) has recommended to include the impact of loan interest on income tax calculations. The same has been incorporated in the Revised IRR.(Refer to IRR Harangi_Version 02 spreadsheet).

- EB41, Annex 45 provides that a minimum of 10 years and a maximum of 20 years will be sufficient. In the version 2 of the IRR sheet, 20 years has been considered for assessment.

- The profit has been appropriately calculated in the version 2 of the IRR sheet. For the first 10 years, the PP will be paying MAT rather than Income tax.

- Fair value of the asset has been added in the IRR_Project worksheet. The fair value is estimated at 70% of the book value, which is a reasonable expectation of realization of value on sale.

Documentation Provided by Project Participant:

- IRR Harangi _Version 02

Information Verified by Lead Assessor:

- IRR Harangi_ Version 02
- Manufacturers Certification dated 24/05/2007 ((Technical lifetime of the turbo generator set)

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 29/12/2009

- Interest and Loan repayment has been deducted in the calculation of tax in the revised IRR sheet and cross checked and accepted.
- The technical life of the project is 25 years. The assessment period for IRR calculation shall be taken as the technical life of the plant i.e. 25 years.
- The issue is still not addressed. The tax holiday is applicable for maximum 10 years till the end of 15 years from the commissioning of the plant. The calculations have taken tax holiday only till 10th year from the commissioning.
- The fair value has been added in the excel sheet hence accepted.

Project Participant Response:	**Date:**07*/01/2010*

- Guidelines on the Assessment of Investment Analysis (Version 03), EB 51, Annex 58, explicitly states that "In general a minimum period of 10 years and a maximum of 20 years will be appropriate." With reference to this, the IRR has been computed for a period of 20 years and hence is deemed appropriate.
  Annex 58 to EB 51 clearly points out that "Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period". Even though a period of 20 years has been considered for computing the IRR of the project activity, fair value of the asset has been considered at the end of the assessment period and has been taken into account for computing the IRR for the project activity.
- The same has been modified and incorporated in the IRR calculation worksheet.

Documentation Provided by Project Participant:

- IRR Harangi_Version 03.1

Information Verified by Lead Assessor:

- IRR Harangi_Version 03.1 - Manufacturers Certification dated 24/05/2007 (Technical lifetime of the turbo generator set)
Reasoning for not Acceptance or Acceptance and Close Out: **Date:** *08/02/2010*
The IRR Harangi_Version 03.1 has been checked for consistency and it is found that the technical lifetime of the project has not been considered while calculating the IRR of the project. The PP is further requested to consider the entire technical lifetime of the project for IRR estimation.
Project Participant Response: **Date:** *10/02/2010*
- A maximum of 20 years has been clearly defined as per Assessment of Investment Analysis (Version 03), EB 51, Annex 58 as clearly illustrated above. However based on the DOEs feedback, IRR for the entire technical lifetime of the project activity i.e for a period of 25 years has been considered for the project activity.
Documentation Provided by Project Participant:
-IRR Harangi_Version 03.2
Information Verified by Lead Assessor:
-IRR Harangi_Version 03.2
Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 25/02/2010
The IRR Harangi_Version 03.2 has been checked for consistency and it is found that the technical lifetime of the project has been considered while calculating the IRR of the project. The PP is requested to clarify the low generation vis-à-vis the PLF for the project in line with the guideline EB48 annex11.
Project Participant Response: **Date:** 26/02/2010
The PP wishes to clarify that the IRR calculated in the project activity is based on the Gross Energy Generated from the Harangi Phase II project activity. The Gross energy generated is in turn an intrinsic function of the PLF of the Harangi Phase II hydro power plant. The Gross Energy from the proposed project is estimated at 6.48 Million Units.(*Refer to Chapter 03-"Hydrology, power potential and energy estimation" of the Detailed Project report prepared by M/s. Boom Systems Pvt Ltd wherein a detailed hydrological study has been conducted*). It is pointed out that this low generation from the project is attributed due to the fact that the project activity will be operational **only during the monsoon** utilizing **only the excess discharge** from the tail race of the existing Harangi Phase I power plant. EDCL was apprehensive of the low power potential estimated by M/s. Boom Systems Pvt Ltd in the Detailed Project Report submitted by them. On the 11th of October 2005, EDCL approached ECI Renewable Energy Consultants (P) Ltd, specialists in dealing with Small Hydro Projects, to carry out another hydrological study. (Reference: EDCL/ECI/HAR-II/405: Letter from EDCL to ECI Renewable Energy Consultants (P) Ltd dated 11th October 2005). ECI submitted their detailed hydrological study and estimated the Gross Generation Potential from the Harangi Phase II project at 6.45 Million Units. (Refer to the Detailed Hydrological Report Submitted by ECI Renewable Energy Consultants (P) Ltd to EDCL dated 20th October 2005). Out of the two estimated Gross Generation Potential, the PP has considered the higher Gross Generation Potential of 6.48 Million Units as projected in the Detailed Project Report to ensure conservativeness in IRR calculations.
Documentation Provided by Project Participant:
- Letter from EDCL to ECI Renewable Energy Consultants (P) Ltd EDCL/ECI/HAR-II/405 dated 11 October 2005 - Detailed Hydrological Report Submitted by ECI Renewable Energy Consultants (P) Ltd to EDCL dated 20th October 2005
Information Verified by Lead Assessor:
- Letter from EDCL to ECI Renewable Energy Consultants (P) Ltd EDCL/ECI/HAR-II/405 dated 11 October 2005 - Detailed Hydrological Report Submitted by ECI Renewable Energy Consultants (P) Ltd to EDCL dated 20th October 2005
Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 26/02/2010

