



# VALIDATION REPORT

RAAJRATNA ENERGY HOLDINGS PVT LTD

7 MW BUNDLED HYDRO POWER PROJECT AT  
HIMACHAL PRADESH OF RAAJRATNA ENERGY  
HOLDINGS PVT.LTD

**Report No: 53607109- 09/472**

**Date: 2012-12-18**

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|  |   |                                     |  |                          |
|--|---|-------------------------------------|--|--------------------------|
| <b>Validation Report:</b>                                    | <b>Report No.</b>   | <b>Rev. No.</b>                     | <b>Date of 1<sup>st</sup> issue:</b>                 | <b>Date of this rev.</b> |
|  | 53607109-09/472   | 0                                   | 2012-12-18   | 2012-12-18               |
| <b>Project:</b>  | <b>Title:</b>   | <b>Initial PDD Version:</b>         |  | <b>Final PDD Version</b> |
|  | 7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt.Ltd   | 2009-12-01                          |  | 2012-12-11               |
| <b>Client:</b>   | M/s. Raajratna Energy Holdings Pvt Ltd  | <b>Client ref:</b>                  | Mr. Mohan Rao Adhikari                               |                          |
| <b>Project Participant(s):</b>                               | <b>Host Party:</b>  | <b>Other involved parties:</b>      |  |                          |
|  | India   | NA                                  |  |                          |
| <b>Applied methodology/ies:</b>                              | <b>Title:</b>   | <b>No.:</b>                         | <b>Scope / TA:</b>                                   |                          |
|  | Grid connected renewable electricity generation   | AMS-I.D, Version 17                 | 01/1.2   |                          |
| <b>Validation team / Technical Review and Final Approval</b> | <b>Validation Team:</b>   | <b>Technical review:</b>            | <b>Final approval:</b>                               |                          |
|  | Manjari Chandra (TL) Vijay Kumar Ma.Paa.Puratchikkan Machcha (TM) al (TM <sup>1</sup> ) G Ezhilarasu (TM)   | Stefan Winter Prasad Jakkaraju (OR) | Stefan Winter  |                          |
| <b>Expected Emission reductions: [t CO<sub>2</sub>e]</b>     | <b>Expected emission reductions over the first crediting period:</b>  |                                     | <b>(Expected) project starting date:</b>             |                          |
|  | 196,930t CO <sub>2</sub> e  |                                     | 2009-02-23   |                          |
| <b>Confidential content:</b>                                 | <input type="checkbox"/> Yes  |                                     | <input checked="" type="checkbox"/> No               |                          |
| <b>Summary of Validation Opinion:</b>                        | <input checked="" type="checkbox"/> Positive validation opinion   |                                     | <input type="checkbox"/> Negative validation opinion |                          |
|  | <p>In detail the conclusions can be summarised as follows:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of India vide the Letter of Approval (HCA) dated 2011-03-11.</li> <li><input checked="" type="checkbox"/> The project additionality is sufficiently justified in the PDD.</li> <li><input checked="" type="checkbox"/> The monitoring plan is transparent and adequate.</li> <li><input checked="" type="checkbox"/> The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 196,930 tCO<sub>2</sub>e are most likely to be achieved within the (fixed) crediting period.</li> <li><input checked="" type="checkbox"/> The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.</li> </ul> |                                     |  |                          |
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<sup>1</sup>was also TL till 2012-01-24

## Abbreviations

|                        |  |
|------------------------|--|
| <b>BAU</b>             | Business as usual  |
| <b>BM</b>              | Build Margin   |
| <b>CA</b>              | Corrective Action / Clarification Action                 |
| <b>CAR</b>             | Corrective Action Request                                |
| <b>CDM</b>             | Clean Development Mechanism                              |
| <b>CEA</b>             | Central Electricity Authority                            |
| <b>CER</b>             | Certified Emission Reduction                             |
| <b>CL</b>              | Clarification Request                                    |
| <b>CM</b>              | Combined Margin  |
| <b>CO<sub>2</sub></b>  | Carbon dioxide   |
| <b>CO<sub>2e</sub></b> | Carbon dioxide equivalent                                |
| <b>CP</b>              | Certification Program                                    |
| <b>DNA</b>             | Designated National Authority                            |
| <b>EB</b>              | CDM Executive Board                                      |
| <b>EIA</b>             | Environmental Impact Assessment                          |
| <b>FAR</b>             | Forward Action Request                                   |
| <b>GHG</b>             | Greenhouse gas(es)                                       |
| <b>GOI</b>             | Government of India                                      |
| <b>HCA</b>             | Host Country Approval                                    |
| <b>HPSEB</b>           | Himachal Pradesh State Electricity Board                 |
| <b>HPERC</b>           | Himachal Pradesh State Electricity Regulatory Commission |
| <b>IPCC</b>            | Intergovernmental Panel on Climate Change                |
| <b>INR</b>             | Indian Rupees  |
| <b>IRR</b>             | Internal Rate of Return                                  |
| <b>JMR</b>             | Joint Meter Reading Reports                              |
| <b>MNRE</b>            | Ministry of New and Renewable Energy, GOI                |
| <b>MoEF</b>            | Ministry of Environment and Forest                       |
| <b>NEWNE</b>           | North, East, West, North-East Power Grid                 |
| <b>OM</b>              | Operating Margin   |
| <b>PDD</b>             | Project Design Document                                  |
| <b>PLF</b>             | Plant Load Factor  |
| <b>PLR</b>             | Prime Lending Rate                                       |
| <b>PP</b>              | Project Participant                                      |
| <b>PPA</b>             | Power Purchase Agreement                                 |
| <b>PO</b>              | Purchase Order   |

|               |   |
|---------------|---|
| <b>QC/QA</b>  | Quality control/Quality assurance                     |
| <b>RBI</b>    | Reserve Bank of India                                 |
| <b>ROE</b>    | Return on Equity                                      |
| <b>UNFCCC</b> | United Nations Framework Convention on Climate Change |
| <b>VVM</b>    | Validation and Verification Manual                    |
| <b>WACC</b>   | Weighted Average Cost of Capital                      |

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## 1 OBJECTIVE / SCOPE

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

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

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

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

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual<sup>VVM</sup>, carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 01.2, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions.

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

## 2 GHG PROJECT DESCRIPTION

### 2.1 Project Characteristics

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

**Table 2-1:** Project Characteristics

| Item  | Data   |
|---|--|
| Project title   | 7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt.Ltd                                      |
| Project size  | <input type="checkbox"/> Large Scale <input checked="" type="checkbox"/> Small Scale   |
| Project Scope<br>(according to UNFCCC<br>sectoral scope numbers for<br>CDM) | <input checked="" type="checkbox"/> 1 Energy Industries (renewable- /non-renewable sources)                                    |
|   | <input type="checkbox"/> 2 Energy distribution   |
|   | <input type="checkbox"/> 3 Energy demand   |
|   | <input type="checkbox"/> 4 Manufacturing industries  |
|   | <input type="checkbox"/> 5 Chemical industry   |
|   | <input type="checkbox"/> 6 Construction  |
|   | <input type="checkbox"/> 7 Transport   |
|   | <input type="checkbox"/> 8 Mining/Mineral production   |
|   | <input type="checkbox"/> 9 Metal production  |
|   | <input type="checkbox"/> 10 Fugitive emissions from fuels (solid, oil and gas)   |
|   | <input type="checkbox"/> 11 Fugitive emissions from production and consumption of halocarbons and hexafluoride                 |
|   | <input type="checkbox"/> 12 Solvents use   |
|   | <input type="checkbox"/> 13 Waste handling and disposal  |
|   | <input type="checkbox"/> 14 Afforestation and Reforestation  |
|   | <input type="checkbox"/> 15 Agriculture  |
| Applied Methodology   | AMS-I.D, Version 17, Grid connected renewable electricity generation   |
| Technical Area(s)   | 1.2: Renewable Energies – (Hydro)  |
| Crediting period  | <input type="checkbox"/> Renewable Crediting Period (7 y)<br><input checked="" type="checkbox"/> Fixed Crediting Period (10 y) |
| Start of crediting period   | 2013-01-01 or a date not earlier than the date of registration of project activity   |

### 2.2 Involved Parties and Project Participants

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

**Table 2-2:** Project Parties and project participants

| Characteristic           | Party | Project Participant                   |
|--------------------------|-------|---------------------------------------|
| Host party               | India | M/s Raajratna Energy Holdings Pvt Ltd |
| Other involved party/ies | -     | -                                     |



## 2.3 Project Location

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

**Table 2-3:** Project Location

| No.                       | Project Location                              |
|---------------------------|---|
| Host Country              | India   |
| Region:                   | Himachal Pradesh                              |
| Project location address: | Belijnallah, Hibra village in district Chamba |
| Longitude - weir:         | 76° 20' 0.42" E                               |
| Latitude - weir:          | 32° 32' 15.41" N                              |
| Longitude - power house:  | 76°23'51" E                                   |
| Latitude – power house:   | 32°29'33" N                                   |

## 2.4 Technical Project Description

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

**Table 2-4 (a):** Belij 5 MW Project Technical data of the project activity

| Parameter          | Unit                         | Value  |
|--------------------|------------------------------|--|
| <b>Hydrology</b>   |                              |  |
| Stream             | -                            | Belij  |
| Tributary          | -                            | Ravi River   |
| Design discharge   | cumecs (m <sup>3</sup> /sec) | 3.325  |
| <b>Penstock</b>    |                              |  |
| Type               | -                            | Circular, surface, steel                           |
| Length             | m                            | 360 m  |
| <b>Power House</b> |                              |  |
| Type               | -                            | Surface  |
| Installed capacity | MW                           | 2 x 2.5 = 5  |
| Gross head         | m                            | 225.087  |
| Net head           | m                            | 221.25   |
| Generating unit    |                              | Pelton turbine                                     |
| <b>Turbine</b>     |                              |  |
| Rated Net Head     | m                            | 221.50   |
| Design Flow        | m <sup>3</sup> /s            | 3.20   |
| Rated Power        | MW                           | 2.500 @ 1.33Cumecs<br>2.500 + 20% COL @ 1.61Cumecs |
| Rated Speed        | RPM                          | 500  |
| Runaway Speed      | RPM                          | 871.1  |
| <b>Generator</b>   |                              |  |

---

|                |     |                 |
|----------------|-----|-----------------|
| Capacity       | MW  | 2.500 + 20% COL |
| Voltage Output | V   | 6600            |
| Rated Speed    | RPM | 500             |
| Frequency      | Hz  | 50              |
| Power Factor   | Lag | 0.85            |
| Configuration  | -   | Horizontal      |

### 3 METHODOLOGY AND VALIDATION SEQUENCE

#### 3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- Desk review of the PDD and supporting documents
- Validation planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and its contractors
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation

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

**Table 3.1:** Validation sequence

| Topic   | Time                    |
|---|-------------------------|
| Assignment of validation                                    | 2009-11-09              |
| Submission of PDD for global stakeholder commenting process | 2010-03-10 - 2010-04-08 |
| On-site visit   | 2010-09-14              |
| Draft reporting finalised                                   | 2011-03-28              |
| Final reporting finalised                                   | 2012-12-15              |
| Technical review on final reporting finalised               | 2012-12-18              |

### 3.2 Contract review

To assure that

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

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

### 3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities, a validation team, consisting of one team leader and 2 additional team members, as well as the Technical Review personnel were appointed.

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

**Table 3-2:** Involved Personnel

|   | Name                  | Company           | Function <sup>1)</sup> | Qualification Status <sup>2)</sup> | Scheme competence <sup>3)</sup>     | Technical competence <sup>4)</sup> | Host country Competence             | Team Leading Competence             | On-site Visit                       |
|---|-----------------------|-------------------|------------------------|------------------------------------|-------------------------------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms. | Manjari Chandra       | TUV India Pvt Ltd | TL <sup>2</sup>        | LA                                 | <input checked="" type="checkbox"/> | 1.2                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms  | Ma.Paa.Puratchikkanal | TUV India Pvt Ltd | TM <sup>3</sup>        | -                                  | <input checked="" type="checkbox"/> | 1.2                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms. | Vijay Kumar Machcha   | TUV India Pvt Ltd | TM <sup>A)</sup>       | A                                  | <input checked="" type="checkbox"/> | 1.2                                | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms  | G Ezhilarasu          | TUV India Pvt Ltd | TM <sup>A)</sup>       | LA                                 | <input checked="" type="checkbox"/> | 1.2                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms. | Prasad Jakkaraju      | TUV India Pvt Ltd | OR <sup>B)</sup>       | LA                                 | <input checked="" type="checkbox"/> | 1.2                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | -                                   |
| <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms  | Stefan Winter         | TN CERT, Essen    | TR/F                   | SA                                 | <input checked="" type="checkbox"/> | 1.2                                | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | -                                   |

<sup>2</sup> TL from 2012-01-25

<sup>3</sup> Was also TL till 2012-01-24

|  | Name | Company | Function <sup>1)</sup> | Qualification Status <sup>2)</sup> | Scheme competence <sup>3)</sup> | Technical competence <sup>4)</sup> | Host country Competence | Team Leading Competence | On-site Visit |
|--|------|---------|------------------------|------------------------------------|---------------------------------|------------------------------------|-------------------------|-------------------------|---------------|
|  |      |         | A <sup>B)</sup>        |                                    |                                 |                                    |                         |                         |               |

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

<sup>2)</sup> GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

<sup>3)</sup> GHG auditor status (at least Assessor)

<sup>4)</sup> As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

B) No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Technical Experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

In order to qualify further personnel the project team was accompanied by observers and/or trainees as indicated in the table above. They are usually not considered as team members.

Statements of competence for the above mentioned team members are enclosed in annex 6 of this report.

### 3.4 Consideration of Public Stakeholder Comments

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

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

### 3.5 Validation Protocol

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

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

The validation protocol is described in Figure 1.

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

**Figure 1:** Validation protocol table

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

### 3.6 Review of Documents

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

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

### 3.7 Follow-up Interviews

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

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

**Table 3-3:** Interviewed persons and interview topics

| Interviewed Persons / Entities          | Interview topics  |
|---|---|
| Project proponent representatives(IM01) | <ul style="list-style-type: none"> <li>- Chronological description of the project activity with documents of key steps of the implementation.</li> <li>- Current status of plant design</li> <li>- Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project</li> <li>- Host Government Approval</li> <li>- Approval procedures and status</li> <li>- Monitoring and measurement equipment and system.</li> <li>- Financial aspects</li> <li>- Crediting period</li> <li>- Project activity starting date</li> <li>- CER allocation / ownership</li> <li>- Baseline study assumptions</li> <li>- Additionality</li> <li>- Sustainable development issues</li> <li>- Monitoring</li> <li>- Analysis of local stakeholder consultation</li> <li>- Roles &amp; responsibilities of the project participants w.r.t. project management, monitoring and reporting</li> <li>- National Legislation</li> <li>- Editorial issues of the PDD</li> </ul> |

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

### 3.8 Project comparison

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

- Project technology

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

## 3.9 Resolution of Clarification and Corrective Action Requests

### 3.9.1 Definition

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

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

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

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

### 3.9.2 Draft Validation

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

### 3.9.3 Final Validation

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

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

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



### **3.10 Technical review**

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

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

### **3.11 Final approval**

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

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

## 4 VALIDATION FINDINGS

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

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

| Validation topic <sup>1)</sup>  | No. of CAR | No. of CL | No. of FAR |
|---|------------|-----------|------------|
| General description of project activity (A)<br><ul style="list-style-type: none"> <li>- Project specification</li> <li>- Technical project description</li> <li>- Participation</li> <li>- Contribution to sustainable development</li> <li>- PDD editorial aspects</li> <li>- Technology to be employed</li> </ul>   | 3          | 3         | 0          |
| Project Baseline, Additionality and Monitoring Plan (B)<br><ul style="list-style-type: none"> <li>- Application of the Methodology</li> <li>- Project Boundary</li> <li>- Baseline identification</li> <li>- Calculation of GHG emission reductions <ul style="list-style-type: none"> <li>Project emissions</li> <li>Baseline emissions</li> <li>Leakage</li> </ul> </li> <li>- Additionality determination</li> <li>- Monitoring Methodology</li> <li>- Monitoring Plan</li> <li>- Project management planning</li> </ul> | 8          | 3         | 0          |
| Duration of the Project / Crediting Period (C)  | 0          | 1         | 0          |
| Environmental impacts (D)   | 0          | 0         | 0          |
| Stakeholder Comments (E)  | 0          | 1         | 0          |
| <b>SUM</b>  | <b>11</b>  | <b>8</b>  | <b>0</b>   |

<sup>1)</sup> The letters in brackets refer to the validation protocol

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

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

| Finding  | A1   |
|--|--|
| <b>Classification</b>  | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR   |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>  | Approval from the Designated National Authority of the Host Country, the Ministry of Environment & Forests, Government of India, has not been submitted for validation.<br><br><b>Ref:</b> Version 01 of the PDD   |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>   | The Host Country Approval for the project activity "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt.Ltd" which was accorded to the Project Participant vide Letter Number 4/12/2010-CCC dated 2011-03-11 is submitted as Annex_HCA   |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i> | <ul style="list-style-type: none"> <li>The Ministry of Environment &amp; Forests, Government of India, has accorded approval of voluntary participation for the project "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt.Ltd" and has confirmed that the project contributes to sustainable development in India as per their letter no. 4/12/2010-CCC<sup>HCA</sup> dated 2011-03-11 addressed to Mr. Mohan Rao Adhikari, Chief Financial Officer, Raajratna Energy Holdings Pvt Ltd.</li> <li>The name of project participants, project title and location of project activity mentioned in the HCA are consistent with the details in the PDD.</li> <li>The letter was submitted by the PP to TÜV NORD for review as hard copy and confirms that the corresponding party is a party to Kyoto Protocol.</li> <li>The project is a voluntary initiation in proposed CDM project activity and un-conditional</li> </ul> <b>Ref:</b> Version 02 of the PDD<br>CAR A1 is closed. |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>  | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |

| Finding  | A2  |
|--|---|
| <b>Classification</b>  | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR                |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>                  | The methodology applied in the webhosted PDD is no more valid.<br><br><b>Ref:</b> Version 01 of the PDD         |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i> | The latest methodology version of AMS I.D is version 16 is applied in the revised PDD for the project activity. |

| Finding  | A2  |
|--|---|
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i> | <p>The methodology version of AMS I.D is version 16 is applied in the revised PDD which is verified found to be valid and applicable. However, during the course of validation, it is found that the updated methodology version was also expired. CAR is open.</p> <p><b>Ref:</b> Version 02 of the PDD.</p> |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>   | <p>The latest methodology version of AMS I.D is version 17 is applied in the revised PDD for the project activity.</p>  |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i> | <p>The PDD has been updated with the latest and valid version of the methodology AMS.I.D. Hence, accepted and CAR is closed.</p> <p><b>Ref:</b> Version 03 of the PDD</p>   |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>  | <p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The finding is closed</p>   |

| Finding  | A3  |
|--|---|
| <b>Classification</b>  | <input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR  |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>                  | <ol style="list-style-type: none"> <li>While providing latitude and longitude, units of degrees, minutes and seconds are not appropriately used.</li> <li>While mentioning the name of the grid, inconsistent application found at various section of the PDD</li> <li>The basis for the estimated generation mentioned under section A.2 of the PDD is not clear.</li> </ol> <p><b>Ref:</b> Version 01 of the PDD.</p>   |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i> | <ol style="list-style-type: none"> <li>The latitude and longitude have been mentioned in the units of degrees, minutes and seconds in the section A.4.1.4 of the revised PDD.</li> <li>The project activity is connected to the Northern Eastern Western North-Eastern (NEWNE) grid which is consistently mentioned through out the PDD.</li> <li>The electricity generation mentioned in section A.2 of the PDD is sourced from the Detailed Project Report prepared by the third party which was available at the time of investment decision.</li> </ol> |

| Finding  | A3   |
|--|--|
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i> | <ol style="list-style-type: none"> <li>1. The exact Latitude and Longitude of the power house and seconds are still missing in the revised PDD. In addition, the exact location of the project site is not mentioned in the district map presented in the PDD. CL is open.</li> <li>2. NEWNE grid is consistently mentioned throughout the PDD. CL is closed.</li> <li>3. The explanation is not in line with EB 48, Annex 11. CL is open.</li> </ol> <b>Ref:</b> Version 02 of the PDD.   |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>   | <ol style="list-style-type: none"> <li>1. The exact latitude and longitude of the power house and the Wier in degree, minutes and seconds is provided in section A.4.1.4 of the revised PDD.</li> <li>3. The Detailed Project report is prepared by third party, hence the PLF sourced from Detailed Project Report. Hence the PLF is determined in line with the option (b) "The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company);" of EB 48, Annex 11.</li> </ol>  |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i>     | <ol style="list-style-type: none"> <li>1. The latitude and longitude is mentioned in the revised PDD. It is verified and found to be matching with the exact location in Google maps. CL is closed.</li> <li>2. CL is already closed.</li> <li>3. The value presented is based on the DPR prepared by a third party expertise in the field of hydro sector and the same is submitted to HPSEB and subsequently approved by the Himachal Pradesh State Electricity Board, a government agency. It is observed though that the value considered from the DPR is appropriate, however, after deducting Transmission Losses (4.5%), Transformation Loss (0.5%) &amp; Auxiliary Power Consumption (0.5%), the same is not matching with the value considered. CL is open.</li> </ol> <b>Ref:</b> Version 03 of the PDD. |
| <b>Corrective Action #3</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>   | <ol style="list-style-type: none"> <li>3. Corrections have been made in the PDD, IRR and CER sheet with regard to slight variation in the net export value. The value now derived to be 23,445 MWh, IRR of 9.89% and correspondingly the total emission reductions of 19,693 tCO<sub>2</sub>e in the revised PDD.</li> </ol>   |
| <b>DOE Assessment #3</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i>     | <ol style="list-style-type: none"> <li>3. The revised PDD, IRR and CER calculations have been checked and found to be appropriately corrected. All the documents have been appropriately revised. Hence, the same is accepted and CL is closed.</li> </ol> <b>Ref:</b> Version 03.1 of the PDD.  |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>  | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |

| Finding:  | A4   |  |                              |
|---|--|--|------------------------------|
| <b>Classification</b>   | <input type="checkbox"/> CAR   | <input checked="" type="checkbox"/> CL | <input type="checkbox"/> FAR |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>   | The title of the project mentioned in the prior consideration page of UNFCCC seems to be different from the title mentioned in the webhosted PDD. Please clarify. Also the intimation letter to MoEF for prior consideration is not provided.<br><b>Ref:</b> Version 01 of the PDD.  |  |                              |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | The title of the project varies in both the sections as mentioned above, however the project activity is the same, notwithstanding the title not matching. Please find attached the Host Country Approval.   |  |                              |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | The capacity of the project and the project participant name mentioned in the UNFCCC is matching with the one mentioned in the webhosted PDD and revised PDD. However, the intimation letter submitted to Indian DNA is not submitted for validation.<br>CL is open.<br><b>Ref:</b> Version 02 of the PDD.   |  |                              |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | The Host Country Approval for the project activity "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt.Ltd" which was accorded to the Project Participant vide Letter Number 4/12/2010-CCC dated 2011-03-11 is submitted as Annex_HCA. The intimation letter sent to vide letter dated 2009-07-27 (Ref: MRA/CDM/BHPL-GHPL/100) is submitted as Annex_DNA letter.                        |  |                              |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i>      | The name of project participants, project title and location of project activity mentioned in the HCA are consistent with the details in the PDD. The intimation letter sent to UNFCCC and DNA of India is verified vide letter dated 2009-07-16 (Ref: MRA/CDM/BHPL-GHPL/099) and 2009-07-27 (Ref: MRA/CDM/BHPL-GHPL/100) respectively and found to be appropriate.<br>CL is closed.<br><b>Ref:</b> Version 03 of the PDD. |  |                              |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |  |                              |

| Finding:   | A5  |  |                              |
|--|---|--|------------------------------|
| <b>Classification</b>  | <input type="checkbox"/> CAR  | <input checked="" type="checkbox"/> CL | <input type="checkbox"/> FAR |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>                  | 1. "Guideline for completing CDM-SSC" and EB 54, Annex13 to complete the PDD is not referred.<br>2. Formatting and editorial mistakes identified in the PDD should be rectified.<br><b>Ref:</b> Version 01 of the PDD.    |  |                              |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i> | 1. The guideline for completing CDM-SSC has been referred in presenting the requisite information in the PDD for the validation.<br>2. The editorial mistakes and the formatting mistakes have been rectified in the PDD. |  |                              |

| Finding:  | A5   |
|---|--|
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | <ol style="list-style-type: none"> <li>1. The PP has referred Guideline for completing the SSC PDD and submitted the revised PDD with necessary information required for validation. Still section A.2 mentions detailed technical details of the project activity which is not required as per the Guideline for completing the SSC PDD. But, PP is failed to refer EB 54, Annex 13 for de-bundling. However, it is still noted, information is provided under section A.4 directly, which seems not in confirmation with guidelines. Similar observation noted for table under section A.4.3. Also, under section A.4.2 table, complete details of the project technical features including, turbine and generators are missing.<br/>In addition, the PDD template is not in line with the UNFCCC template available and Annex 2, Annex 3, &amp; Annex 4 are missing from the document. CL is open.</li> <li>2. The PDD version number and date are not updated for changes made to the PDD. CL is open.<br/><b>Ref:</b> Version 02 of the PDD.</li> </ol> |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | <ol style="list-style-type: none"> <li>1. The technical description of the project activity earlier provided directly in section A.4 of the PDD has been deleted in the revised PDD. The complete technical details of the project including the technical description of the turbine and generator is included in the section A.4.2 of the revised PDD. The starting of the crediting period has been changed to 01/01/2013 or a date not earlier than the date of registration. Subsequently the table of emission reductions in section A.4.3 is changed where the first year starts from the 01/01/2013. The Annex 2, Annex 3 &amp; Annex 4 are included in the revised PDD in line with the template of UNFCCC.</li> <li>2. The version and the date of the PDD has been revised to Version 03, 12/09/2012</li> </ol>   |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i>      | <ol style="list-style-type: none"> <li>1. Revised PDD has been checked and found all the appropriate corrections have been carried out. CL is closed.</li> <li>2. PDD version number and date with changes are mentioned in the revised PDD. CL A3.2 is closed.<br/>Hence, CL A5 is closed.<br/><b>Ref:</b> Version 03 of the PDD.</li> </ol>  |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |

| Finding:  | A6  |
|---|---|
| <b>Classification</b>   | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR                                      |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous terms</i> | It is noted that during the interviews with PP, the implementation of 2 MW Gehra project is uncertain, though the same is included as |



| Finding:  | A6  |
|---|---|
| <i>biguous style; address the context (e.g. section)</i>  | part of the CDM project activity.   |
|   | Ref: PDD, Version 02  |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | <p>At the time of webhosting the PDD for the Global stakeholder comment process the PP intended to develop the proposed CDM project activity as 7 MW bundled small hydropower project (hereafter referred to as the bundled project or project activity) located at Himachal Pradesh, India. The bundled hydro power project consisted of the Belij project and 2 MW small hydropower plant located at Gehra, Chamba district, Himachal Pradesh, India (hereafter referred to as Gehra project). The Belij Project was being developed by Belij Hydro Power Private Limited and the Gehra Project was being implemented by Gehra Hydro Power Private Limited. The same PDD was submitted to the host country approval and subsequently the Host Country approval was granted to the 7 MW Bundled Project activity consisting of the Belij Project located in Hibra Village, Chamba district and the Gehra project located in the Gehra Village, Chamba district.</p> <p>However considering the technical implementation difficulties of the construction Gehra Project, the Board of Directors of Gehra Hydro Power Private Limited (GHPPL) has passed a resolution not to implement the Gehra Project. Thus GHPPL has not placed the Equipment Supply contract or EPC contract for the Gehra Project. Hence the PDD is subsequently revised to include only the Belij project</p> |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | <p>The board resolution provided by PP dated 16 June 2011 has been checked and found that board of director of Gehra Hydro Power Private Limited have passed a board resolution not to implement the 2 MW Gehra small hydro project activity on the account of difficulties being faced and hence, resolved aboandoing of the project activity.</p> <p>The revised PDD has been checked and found that 2 MW Gehra related project details are now removed and only 5 MW Belij related project details are retained.</p> <p>Hence, CAR is closed.</p> <p>4.1.1<br/> <b>Ref:</b> Version 03 of the PDD.</p>   |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed  |

| Finding:  | B1  |                             |                              |
|---|---|-----------------------------|------------------------------|
| <b>Classification</b>   | <input checked="" type="checkbox"/> CAR   | <input type="checkbox"/> CL | <input type="checkbox"/> FAR |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i> | 1. Justification of the choice of the project category mentioned under section B.2 needs complete overhaul as the same is not in line with the latest version of the applied methodology. |                             |                              |



| Finding:   | B1  |
|--|---|
|  | <p>2. Explanation provided in section B.4 is not clearly enough to identify the baseline scenario of the project activity. Also Section B.4 does not contain either alternatives to the Project activity or any reference to the methodology which renders such discussion on alternatives redundant for the Project activity.</p> <p><b>Ref:</b> Version 01 of the PDD.</p>  |
| <p><b>Corrective Action #1</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>  | <p>1. The applicability conditions and the justification of the applicability of the project activity to the applicability conditions have been revised in accordance with AMS ID, Version 16.</p> <p>2. As per AMS I D version 16, Paragraph 10. The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. The same has been described as the baseline scenario in the revised PDD. As the default baseline is provided in the applicable methodology, the discussion of the alternatives for the baseline scenario is redundant for the project activity.</p> <p>4.1.2</p> |
| <p><b>DOE Assessment #1</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p> | <p>1. As requested earlier, the PP has not mentioned all the applicable points irrespective of its relevance to the project activity in the PDD. CAR is open.</p> <p>2. The revised PDD clearly mentions the baseline scenario and the same is verified and found to be valid as per AMS I.D point 10. CAR is closed.</p> <p><b>Ref:</b> Version 02 of the PDD.</p>   |
| <p><b>Corrective Action #2</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>  | <p>1. All the applicability conditions as per AMS ID Version 17 are provided in the PDD section B.2 and the justification of the applicability of the conditions to the project activity is also included.</p>  |
| <p><b>DOE Assessment #2</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#3, etc.) shall be added.</i></p>     | <p>1. As per AMS I.D, version 17, all the applicability points are justified in the revised PDD. The project boundary chart is named as per the requirements. CAR is closed.</p> <p><b>Ref:</b> Version 03 of the PDD.</p>  |
| <p><b>Conclusion</b></p> <p><i>Tick the appropriate checkbox</i></p>   | <p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The finding is closed</p>   |

| Finding:   | B2  |
|--|---|
| <b>Classification</b>  | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR  |
| <p><b>Description of finding</b></p> <p><i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p> | <p>1. Investment barrier section does not contain any explanation of investment analysis chosen to demonstrate additionality (benchmark analysis, in this case), its conformity with Guidance</p> |

| Finding:   | B2   |
|--|--|
|  | <p>16 of Annex 58, EB 51, identification of benchmark, its conformity with Guidance 12 and 13 of Annex 58, EB 51 and suitability to the financial indicator selected.</p> <p>2. Section B.5 of PDD does not contain any write up on financial indicator selected (except that project IRR has been selected) and its appropriateness for demonstrating the additionality of the project activity having regard to the project type and decision making context.</p> <p><b>Ref:</b> Version 01 of the PDD.</p>  |
| <p><b>Corrective Action #1</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>  | <p>1. As per "Guidelines on the Assessment of Investment Analysis", the benchmark approach is suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest. In the project activity the baseline scenario is the generation of equivalent amount of electricity from the grid connected power plants. The baseline scenario is outside the direct control of the PP. Hence, the benchmark analysis is chosen and the Project IRR is used as the financial indicator to assess the financial viability of the project activity. The same is included in section B.5 of the revised PDD.</p> <p>2. The purpose of the project IRR calculation is to determine the viability of the project to service debt. As 70% of the project cost is serviced by Debt, hence Project IRR is considered appropriate financial indicator to assess the financial viability of the project activity. The same is included in section B.5 of the revised PDD.</p> |
| <p><b>DOE Assessment #1</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p> | <p>1. The explanation provided under investment barrier is verified and found to meet the requirement of Investment analysis guideline. The applied version of the guidelines is not the for investment analysis (EB 62, Annex 5). CAR is open.</p> <p>2. After reviewing the revised PDD, there seems to be mix up of both project IRR and equity IRR to demonstrate additionality. CAR is open.</p> <p><b>Ref:</b> Version 02 of the PDD.</p>  |
| <p><b>Corrective Action #2</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>  | <p>1. The latest guideline on investment analysis (EB 62, Annex 5) has been applied in the revised PDD.</p> <p>2. The project IRR has been used to demonstrate additionality and the mention of Post Tax Equity IRR is a typo error which has been changed in the revised PDD.</p>   |
| <p><b>DOE Assessment #2</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i></p>      | <p>1. The main revenue for the project accrues from sale of generated electricity and hence, Simple Cost Analysis is not considered by the PP. Benchmark analysis is the method of choice as it helps to find, track, and analyse investment options. The PP has chosen this method as it helps it to compare its key financial and operating metrics against widely acceptable benchmarks; this in turn would help it decide if it should proceed with investing in the project. The DOE verified</p>   |