The letter from EDCL to ECI Renewable Energy Consultant Ltd. EDCL/ECI/HAR-II/405 was cross checked and found to be consistent. Further, the detailed hydrological report submitted by ECI Renewable Energy Consultant Private Limited was checked for consistency and found to be consistent and relevant document to substantiate for the logic provided by the PP while indicating that the hydrological details of the project reveal that only during the excess spillage from Harangi Stage-I, which occurs during the monsoon season the project shall be operational. As such the PP has considered gross generation has been considered over the usage of plant load factor (PLF) during the estimation of the IRR due to the overall low generation from the project which has been considered on a conservative side at 6.48 million units during the estimation of the IRR. The same has been cross verified during the site visit and has been found to be acceptable logic for the estimation of IRR. The logic provided by the PP for the estimation of IRR with Gross Generation vis-à-vis the PLF can be considered to be relevant and hence acceptable. CAR 04 is closed
Acceptance and Close out by Lead Assessor: Closed **Date:** 26/02/2010

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CAR	Number:	05	Reference:	B.6.1.
Lead Assessor Comment:					
The combined margin grid emission factor data for the southern regional grid is not correct as per the baseline carbon dioxide emission database/ version 3.0, dated December 2007 provided by the Central Electricity Authority. Please clarify.					
Project Participant Response:				**Date:** *02/02/2010*	
The same has been corrected and revised in the PDD.					
Documentation Provided by Project Participant:					
Refer to the Revised PDD Version 03 dated 06/01/2010					
Information Verified by Lead Assessor:					
PDD version 03 dated 06/01/2010					
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** *08/02/2010*	
The PP is further requested to adopt the value of the grid emission factor correctly to arrive at the estimated Emission Reduction figures in line with the prevailing CEA data base version at the time of web hosting of the PDD for global stakeholders consultation process. Thus the CL 05 remains open.					
Project Participant Response:				**Date:** *10/02/2010*	
The combined margin grid emission factor data for the southern regional grid is corrected as per the baseline carbon dioxide emission database/ version 3.0, dated December 2007 and is incorporated in Revised PDD Version 04.					
Documentation Provided by Project Participant:					
Revised PDD Version 04 dated 26/02/2010					
Information Verified by Lead Assessor:					
Revised PDD Version 04 dated 26/02/2010					
Reasoning for not Acceptance or Acceptance and Close Out:				**Date:** 26/02/2010	
The revised PDD version 04 was checked and found to be consistent with regard to the use of the CEA database version 3.0 dated December 2007 and hence accepted. CAR 05 is closed					
Acceptance and Close out by Lead Assessor: Closed				**Date:** 26/02/2010	