| Finding:  | B2   |
|---|--|
|   | <p>the explanation provided in the revised PDD and the latest version of "Guideline on the assessment of the investment analysis" has been referred in the PDD. This is in line with the point no 19 of Annex 5 of EB 62. CAR is closed.</p> <p>2. Benchmark analysis chosen for the project activity is justified in the revised PDD. The financial indicator chosen to demonstrate additionality is project IRR and the applied benchmark is Weighted Average Capital Cost. The chosen benchmark is in line with point no 12 and 13 of Annex 5 of EB 62 and the explanation is verified in the revised PDD. CAR is closed.</p> <p>Hence, CAR B2 is closed.</p> <p><b>Ref:</b> Version 03 of the PDD.</p> |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i> | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |

| Finding:   | B3  |
|--|---|
| <b>Classification</b>  | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR  |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>                  | <p>1. Detailed IRR spread sheet is not submitted for validation, hence, relevant financial CARs/CLs could not be raised</p> <p>2. In the sensitivity analysis, since 10% variation has been considered, the reason for not considering project cost and tariff is not clear.</p> <p>3. In the sensitivity analysis state at what variation in each of the chosen parameters the financial indicator will exceed the benchmark and what are the probabilities of such occurrence and the reasons thereof are not provided.</p> <p><b>Ref:</b> Version 01 of the PDD.</p>   |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i> | <p>1. The detailed IRR spreadsheet for the project activity is submitted as Annex_IRR.</p> <p>2. The tariff has been frozen for the duration of the Power Purchase Agreement for a period of 40 years, hence there is no circumstance under which the Tariff is said to be variable</p> <p>3.</p> <ul style="list-style-type: none"> <li>i. The O&amp;M costs crosses the benchmark only when it decreases by more than 100% from the cost considered during the investment decision. However, it is a reality that the O &amp; M cost is subject to escalation and also subject to inflationary pressure thus a decrease of more than 100% in the O&amp;M costs is not feasible.</li> <li>ii. The Generation of the project depends on monsoons of that year and hence predicting the value of the same lies beyond the scope of our report</li> </ul> |

| Finding:  | B3   |
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| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | <ol style="list-style-type: none"> <li>1. The detailed IRR sheet is now submitted to the DOE. Based on the review of IRR spread sheet the DOE has raised new CARs/CLs. Pls refer to CAR B5, CAR B6 and CAR B7, etc.,. CAR is closed.</li> <li>2. Tariff cannot be frozen unless the PPA is signed. PP has not submitted the documentary evidence for the assumptions considered for tariff. Moreover the parameter considered for sensitivity such as civil, electromechanical, preoperative etc will be covered under project cost. Carrying out sensitivity on each parameter on project cost is not acceptable. In addition the PP should clarify the reason for not considering O&amp;M cost in sensitivity. CAR is open.</li> <li>3. The explanation is not provided in the PDD and the percentage increase or decrease in the sensitive parameter to meet or cross the benchmark is not justified in the PDD. CAR is open.</li> </ol> <b>Ref:</b> Version 02 of the PDD. |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | <ol style="list-style-type: none"> <li>2. The PPA for Belij have been provided as Annex_PPA. The tariff available at the time of decision making was Rs. 2.50/kWh as per the Hydro policy 2006. Thus the tariff of INR 2.50/kWh has been used in the calculation of the financial indicator. The sensitivity analysis of the Project IRR with the variation of 10% on the project cost and the tariff is also considered and included in the revised PDD. Further the project IRR considering the tariff of INR 2.95/kWh which is the tariff at which the PP has signed the PPA with HSEB is also computed and the same is found to be lower than the benchmark of 13.47%. The revised Project IRR with consideration of CDM revenue is also included in the revised PDD.</li> <li>3. The percentage variation in each of the chosen parameters at which the financial indicator crosses the benchmark is indicated in the revised PDD.</li> </ol>                             |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i>      | <ol style="list-style-type: none"> <li>2. PPA dated 2010-11-26, between Belij Hydro Power Ltd and Himachal Pradesh State Electricity Board is verified. Based on the review, it is clear that the PPA is signed for 40 years with a tariff of Rs 2.95/kWh without any escalation. Hence, response accepted and CAR is closed.</li> <li>3. Revised PDD is submitted and the explanation is in line with point no 21 of EB 62, Annex 5. Hence, CAR is closed.</li> </ol> <b>Ref:</b> Version 03 of the PDD.  |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |

| General                       | B4  |                             |                              |
|-------------------------------|---|-----------------------------|------------------------------|
| <b>Classification</b>         | <input checked="" type="checkbox"/> CAR                       | <input type="checkbox"/> CL | <input type="checkbox"/> FAR |
| <b>Description of finding</b> | Serious consideration of CDM benefits section write up leaves |                             |                              |

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| <p><i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p>  | <p>much to be desired. Leave alone chronology of events, it does not even give the prior consideration date to DNA and UNFCCC. Hence, it is not possible to conclude whether the project conforms to conditions stipulated by EB vide Annex 22, EB 49. Moreover, the section uses Annex 46, EB 41 instead of Annex22, EB 49.<br/><b>Ref:</b> Version 01 of the PDD.</p>   |
| <p><b>Corrective Action #1</b><br/><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>   | <p>The commencement of the project activity and the intention to seek CDM status has been intimated to UNFCCC on 16/07/2009 and to Indian DNA on 27/07/2009 which is within six months from the start date of the project activity. Thus the same is in line with the EB's Guidance on Demonstration and assessment of the prior consideration of the CDM, EB 48, Annex 61. Further events taken up by the PP to indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation is also included in the section B.5 of the revised PDD.</p>                                    |
| <p><b>DOE Assessment #1</b><br/><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i></p> | <p>Still the PDD lacks information on DPR preparation date, intimation letter submitted to UNFCCC and DNA of India, HCA meeting, HCA Approval date, Stakeholder meeting date under section B.5.<br/><b>Ref:</b> Version 02 of the PDD.</p>  |
| <p><b>Corrective Action #2</b><br/><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>   | <p>The date of intimation to UNFCCC and India DNA about the commencement of the project and the intention to seek the CDM status is included in the chronology of events. Further the date of Host Country Approval meeting, the date of receipt of the Host Country and the stakeholder meeting date are included in the revised PDD. The date of DPR preparation has not been included as the same is before the investment decision date of the project activity and the chronology table in section B.5 indicates the continuing and real actions were taken to secure CDM status for the project in parallel with its implementation</p> |
| <p><b>DOE Assessment #2</b><br/><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#3, etc.) shall be added.</i></p>     | <p>The PDD has been checked and found to be appropriately revised. The evidence provided under serious consideration of CDM is verified and found to be real. Hence, CAR is closed.<br/><b>Ref:</b> Version 03 of the PDD.</p>  |
| <p><b>Conclusion</b><br/><i>Tick the appropriate checkbox</i></p>  | <p> <input type="checkbox"/> To be checked during the first periodic verification<br/> <input type="checkbox"/> Additional action should be taken<br/> <input checked="" type="checkbox"/> The finding is closed         </p>   |

| General   | B5  |                             |                              |
|---|---|-----------------------------|------------------------------|
| <b>Classification</b>   | <input checked="" type="checkbox"/> CAR   | <input type="checkbox"/> CL | <input type="checkbox"/> FAR |
| <p><b>Description of finding</b><br/><i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p> | <p><u>Version 01 of IRR spread sheet:</u><br/>Belij Hydro:</p> <ol style="list-style-type: none"> <li>1. In section A.2 of PDD, PLF source needs to be provided as per EB 48 annex 11.</li> <li>2. In Section B.5, worksheet does not contain any provision to</li> </ol> |                             |                              |

| General   | B5   |
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|   | <p>independently verify the sensitivity results</p> <ol style="list-style-type: none"> <li>Operational life time considered for the project activity is not in line with "Tools to calculate remaining life time of equipment"</li> <li>The source of data assumed for investment analysis is not traceable in PDD and IRR spread sheet.</li> <li>The DPR provided mentions tariff of 2.5 INR/kWh, however, the actual applicable tariff for the project is 2.95 INR/kWh. How the tariff considered is conservative?</li> <li>Though the project life time is mentioned as 30 years, period of assessment considered for project IRR as 20 is not justified.</li> <li>Presenting both project IRR and Equity IRR in the PDD is not acceptable.</li> <li>It is not clear how the benchmark selected for the project is in line with the Guideline for Investment analysis</li> <li>Financial years are not appropriately used in the worksheet.</li> </ol> <p>Gehra Hydro:</p> <ol style="list-style-type: none"> <li>In section A.2 of PDD, how the provided PLF source is in line with EB 48 annex 11.</li> <li>In Section B.5, worksheet does not contain any provision to independently verify the sensitivity results</li> <li>The source of data assumed for investment analysis is not traceable in PDD and IRR spread sheets.</li> <li>The approved DPR is not provided. Also the basis for investment decision by the board should be substantiated as per EB 62, Annex 5 point no 6.</li> <li>Since the project life time is mentioned as 30 years, proving IRR for 20 years is not justified as per EB 62, Annex 5</li> <li>Presenting both project IRR and Equity IRR in the PDD is not acceptable.</li> <li>It is not clear how th benchmark selected for the project is in line with the Guideline for Investment analysis</li> <li>Financial years are not appropriately used in the worksheet</li> </ol> <p><b>Ref:</b> PDD, Version 02</p> |
| <p><b>Corrective Action #1</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p> | <p>Belij Financials</p> <ol style="list-style-type: none"> <li>The PLF from the DPR has been used across the PDD and the Financial Analysis</li> <li>The Financial Analysis has been modified to check sensitivity.</li> <li>The source of data used for investment analysis has been elaborated and the links for the Income tax Depreciation rate, the book depreciation rate and the Income Tax rates are provided in section B.5 of the revised PDD.</li> <li>The tariff considered in the financial sheet is 2.50 INR/kWh in accordance with the values mentioned in the DPR which was available at the time of decision making in line with the para 6 of the Guidelines on assessment of Investment</li> </ol>  |



| General  | B5  |
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|  | <p>Analysis, Version 05. The IRR considering the tariff of INR 2.95/kWh is calculated as 12.80% which is lower than the benchmark of 13.47% and the same is presented in the sensitivity analysis, Section B.5 of the revised PDD.</p> <ol style="list-style-type: none"> <li>5. The period considered for Project IRR calculation is 20 years which is recommended as the maximum assessment period for the Project IRR calculation and the fair value has been included at the end of assessment period in accordance with EB 62, Annex 5.</li> <li>6. The mention of the Post tax Equity IRR is a typo error and the same has been deleted in the PDD.</li> <li>7. The para 14 of the investment guidelines applies to calculation of the expected return on equity in cases when the internal company benchmark is used. The project activity doesn't use the internal company benchmark, rather the benchmark for the project activity is based on the expected return on equity calculated using the pure play method by constructing a portfolio of companies which are in power generation and estimating the return on equity based on the beta's of the portfolio of companies. The Para 13 is being used to estimate the expected return on equity in turn to estimate the WACC to be used as the benchmark. "13. Guidance: In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market." The cost of equity is calculated using the CAPM model, which represent the best financial practices. The data used for the calculation of the cost of equity using the CAPM method is sourced from the Government Websites and the Annual Reports of the Companies listed on the Bombay Stock Exchange(BSE). Thus the data can be clearly validated by the DOE in line with the para 15 of EB 62, Annex 05. The Debt Equity ratio of 70:30 which typical debt/equity finance structure observed in the hydro power sector of India is used in calculation of WACC in line with Para 18 of EB 62, Annex 05.</li> <li>8. The Financial Analysis has been suitably modified with financial years</li> </ol> <p>Gehra Hydro:<br/>Considering the technical implementation difficulties of the construction Gehra Project, the PP has decided not to implement the Gehra Project and thus the PP revised the PDD to include only the Belij project. Please refer to the response for CAR B13 on the explanation for the exclusion of the Gehra Project from the project activity.</p> |
| <b>DOE Assessment #1</b><br><i>The assessment shall encom-</i> | <b>Version 02 of IRR spread sheet:</b><br><b>Belij Hydro:</b>   |

| General  | B5  |
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| <p>pass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</p> | <ol style="list-style-type: none"> <li>1. PLF considered is not in line with EB 48 annex 11, as the same is considered based on DPR prepared a third party engineering company. Hence, CAR is closed.</li> <li>2. The revised IRR sheet has clear provisions to cross check the IRR Independently. Hence, CAR is closed.</li> <li>3. The source of information for each input value is not clearly provided in the IRR sheets and PDD. Hence, CAR is closed.</li> <li>4. The PDD submitted is checked and found that the tariff is fixed for a period of 40 years. However, even with actual tariff consideration the project IRR is found to be still below the benchmark. Same is now found to have been included in section B.5 of the PDD. Hence, CAR is closed.</li> <li>5. The period of assessment considered is in line with the EB 62, Annex 5. Also, salvage value at the end of assessment period is added in the cash flows appropriately. Hence, CAR is closed.</li> <li>6. The typo error is now corrected in the PDD.Hence, CAR is closed.</li> <li>7. The benchmark considered for the project activity is in line with clause 14 and 15 of 'GUIDELINES ON THE ASSESSMENT OF INVESTMENT ANALYSIS'. PDD and IRR sheets submitted have been checked and found to have appropriately revised. Hence, CAR is closed.</li> <li>8. Financial years have been appropriately considered.Hence, CAR is closed.</li> </ol> <p>Gehra Hydro:<br/>Gehrasmall hydro project is now excluded from the current CDM project activity. Pls refer to closure of CAR A6 for detailed assessment in this regard.</p> <p>CAR B5 is closed.</p> <p><b>Ref:</b> PDD, Version 03</p> |
| <p><b>Conclusion</b><br/>Tick the appropriate checkbox</p>   | <p> <input type="checkbox"/> To be checked during the first periodic verification<br/> <input type="checkbox"/> Additional action should be taken<br/> <input checked="" type="checkbox"/> The finding is closed         </p>   |

| General  | B6  |
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| <p><b>Classification</b></p>   | <p> <input checked="" type="checkbox"/> CAR           <input type="checkbox"/> CL           <input type="checkbox"/> FAR         </p>   |
| <p><b>Description of finding</b><br/>Describe the finding in unambiguous style; address the context (e.g. section)</p> | <p><u>Version 01 of IRR spread sheet for Beliji Hydro Power:</u><br/><u>IRR work sheet - General:</u></p> <ol style="list-style-type: none"> <li>1. Bank sanction letter required.</li> <li>2. In data sheet, the moratorium is given as 2 quarters but in Loan int sheet, 3 quarters have been considered.</li> <li>3. Evidence for selling price of electricity is not provided.</li> </ol> |



| General | B6   |
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|         | <p>4. What is the basis for free energy supply to HPSEB in the financials?</p> <p>5. Evidence for CER price and exchange rate.</p> <p>6. What is the salvage value at the end of 20 years (period considered for assessment)? .</p> <p>7. Annual Depreciation for the purposes of books is not provided.</p> <p>8. What is the basis for O &amp; M charges considered? the total project cost includes working capital margin?</p> <p>9. Evidence for subsidy is not provided.</p> <p><b><u>Pre-operative expenses:</u></b></p> <p>1. What is the basis for pre-operative expenses?</p> <p><b><u>IDC:</u></b></p> <p>1. Basis for IDC consideration is not provided?</p> <p><b><u>Loan Int:</u></b></p> <p>1. Basis and approach for capital subsidy consideration in the financials are not clear.</p> <p>2. What is the basis for the repayment of term loan. Whether it is inclusive of moratorium?</p> <p><b><u>WC:</u></b></p> <p>1. What is the basis for considered and calculation of working capital requirement?</p> <p>2. Evidence for interest on working is not provided.</p> <p><b><u>Project IRR:</u></b></p> <p>1. Why capital subsidy is not shown as cash inflow for IRR calculations? As capital subsidy is a direct benefit to the PP on the capital investment, why direct deduction of subsidy amount from capital investment is not considered?</p> <p>2. Salvage value consideration, such as, the fair market value at the end period of assessment is not clear.</p> <p><b><u>IT:</u></b></p> <p>1. Benefits of deduction under section 80IA of the Income tax Act,1961 workings are not clear.</p> <p><b><u>Sensitivity and WACC worksheet:</u></b></p> <p>1. Evidence for risk free rate of return are not provided.</p> <p>2. What is the basis for considered values of BSE 100 index returns?</p> <p>3. Reasons for companies chosen for beta values. There are number of companies engaged in power generation listed in BSE 100. Why they have not been considered beta values?</p> |

| General   | B6   |
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|   | <p>4. What is the period of considered for BSE index returns workings and basis?</p> <p>5. In WACC workings only MAT has been adjusted against interest and not the regular tax.</p> <p>6. Data on page 19 of PDD are not the same as given in this sheet.</p> <p>Ref: PDD Version 02, IRR sheet version 01.</p>   |
| <p><b>Corrective Action #1</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p> | <p><u>IRR work sheet - General:</u></p> <ol style="list-style-type: none"> <li>1. The term loan sanction letter from Rural Electrification Corporation, New Delhi has been submitted</li> <li>2. The interest calculations have been changed based on the closing balances and it reflects 2 quarters moratorium period only</li> <li>3. The evidence for the tariff rate of INR 2.50/kWh is from the Hydro Policy of Himachal Pradesh, 2006. The link of the same is provided in the financial analysis</li> <li>4. According to the Hydro Policy of Himachal Pradesh, 2006 for the first 12 years there will be no free power provided by the Belij project to the Himachal Government. However, after the 12th year, 12% of energy generate will have to provided free of cost and after the 30th year of operation 18% of energy generated will have to provided to the Himachal Government free of cost. The same has been reflected in the worksheet.</li> <li>5. the web link for the CDM price as illustrated by TFS Green as per the report published on 08/03/2007 which was available at the time of decision making is included in the revised IRR sheet.</li> <li>6. As per para 3 of EB 62, "In general a minimum period of 10 years and a maximum of 20 years will be appropriate." Hence the EB suggests that in general a maximum of 20 years as a period of assessment for the IRR calculation is appropriate. The fair value of the asset is assumed as 10% of the cost of machinery + land cost+ Working Capital Margin and the same is added at the end of assessment period. Similar approach is followed in the registered projects with UNFCCC Reference Numbers: 5367, 5509, 5089, 5175.</li> <li>7. The depreciation for the purposes of books has now been provided as per the rates mentioned in Schedule XIV of the Companies Act.</li> </ol> |

| General | B6   |
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|         | <p>8. The O&amp;M costs are based on the Detailed Project Report which calculates the O&amp;M costs as 2.25% on the total project cost. Thus the same is considered in the IRR calculation sheet. Similar approach is followed by the subsequent order for the Hydro Projects issued by HPERC where the O&amp;M costs are considered as 2.25% of the total project costs. The registered project with reference numbers 2729 and 3801 also follow a similar approach where the O&amp;M costs are considered as percentage of total project cost.</p> <p>9. The link for the capital subsidy that can be availed by the PP as per the Hydro Policy 2006 is included in the revised PDD. The formula as per the Hydro Power Policy 2006 is 45% of Project cost limited to Rs. 2.25 Crores + Rs. 37.50 Lacs per MW available at the time of decision making which is 41.25 million INR and the same is taken in the financial analysis.</p> <p><b><u>Pre-operative expenses:</u></b></p> <p>1. The Pre Operative Expenses represents the cost associated with the project cost and the same is considered in line with the Detailed Project Report which was available at the time of decision making.</p> <p><b><u>IDC:</u></b></p> <p>1. The IDC represents the cost associated with the project cost and the same is considered in line with the Detailed Project Report which was available at the time of decision making.</p> <p>4.1.3</p> <p><b><u>Loan Int:</u></b></p> <p>1. The capital subsidy is considered as cash inflow at the time of commissioning in accordance with the Hydro Power Policy 2006, available at the time of decision making. The formula as per the Hydro Power Policy 2006 is 45% of Project cost limited to Rs. 2.25 Crores + Rs. 37.50 Lacs per MW and which works out to be 41.25 million INR, the same is taken in the financial analysis.</p> <p>2. The loan repayment period and the moratorium are</p> |

| General | B6  |
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|         | <p>considered in line with the provisions of the Detailed Project Report available at the time of decision making.</p> <p><b>WC:</b></p> <ol style="list-style-type: none"> <li>1. The Working Capital requirement is considered as two months receivables from the sale of electricity and one month for the Operation and Maintenance Expenses. The same is in line with the Detailed Project Report which is available at the time of decision making.</li> <li>2. The interest rate provided by RBI in March, 2007 which was available at the time of decision making is considered as the working capital interest rate in the IRR calculation sheet.</li> </ol> <p><b>Project IRR:</b></p> <ol style="list-style-type: none"> <li>1. The capital subsidy is considered as cash inflow at the time of commissioning in accordance with the Hydro Power Policy 2006, available at the time of decision making.</li> <li>2. As per para 3 of EB 62, "In general a minimum period of 10 years and a maximum of 20 years will be appropriate." Hence the EB suggests that in general a maximum of 20 years as a period of assessment for the IRR calculation is appropriate. The fair value of the asset is assumed as 10% of the cost of machinery + land cost+ Working Capital Margin and the same is added at the end of assessment period. Similar approach is followed in the registered projects with UNFCCC Reference Numbers: 5367, 5509, 5089, 5175.</li> </ol> <p><b>IT:</b></p> <ol style="list-style-type: none"> <li>1. The benefits of deduction under section 80 IA has been considered and accordingly tax calculations have been adjusted.</li> </ol> <p><b>Sensitivity and WACC worksheet:</b></p> <ol style="list-style-type: none"> <li>1. Yield to Maturity (YTM) of Central Government Securities for the latest month available at the time of decision making has been chosen as proxy for the Risk Free Rate. This works out 8.067% for the project activity.</li> <li>2. The return on BSE 100 index has been computed from 01/04/1984 till 12/03/2007 which is before the date of investment decision. The market return represents a time</li> </ol> |