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CL	Number:	06	Reference:	B.7.1.
Lead Assessor Comment:					
Provide the detail ex-ante emission reductions calculation worksheet.					
Project Participant Response:				**Date:** *02/02/2009*	
The ex-ante emission reduction calculation sheet has been provided to the DOE.					
Documentation Provided by Project Participant:					
ER Calculations excel sheet.					
Information Verified by Lead Assessor:					

-ER Calculation excel sheet. -PDD version 02 dated 02/02/09	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 24/03/2009
The excel sheet for the ER calculations was checked and cross checked with the information provided in the PDD version 02 dated 02/02/09 and found non consistent against the Emission factor of southern grid of India. The PP is requested to adopt the value of the grid emission factor correctly to arrive at the estimated Emission Reduction figures in line with the prevailing CEA data base version at the time of web hosting of the PDD for global stakeholders consultation process. Thus the CL 06 remains open.	
Project Participant Response:	**Date:** *06/01/2010*
The Emission Factor of the Southern Regional Grid is has been modified in line with the "CO2 Baseline Database for the Indian Power Sector" Version 05, November 2009. The Emission Reductions from the project activity has been modified in the Revised Version 03 of the PDD.	
Documentation Provided by Project Participant:	
"CO2 Baseline Database for the Indian Power Sector" Version 05 PDD Version 03 dated 06/01/2010 Emission Reduction Calculation Worksheet.	
Information Verified by Lead Assessor:	
"CO2 Baseline Database for the Indian Power Sector" Version 05 PDD Version 03 dated 06/01/2010 Emission Reduction Calculation Worksheet.	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** *08/02/10*
The excel sheet for the ER calculations was checked with the information provided in the PDD version 03 dated 06/01/2010 and found non consistent against the Emission factor of southern grid of India (CO2 Baseline Database for the Indian Power Sector" Version 03) as available during the webhosting of the PDD for global stakeholder consultation process. The PP is requested again to adopt the value of the grid emission factor correctly to arrive at the estimated Emission Reduction figures in line with the prevailing CEA data base version at the time of web hosting of the PDD for global stakeholders consultation process. Thus the CL 06 remains open	
Project Participant Response:	**Date:** *10/02/10*
The Emission Factor of the Southern Regional Grid is has been modified in line with the "CO2 Baseline Database for the Indian Power Sector" Version 03, December 2007 and the same has been incorporated in the Emission Reduction calculation Worksheet _Version 02	
Documentation Provided by Project Participant:	
Emission Reduction calculation Worksheet _Version 02	
Information Verified by Lead Assessor:	
Emission Reduction calculation Worksheet _Version 02	
Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 26/02/2010
The emission reduction calculation worksheet has been checked for consistency with regard to the CEA database used and has been found to be consistent hence accepted. CL 06 is closed	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 26/02/2010

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CL	Number:	07	Reference:	B.10.1
Lead Assessor Comment:					
There exists a discrepancy with respect to the state body mentioned in annex 4 in respect of monitoring the net electricity exported to the grid and the information provided under section B.7.1 of the PDD. Please provide information on the parameters to be monitored in line with the monitoring methodology.					
Project Participant Response:			**Date:** *02/02/2009*		

The project proponent has signed a Power Purchase Agreement (PPA) with Hubli Electricity Supply Company Limited (HESCOM). HESCOM is the nodal agency of Government of Karnataka responsible for purchase of power from Independent Power Producers of the area on behalf of KPTCL (Karnataka Power Transmission Company Limited), the entity responsible for operations of the local grid of Karnataka. Hence, though the PPA of EDCL is with HESCOM, the project will ultimately export power to the KPTCL grid which is a part of the Southern Regional Electricity grid.
Documentation Provided by Project Participant:
-Power Purchase Agreement executed between EDCL & Hubli Electricity Supply Company Limited (HESCOM). -PDD version 02 dated 02/02/09.
Information Verified by Lead Assessor:
http://hublidharwad2020.blogspot.com/2007/09/hubli-electric-supply-company-limited.html http://www.kptcl.com/zones/kptclzones.php -Power Purchase Agreement executed between EDCL & Hubli Electricity Supply Company Limited (HESCOM). -PDD version 02 dated 02/02/09.