| General | B6   |
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|         | <p>period of more than 22 years. Thus the timeline for the calculation of the market return is comparable with the period of assessment.</p> <p>3. Apart from the companies used in the portfolio for determining the benchmark for the project activity, the companies listed under the power sector in BSE Stock Exchange at the time of investment decision of the project activity (i.e. on March 2007) are, KEC International, KSK Ventures, NTPC, Power Grid Corporation, PTC India Limited, Reliance Power Limited and TorrentPower Limited. However the portfolio constructed for the project activity calculates the beta by considering the holding period from January 2002 vis-a-vis a five year holding period. The duration of 5 years is referenced from Page No. 10.10, Projects – Planning, Analysis, Selection, Financing, Implementation and Review, 7th Edition, Prasanna Chandra. None of the other companies apart from the companies constructed in the portfolio have traded on BSE from January 2002. Hence by including the other companies we will be considering multiple holding periods. The multiple holding periods will impact the CAPM by changing the Security Market Line (SML) from a line to band of lines which is undesirable and inappropriate in estimating a beta for the portfolio and using the same beta for the project activity under the Pure Play method. The amalgamation of the betas for different time period is not appropriate. Hence only the companies which have traded on BSE indices from July 2001, vis-à-vis CESC, GIPCL, Neyveli Lignite and Tata Power have been considered for beta computation</p> <p>4. The return on BSE 100 index has been computed from 01/04/1984 till 12/03/2007 which is before the date of investment decision. The market return represents a time period of more than 22 years. Thus the timeline for the calculation of the market return is comparable with the period of assessment.</p> <p>5. The Project Activity is eligible to avail 80 IA Benefits for 10 years out of the first 15 years of the operation. Consequently the PP is exempted from paying the Normal Income Tax on the Gross Total Income for the years in which the 80 IA Benefit is availed. The 80 IA Benefit is availed when the carried forward losses are set off. In the</p> |

| General   | B6   |
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|   | <p>project activity, the carried forward losses are computed to be set off in the 9th year of operation. Thus the 80 IA Benefits are considered from 9th year till 15th year. Further on the account of the carried forward losses till the 9th year of operation, the PP needs to pay only the MAT on the Profit Before Tax. Thus the PP pays MAT till 15th year of operation from the commissioning. The interest payments are considered for 12 years in the Project activity, whereas the tax liability for the first 15 years of operation is on account of payment of MAT. Thus the interest payment will reduce the tax liability till the extent of Cost of Debt * (MAT). Thus the after tax cost of debt is Cost of Debt * (1-MAT). Hence consideration of MAT is appropriate against considering the Normal Income Tax Rate</p> <p>6. Page 19 of PDD has been corrected</p>  |
| <p><b>DOE Assessment #1</b><br/> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i></p> | <p><u>Version 02 of IRR spread sheet for Beliji Hydro Power:</u></p> <p><u>IRR work sheet - General:</u></p> <ol style="list-style-type: none"> <li>1. The loan sanction letter is now provided. Hence, CAR is closed.</li> <li>2. The calculations in the revised financials found to be appropriate. Hence, CAR is closed.</li> <li>3. Hydro policy of Himachal Pradesh 2006 is checked and found that the applicable tariff rate is 2.5 INR/kWh. Hence, CAR is closed.</li> <li>4. Hydro policy of Himachal Pradesh 2006 is checked and found that the consideration of free energy supply to HPSEB is appropriate. Hence, CAR is closed.</li> <li>5. The web links are now provided appropriately. Hence, CAR is closed.</li> <li>6. Salvage value is now considered appropriately in line with the Guidelines on Assessment of Investment Analysis. Hence, CAR is closed.</li> <li>7. Book depreciation is now calculated in accordance with the companies act. Hence, CAR is closed.</li> <li>8. The consideration of O&amp;M cost is found to be appropriate. The same is also found to be in line with the HPERC tariff order 2007. Hence, CAR is closed.</li> </ol> |



| General | B6   |
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|         | <p>9. Hydro policy 2006 is checked and found tha the capital subsidy has been considered appropriately in the financials. Hence, CAR is closed.</p> <p><b><u>Pre-operative expenses:</u></b></p> <p>1. DPR prepared in February 2007 has been checked and found that the IRR sheet considered the values appropriately from the DPR. Hence, CAR is closed.</p> <p><b><u>IDC:</u></b></p> <p>1. DPR prepared in February 2007 has been checked and found that the IRR sheet considered the values appropriately from the DPR. Hence, CAR is closed.</p> <p><b><u>Loan Int:</u></b></p> <p>1. The capital subsidy is now found to be considered in line with the Hydro power policy 2006 and added in the cash inflows. Hence, CAR is closed.</p> <p>2. The loan repayment and moratorium are found to be in line with the DPR.Hence, CAR is closed.</p> <p><b><u>WC:</u></b></p> <p>1. The working capital requirement found to be considered in line with the DPR, hence, the same is accepted and CAR is closed.</p> <p>2. Working capital interest rate is considered based on RBI BPLR in March 2007. Same is found to be appropriate and acceptable. Hence, CAR is closed.</p> <p><b><u>Project IRR:</u></b></p> <p>1. Since the capital subsidy is considered in line with the hydro power policy 2006, same is accepted. Hence, CAR is closed.</p> <p>2. The fair value considered at the end of assessment period is 10%, which is found to be reasonable and appropriate. Hence, CAR is closed.</p> <p><b><u>IT</u></b></p> <p>1. 80IA benefits are now found to be appropriately considered</p> |

| General  | B6   |
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|  | <p>in the financial sheet.Hence, CAR is closed.</p> <p><b>Sensitivity and WACC worksheet:</b></p> <ol style="list-style-type: none"> <li>1. The web links provided has been checked and found that value considered is appropriate. Hence, CAR is closed.</li> <li>2. The BSE 100 returns have been calculated for a period of 22 years, which is comparable with the period of assessment for the project. Hence, CAR is closed.</li> <li>3. The companies considered for beta assessment found to be appropriate and companies with minimum of 5 years data are considered. This is found to be acceptable and in line with the publication provided for validation. Hence, the consideration is found to be appropriate and acceptable. CAR is closed.</li> <li>4. The BSE 100 returns have been calculated for a period of 22 years, which is comparable with the period of assessment for the project. Hence, CAR is closed.</li> <li>5. Since the project is eligible for 80 IA benefits and the maximum assessment period, especially during the period of loan and respective interest repayment, the project pays only MAT, considered of MAT in WACC calculations is acceptable as per accounting practices. The justification provided is hence, accepted and CAR is closed.</li> <li>6. Appropriate corrections have been made in the PDD. Hence, CAR is closed.</li> </ol> <p>Ref: PDD Version 03, IRR sheet version 02</p> |
| <p><b>Conclusion</b></p> <p><i>Tick the appropriate checkbox</i></p> | <p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The finding is closed</p>  |

| General  | B7   |
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| <b>Classification</b>  | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR   |
| <p><b>Description of finding</b></p> <p><i>Describe the finding in unambiguous style; address the context (e.g. section)</i></p> | <p><u>Version 01 of IRR spread sheet:</u></p> <p><u>FA- Gehra</u></p> <ol style="list-style-type: none"> <li>1. Bank sanction letter required.</li> <li>2. Copy of PPA required.</li> <li>3. In assumptions sheet, the moratorium is given as 2</li> </ol> |



| General | B7  |
|---------|---|
|         | <p>quarters, why 3 quarters have been considered in the calculations.</p> <ol style="list-style-type: none"> <li>Evidence for selling price of power and basis for free energy to HPSEB is not provided.</li> <li>Evidence for CER price and exchange rate.</li> <li>What is the salvage value at the end of 20 years (period considered for assessment)?</li> <li>What is the basis for O &amp; M charges considered? the total project cost includes working capital margin?</li> <li>Evidence for subsidy is not provided.</li> </ol> <p><b><u>Pre - operativeexp:</u></b></p> <ol style="list-style-type: none"> <li>What is the basis for pre-operative expenses?</li> </ol> <p><b><u>IDC:</u></b></p> <ol style="list-style-type: none"> <li>Basis for IDC consideration is not provided?</li> </ol> <p><b><u>Loan Int:</u></b></p> <ol style="list-style-type: none"> <li>Basis and approach for capital subsidy consideration in the financials are not clear.</li> <li>What is the basis for the repayment of term loan. Whether it is inclusive of moratorium?</li> </ol> <p><b><u>WC:</u></b></p> <ol style="list-style-type: none"> <li>What is the basis for considered and calculation of working capital requirement?</li> <li>Evidence for interest on working capital is not provided.</li> </ol> <p><b><u>Project IRR:</u></b></p> <ol style="list-style-type: none"> <li>Why capital subsidy is not shown as cash inflow for IRR calculations?as capital subsidy is a direct benefit to the PP on the capital investment, why direct deduction of subsidy amount from capital investment is not considered?</li> <li>Salvage value consideration, such as, the fair market value at the end period of assessment is not clear</li> </ol> <p><b><u>IT:</u></b></p> <ol style="list-style-type: none"> <li>Benefits of deduction under section 80IA of the Income tax Act,1961 workings are not clear.</li> </ol> <p><b><u>Sensitivity and WACC worksheet:</u></b></p> <ol style="list-style-type: none"> <li>Evidence for risk free rate of return are not provided.</li> </ol> |

| General  | B7   |
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|  | <p>2. What is the basis for considered values of BSE 100 index returns?</p> <p>3. Reasons for companies chosen for beta values. There are number of companies engaged in power generation listed in BSE 100. Why they have not been considered beta values?</p> <p>4. What is the period of considered for BSE index returns workings and basis?</p> <p>5. In WACC workings only MAT has been adjusted against interest and not the regular tax</p> <p>Ref: PDD Version 02, IRR sheet version 01</p> |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>   | <p>Considering the technical implementation difficulties of the construction Gehra Project, the PP has decided not to implement the Gehra Project and thus the PP revised the PDD to include only the Belij project. Please refer to the response for CAR A6 on the explanation for the exclusion of the Gehra Project from the project activity.</p>  |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments(#2, #3, etc.) shall be added.</i> | <p>Gehra small hydro project is now excluded from the current CDM project activity. Pls refer to closure of CAR A6 for detailed assessment in this regard.</p> <p>Since the Gehra project is now excluded from the CDM project activity. CAR has lost its relevance and hence, is closed.</p>  |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>  | <p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The finding is closed</p>  |

| Finding:  | B8   |
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| <b>Classification</b>   | <input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR   |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i> | <p>1. It is noted that the other barriers have also been presented in the PDD in support of project additionality. However, the same have not been demonstrated as per the 'Guidelines for objective demonstration and assessment of barriers'.</p> <p>2. It is noted that the implementation schedule in the DPR and years considered in the financial analysis are not consistent. However, it is understood from the financials that the commissioning date is considered as APRIL 2012. Reason for such consideration is not clear.</p> <p>3. Interest on working capital is not consistent with the approved DPR.</p> <p>4. Source of information for income tax and MAT considerations</p> |

| Finding:  | B8  |
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|   | <p>are not provided<br/>Ref: Version 02, PDD</p>  |
| <p><b>Corrective Action #1</b><br/><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>  | <ol style="list-style-type: none"> <li>1. The other barriers have been deleted in the revised PDD section B.5</li> <li>2. The implementation schedule is considered as 30 months in line with the Detailed project report.</li> <li>3. The interest on working capital is considered as per the RBI BPLR which was available at the time of decision making.</li> <li>4. The source for the information of the income tax and the MAT is included in the section B.5 of the revised PDD.</li> </ol>   |
| <p><b>DOE Assessment #1</b><br/><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p> | <ol style="list-style-type: none"> <li>1. Since the other barriers are withdrawn from the PDD, CAR has lost its relevance, hence, closed.</li> <li>2. The revised financials have been checked and found that the financial year is now corrected to year ending with March 2010. However, as per the pg.no. 98 of the DPR, construction schedule is considered for 2 years and 6 months, whereas, the investment phasing in the IRR is considered only for 2 years, which is not in line with the DPR. CAR is open.</li> <li>3. The interest on working capital is now considered in line with RBI BPLR. Same is checked and found to be appropriate. Hence, CAR is closed.</li> <li>4. The source of information are available in the work sheets and PDD. Hence, CAR is closed.</li> </ol> <p>Ref: Version 03, PDD</p>   |
| <p><b>Corrective Action #2</b><br/><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>  | <ol style="list-style-type: none"> <li>2. At the time of investment decision, it was envisaged that the construction period is from April 2007 till September 2009 and the commissioning will be completed by September 2009 as evident from the Detailed Project Report page Number 98. Thus the construction period represents the financial year 2007-2008, 2008-2009 and 6 months of 2009-2010. As per the construction schedule, majority of the activities which includes the Placement of the Purchase Order for the Equipments, land acquisition, the evacuation of weir, the erection of the pipes are scheduled in the financial year 2007-2008. The capital expenditures schedule as provided in the certificate from Chartered Accountant available at the time of decision making indicates that the capital draw down is INR 209.884 million INR for the Financial Year 2007-008 and INR 122.463 in the financial year 2008-2009 and INR 17.477 million INR for the Financial Year 2009-2010. The Chartered Accountant Certificate is submitted as Annex_CA. The phasing of 70% in the first year and 30% in the second year is considered based on assumptions taking into account the DPR construction schedule. However, since, the same is not in line with the CA certificate considered by PP at the time of investment decision, the phasing has been corrected in the revised IRR sheet to the value that was available and considered for the investment analysis. The final 6 months of the construction period which is</li> </ol> |

| Finding: | B8  |
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|          | <p>from April to September in the Financial Year 2009-2010 involved activities of Switch Yard and the final testing and synchronization which doesn't involve any major draw down of expenses.</p> <p>However due to circumstances unforeseen at the time of investment decision the actual implementation of the project activity got delayed and the PO was placed only in February 2009. The actual construction period for the project activity was from April 2009 till June 2012 which is 3 Years and 3 Months.</p> <p>The PP incurred INR 157.7 million INR from February 2009 (Start Date of the project activity) till 31<sup>st</sup> March 2010 for the first year of construction which is 2009-2010. Thus, the total capital expenditure incurred during the first year is 157.7 million INR which is similar to the capital expenditure proposed during the investment decision for the first year of construction which was INR 209 million INR. The capital expenditure spent during the year 2010-2011 is INR 167.53 million INR which is compared to the proposed capital expenditure of INR 129 million INR as envisaged at the time of investment decision.</p> <p>However due to unforeseen circumstances at the time of decision making relating to the labour force for the construction activities, the PP had to incur additional expenses during the financial year 2011-2012 for the completion of the civil works which escalated the project cost to INR 555.98 million INR and delayed the construction period to 3 years and 3 months.</p> |

| Finding:   | B8  |
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|  | <p>Hence, the PP had to incur an additional capital expenditure of INR 167.53 million INR of which around INR 103 million INR was spent on the Civil Works. The same is evident in the notes to the Balance Sheet in the Annual Report point Number 10.</p> <p>Thus, the proposed capital expenditure was similar to the proposed expenditure at the time of investment decision expect for the last year of construction i.e. for the Financial Year 2011-2012 where the PP had to incur an additional unforeseen expenditure for the Civil Works.</p> <p>It can also be seen that the difference in the estimated project cost of INR 349.24 million INR and the actual project cost of INR 555.985 million INR was mainly on the account of the increased expenditure towards the civil works. The difference between the expected cost of the civil works envisaged at the time of investment decision and the actual cost of the civil works incurred was INR 130 million INR.</p> <p>Thus, consideration of capital expenditure as 209.884 million INR for the Financial Year 2007-008 and 122.463 million INR in the financial year 2008-2009 and 17.477 million INR for the Financial Year 2009-2010 is appropriate.</p> <p>It should also be noted that at the time of investment decision, the proposed construction period was of 2 years and 6 months and consequently the generation has been considered for 6 months after considering the cash outflow of capital expenditure of 2 years. However the construction period was prolonged to 3 years and 3 months and thus the capital expenditures as cash outflow need to be considered for 3 years and the generation will commence only after 3 years in the actual scenario. As a result, the IRR of the project will be reduced further. Also, consideration of capital expenditure based on the actual phasing for IRR analysis is not appropriate, as the construction period has been prolonged from 2 years 6 months to 3 years 3 months, and, hence not comparable. Even after considering the actual capital expenditure phasing, capital investment and actual tariff of 2.95 INR /kWh, the IRR still works out to 4.90% only, hence, clearly demonstrates that the project activity is additional even in actual scenario.</p> <p>The revised PDD, IRR sheets and supporting documents have been submitted for validation.</p> |
| <p><b>DOE Assessment #2</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p> | <p>2. The revised PDD, IRR sheet and supporting documents have been reviewed. It is found that the phasing of capital is now considered in line with the Chartered accountant certificate dated 10/03/2007, which was available to PP and considered for the investment decision and the same is verified. The CA certificate is compared against the construction schedule provided in pg.no. 98 of the DPR and found to be consistent. As a result of consideration of capital expenditure phasing as per CA certificate the IRR has been revised to 9.89%.</p> <p>In addition, the actual capital expenditure incurred by the project</p>  |

| Finding:  | B8   |
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|   | <p>has been verified through annual reports of the company and found the same is implemented over a period of 3 years and 3 months. The first year actual investment of the project was 157.716 million INR, which is about 45% of the capital that was estimated during the investment decision. It is also evidenced from the annual report 2011-12 that the PP had spent about 103 million INR only towards civil works additionally and 130 million INR till the completion of project. This is found to be the main reason for the overall project cost overrun, which was unforeseen by the PP.</p> <p>Though the actual implementation period of the project is delayed by 9 months, the validation team has assessed scenario of the project IRR with actual capital cost phasing, actual capital investment and actual tariff, which resulted in project IRR of 4.90% and found to be much below the project benchmark. It is also to be noted that the actual capital subsidy (28 million INR only, against expected 41.25 million INR) is not taken into account in the above assessment, which would have further reduced the project IRR.</p> <p>In addition, registered CDM project with reference number 5367 and 1753 have been checked, which are of the same capacity, implemented in the same district/state, considered the construction period as 3 years and found to have considered the investment phasing as 58% &amp; 58% in the first year, 35% &amp; 39% in the second year and 7% &amp; 3% in the third year respectively and are comparable with the project investment phasing.</p> <p>Since the project activity has now considered the capital investment phasing as per information available to PP at the time of investment decision, even the actual scenario is also found to be valid for additionality demonstration and information is comparable with other similar project in the region, the same is accepted by validation team and hence, CAR is closed.</p> <p>Ref: Version 03.1, PDD</p> |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i> | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |

| Finding:  | B9  |
|---|---|
| <b>Classification</b>   | <input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR  |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i> | <p>Following documents/documentary evidences are not submitted:</p> <ul style="list-style-type: none"> <li>a) Board resolution on serious consideration of CDM benefits</li> <li>b) All clearances</li> <li>c) PPA</li> </ul> |

| Finding:  | B9  |
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|   | <p>d) Quotations and Purchase Orders for each constituent of the project cost</p> <p>e) Loan sanction letter, if any</p> <p>f) Conformity of PLF assumed to Annex 11, EB 48</p> <p>g) Life of the project activity</p> <p>h) Insurance premium</p> <p>Ref : PDD, Version 01</p> |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | The Board resolution on the serious consideration of CDM Benefits,, all the required clearances, the PPA, the loan sanction letter, the insurance premium receipts, proof for the lifetime of the project activity are submitted to the DOE.                                    |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | All the above requested documents have been provided for validation and found to be appropriate. Hence, CL B9 is closed.  |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed  |

| Finding:   | B10  |
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| <b>Classification</b>  | <input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR   |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>                  | <p>a) Section B.6.2 needs complete revision at present the value of OM, BM and CM are not mentioned under this section.</p> <p>b) The calibration frequency of the energy meters is not clear</p> <p>c) Monitoring procedure for net electricity is not explained inline with the PPA</p> <p>d) The details of the monitoring equipment for the project activity are not mentioned in the PDD.</p> <p>Ref : PDD, Version 01</p>  |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i> | <p>a) The value of the Operating Margin, Build Margin emission factor for the NEWNE grid which are fixed ex-ante are included in section B.6.1 of the revised PDD. The Combined Margin which is the the grid CO<sub>2</sub> emission factor in year y is also included in the section B.6.2 of the revised PDD.</p> <p>b) The frequency of calibration of the energy meters is once every 6 months in line with the provisions in the PPA.</p> <p>c) The net electricity is calculated by deducting the electricity import and the transmission losses from the gross electricity generation. The same is explained in section B.7.1 and B.7.2 of the revised PDD.</p> <p>d) The metering equipment will consist of main meter and check meters. Both the meters will be energy meters with the accuracy class of the equipment which is 0.2. the same is specified in section B.7.1</p> |



| Finding:  | B10   |
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| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | <p>a) The revisions made in the ER sheet are found to be Ok. However, the PDD is still not updated with the same.</p> <p>b) Calibration frequency is not mentioned in the PDD</p> <p>c) PPA should be submitted and still the PDD lacks information</p> <p>d) However, it is noted that since project has a common transmission line, appropriating of energy with procedure and formulas (if any) are not traceable in section B.7.1 or B.7.2. The agreements between the parties of common transmission line are not submitted for validation. As the project activity is already commissioned, the sample evidence bills of applied apportioning procedures needs to be submitted.</p> <p>Also, EGy details in section B.7.1 are not clear, especially, descriptions, source of data, value of data, meter accuracy class, etc., Pls clarify.</p> <p>Ref : PDD, Version 02</p>   |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | <p>a) The value of the Operating Margin, Build Margin emission factor for the NEWNE grid which are fixed ex-ante are corrected in section B.6.1 of the revised PDD.</p> <p>b) The frequency of calibration of the energy meters is once every 6 months in line with the provisions in the PPA.</p> <p>c) The net electricity is calculated by deducting the electricity import and the transmission losses from the gross electricity generation. The same is explained in section B.7.1 and B.7.2 of the revised PDD.</p> <p>d) The metering equipment will consist of main meter and check meters. Both the meters will be energy meters with the accuracy class of the equipment which is 0.2. the same is specified in section B.7.1 The formula for the apportioning is explained in section B.7.2 of the PDD. The sample of the electricity bills are submitted as Annex_bills. The descriptions, source of data, value of data, meter accuracy class is explained in section B.7.1 of the revised PDD.</p> |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#3, etc.) shall be added.</i>     | <p>a) The values are not appropriately updated in the PDD. Hence, CL is closed.</p> <p>b) Frequency of calibration is now found to be appropriately updated. Hence, CL is closed.</p> <p>c) Section B.7.1 is now appropriately updated. Hence, CL is closed.</p> <p>d) The same bills and agreement among the common transmission line parties have been checked. PDD is now found to be made consistent with the relevant documents. Hence, CL is closed.</p> <p>Ref : PDD, Version 03</p>   |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The finding is closed</p>   |