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 24/03/2009
The Power Purchase Agreement between EDCL & Hubli Electricity Supply Company Limited (HESCOM) and the PDD version 02 dated 02/02/009 was checked and cross checked with the official web site of Karnataka Power Transmission Company Limited and found that though the PPA of EDCL is with HESCOM, the project will ultimately export power to the KPTCL grid which is a part of the Southern Regional Electricity grid. The official web site of the Karnataka Power Transmission Company Limited, Government of Karnataka was cross checked and found that HESCOM is the nodal agency of Government of Karnataka responsible for purchase of power from Independent Power Producers. Further the PP has included the parameters of monitoring in accordance with the requirement of the methodology AMS I.D version 13. This was checked against the revised version of the PDD and found to be consistent Thus the CL 07 is hereby closed out.	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 24/03/2009

Date:	19/06/2008		Raised by:	Sanjay Banerjee	
Type:	CL	Number:	08	Reference:	B.13.2

Lead Assessor Comment:

Please substantiate the following;

- Procedure identified for day to day records handling and the related performance documentation.
- Procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems
- Please provide information regarding internal audit procedures required to be executed for GHG project compliance with operational requirements.

Project Participant Response:	**Date:** *02/02/2009*

- *Procedures towards day-to-day record handling system have been elaborated in Annex 4: Monitoring Plan of the Version 02 of the PDD submitted to the DOE.*
- *QA/QC procedures regarding the procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems for the project activity, have been elaborated in Annex 4: Monitoring Plan of Version 02 of the PDD submitted to the DOE*
- *Information related to internal audit procedures required to be executed for GHG project compliance with operational requirements, have been detailed in Annex 4: Monitoring Plan of the Version 02 of the PDD submitted to the DOE.*

Documentation Provided by Project Participant:
-PDD version 02 dated 02/02/09
Information Verified by Lead Assessor:
-PDD version 02 dated 02/02/09.

Reasoning for not Acceptance or Acceptance and Close Out:	**Date:** 24/03/2009
The PDD version 02 dated 02/02/09 was checked and found to have incorporated the day to day record handling procedure in the Annex 4 of the PDD elaborately which seems to be satisfactory. The QA/QC procedures towards dealing with possible monitoring data adjustments and missing data reconstruction in case of monitoring problems for the project activity have been incorporated in the Annex 4 of the PDD version 02 dated 02/02/09 which was cross checked and seems to be satisfactory. The Annex 4 of the PDD version 02 dated 02/02/09 was cross checked and fou1nd to have included the information regarding internal audit procedures required to be executed for GHG project compliance with operational requirements satisfactorily. Thus CL 08 is hereby closed out.	
Acceptance and Close out by Lead Assessor: Closed	**Date:** 24/03/2009

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Banerjee, Sanjay SGS Affiliate: SGS India

Status

-	Lead Assessor	x	-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) **x**
Sub scope(s): Hydro

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 28/10/2009

Statement of Competence

Name: Chakraborty, Shivaji SGS Affiliate: SGS India

Status

-	Lead Assessor		-	Expert	x
-	Assessor	x	-	Financial Expert	
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) x
Sub scope(s): Solar and Biomass Electricity Utilization

2. Energy Distribution x
Sub scope(s): Energy Distribution

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 27 November 2009

Statement of Competence

Name: Mahawar, Abhishek SGS Affiliate: SGS India

Status

-	Lead Assessor		-	Expert	
-	Assessor	x	-	Financial Expert	x
-	Local Assessor	x	-	Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)
Sub scope(s):

2. Energy Distribution
Sub scope(s):

3. Energy Demand
Sub scope(s):

4. Manufacturing
Sub scope(s):

5. Chemical Industry
Sub scope(s):

6. Construction
Sub scope(s):

7. Transport
Sub scope(s):

8. Mining/Mineral Production
Sub scope(s):

9. Metal Production
Sub scope(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)
Sub scope(s):

11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride
Sub scope(s):

12. Solvent Use
Sub scope(s):

13. Waste Handling and Disposal
Sub scope(s):

14. Afforestation and Reforestation
Sub scope(s):

15. Agriculture
Sub scope(s):

Approved Member of Staff by: Siddharth Yadav Date: 12/11/2009