| Finding:  | B11  |  |                              |
|---|--|--|------------------------------|
| <b>Classification</b>   | <input type="checkbox"/> CAR   | <input checked="" type="checkbox"/> CL | <input type="checkbox"/> FAR |
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>   | a) Emission reduction spread sheet is not submitted<br>b) Reason for not including project emission is not explained.<br>Ref: PDD, Version 01  |  |                              |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | a) The emission reduction spreadsheet is submitted as Annex_ER.<br>b) As per AMS ID, Version 17, "For most renewable energy project activities, $PE_y = 0$ . However, for the following categories of project activities, project emissions have to be considered following the procedure described in the most recent version of ACM0002. Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption) Emissions from water reservoirs of hydro power plants" As the project activity is run of the river hydro power plant without a reservoir, hence the project emissions from the categories mentioned in the approved methodology AMS ID Version 17 need not be considered. However the project activity uses DG sets, hence the emissions from the DG set are as project emissions |  |                              |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | a) Emission reduction spread sheet is now submitted and reviewed. CL is closed.<br>b) The explanation provided by the project proponent is appropriate. The revised PDD is submitted. However, it is not clear, how the IPCC default value applied for diesel/HSD consumption is in line with the applied tool <sup>/Tool-PLE/</sup> and conservative? Also, NCV of the diesel is not provided under section B.7.1. CL is open.<br>Ref: PDD, version 03  |  |                              |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | b) The PDD and emission reductions revised considering upper limit of the uncertainty at a 95% confidence interval as per the tool conservatively. $NCV_{i,y}$ is now included as monitoring parameter under section B.7.1.  |  |                              |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | b) Revised PDD and ER sheet submitted for validation have been check and found appropriate corrections have been made as per the requirements of applied tool <sup>/Tool-PLE/</sup> . Hence, the same is accepted and CL is closed.<br>Ref: PDD, version 03.1  |  |                              |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <input type="checkbox"/> To be checked during the first periodic verification<br><input type="checkbox"/> Additional action should be taken<br><input checked="" type="checkbox"/> The finding is closed   |  |                              |

| Finding:              | C1                           |  |                              |
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| <b>Classification</b> | <input type="checkbox"/> CAR | <input checked="" type="checkbox"/> CL | <input type="checkbox"/> FAR |

| Finding:  | C1   |
|---|--|
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>   | <p>a) In section C.1.1, the starting date of the project is not mentioned as per the conditions give in the glossary of CDM terms.</p> <p>b) The start date of the crediting period under section C.2.2.1 is not realistic</p> <p>c) The basis for assuming an operating life of 30 years for the project activity is not substantiated</p> <p>Ref: PDD, Version 01</p>  |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | <p>a) The starting date of the project activity is the signing of the contract for the hydro-mechanical equipment supply</p> <p>b) The start date of the crediting period is revised in the section C.2.2.1 of the revised PDD.</p> <p>c) The operating life time is considered as 30 years. The evidence for the same which is the letter from the Manufacturer is submitted to the DOE. However the assessment period for the calculation of the Project IRR is considered as 20 years in line with the guidance 3 of "Guidelines on the assessment of investment Analysis", Version 05.</p> |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | <p>a) Appropriate revisions have been made in section C.1.1. The reference to start date is now provided. Hence. CL is closed.</p> <p>b) During the course of validation, the crediting period start date is found to be expired once again. CL is open.</p> <p>c) .The letter from manufacturer about the life time of the project has been checked and found the same is substantiated as 30 years. Hence, CL is closed.</p> <p>Ref: PDD, Version 02</p>   |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | <p>b) The start date of the crediting period is further revised in the section C.2.2.1 of the revised PDD.</p>   |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | <p>b) The start date of crediting period is revised appropriately. CL is closed.</p> <p>Ref: PDD, Version 03</p>   |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The finding is closed</p>  |

| Finding:              | E1                           |  |                              |
|-----------------------|------------------------------|--|------------------------------|
| <b>Classification</b> | <input type="checkbox"/> CAR | <input checked="" type="checkbox"/> CL | <input type="checkbox"/> FAR |

| Finding:  | E1   |
|---|--|
| <b>Description of finding</b><br><i>Describe the finding in unambiguous style; address the context (e.g. section)</i>   | Section E.1 of the PDD does not describe the approach for inviting the local stakeholders for a consultation, their comments on the project activity during consultation and actions taken thereof on any comments received. |
| <b>Corrective Action #1</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | The local stakeholders were invited by the means of advertisement in the local newspaper for the meeting held on 16/12/2009. The same is included in section E.1 of the revised PDD.   |
| <b>DOE Assessment #1</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i> | The documentary evidences are not submitted for validation.  |
| <b>Corrective Action #2</b><br><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>  | The advertisement for the local stakeholder consultation process, the attendance sheet, the minutes of the meeting is submitted as Annex_stakeholder.  |
| <b>DOE Assessment #2</b><br><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#3, etc.) shall be added.</i>     | The respective documents have been provided for validation. The documents reveal appropriate stakeholders consultation. Hence, CL E1 is closed.  |
| <b>Conclusion</b><br><i>Tick the appropriate checkbox</i>   | <div> <input type="checkbox"/> To be checked during the first periodic verification<br/> <input type="checkbox"/> Additional action should be taken<br/> <input checked="" type="checkbox"/> The finding is closed </div>    |

## 5 VALIDATIONASSESSMENT SUMMARY

### 5.1 General Description of the Project Activity

#### 5.1.1 Participation

##### LOA

National CDM Authority (DNA) of India vide Letter of Approval<sup>/HCA/</sup> (HCA)<sup>4</sup> No. 4/12/2010-CCC, dated 11/03//2011, has approved the "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt. Ltd" by M/s Raajratna Energy Holdings Pvt Ltd to participate voluntarily in the CDM activity from host country India. The project is a renewable energy project activity and meets the host country requirements of sustainable development criteria. The approval states and confirms that,

- i. The Government of India has ratified the Kyoto Protocol in August 2002.
- ii. This is approval of voluntary participation in the proposed CDM project activity.
- iii. The project contributes to Sustainable Development in India.

Thus, the project activity meets host country requirements on sustainable development. CAR A1 has been raised and closed successfully in this regard.

#### Project Participants

The Project Participant name is consistent in the PDD and the Letter of Approval provided by DNA of India. As per the PDD, M/s Raajratna Energy Holdings Pvt Ltd is the only Project Participant involved in the CDM project activity: "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt. Ltd". The same is conformed through the letter of approval from Indian DNA<sup>/HCA/</sup>.

#### 5.1.2 Contribution to Sustainable Development

Letter of Approval bearing number No. 4/12/2010-CCC, dated 11/03//2011, from the National CDM Authority (DNA) of India, the Host Country, has approved the "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt. Ltd" by M/s Raajratna Energy Holdings Pvt Ltd stating that the project complies to the host country sustainable development criteria. This was also cross verified from DNA website<sup>4</sup>.

#### 5.1.3 PDD editorial Aspects

<sup>4</sup>Can also be verified through <http://www.cdmindia.gov.in>



The PDD has been prepared in the approved format (CDM –SSC-PDD) Version 03 in effect as on 22 December 2006.

The PDD has been duly filled in accordance with the "GUIDELINES FOR COMPLETING THE SIMPLIFIED PROJECT DESIGN DOCUMENT (CDM-SSC-PDD), Version 05.

#### **5.1.4 Technology to be employed**

The project activity involves installation and operation of 2 numbers of 2.5 MW Pelton wheel hydro turbine generators tuned to a capacity of 5 MW in Chamba District of Himachal Pradesh for electricity generation. The generated electricity is supplied to the NEWNE - North, East, West and North Eastern (NEWNE) Grid. The net electricity supplied to the grid by the project activity is 23,445MWh per annum. The project does not involve alteration of any existing installation. The technology adopted by the project is on par with the current industrial practices and are deemed environmentally safe.

#### **5.1.5 Small Scale Projects**

The project activity qualifies as a small scale CDM project activity. The total capacity of the project activity is 5 MW which is less than 15 MW as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The project applies small scale methodology i.e., AMS I.D "Grid connected renewable electricity generation" version 17 and also "Tool to calculate the emission factor for an electricity system" version-2.0 for baseline calculation. The methodology version applied for the project activity during the web hosting were AMS I.D version 15, which was the latest available at the time of webhosting of the PDD. However, the version of the tool applied during the web hosting of the project activity is still valid as of date<sup>/Tool-EF/</sup>.

Through the interview with the PP during site visit<sup>/IM01/</sup> and PDD, it is conformed that there is no registered small-scale CDM project activity or an application to register another small-scale CDM project activity by the same project participants, in the same project category and technology/measure; registered within the previous 2 years; and within 1 km of the project boundary of the proposed small-scale activity at the closest point. Hence, it is confirmed that the project activity is not a debundled component of larger project activity.

### **5.2 Project Baseline, Additionality and Monitoring Plan**

#### **5.2.1 Application of the Methodology**

The project falls under Type I: Renewable Energy Projects and rightly applies the approved methodology AMS-I.D., Grid connected renewable electricity generation, Version 17. The methodology also refers to the latest version (02.0) of "Tool to

calculate the emission factor for an electricity system". The version 17 of the methodology applied is identical to the version available on the UNFCCC website. All criteria for applicability of selected methodology are fulfilled. The project is a grid connected project and is confirmed from the Power Purchase Agreement, commissioning certificate<sup>/PPA/</sup> and HP State clearances<sup>/Cle/</sup> for setting-up the small hydro project activity. The project activity is a Greenfield project activity and there will not be any significant emissions related to project and leakage.

### 5.2.2 Project Boundary

The small hydro project activity is located in Hibra village in Chamba district, Himachal Pradesh, India. The geographical coordinates of the project activity are

| Project features | Latitude         | Longitude       |
|------------------|------------------|-----------------|
| Power House      | 76° 20' 0.42" E  | 76°23'51" E     |
| Wier             | 32° 32' 15.41" N | 76° 20' 0.42" E |

The geographical coordinates of the project are verified during site visit and online map portals from the web link<sup>/Map/</sup> [\\_](#)

The project boundary therefore includes includes diversion weir, intake chamber, de-silting chamber, power channel, forebay, headrace tunnel, penstock, powerhouse, tailrace, the transmission system to the evacuation point and auxiliary power consumed by the plant. This was validated during site visit and also from central electricity authority website<sup>5</sup>. No other source other than the above mentioned will impact the project boundary. The project boundary is applied as per the methodology.

### 5.2.3 Baseline Identification

The project activity is grid connected renewable hydro energy generation project. The project activity displaces equivalent amount of electricity in the regional grid which is predominantly fossil fuel based. The baseline scenario of the project activity is that the electricity delivered to the NEWNE grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the NEWNE grid.

In the absence of the project activity, equivalent amount of power would have been drawn from the grid with existing power plants connected to the system or future capacity additions. Calculations are based on data from the Central Electricity Authority (CEA), an autonomous body under the Ministry of Power, Government of India. The CEA has published on its website (<http://www.cea.org>). The value of emission coefficients for each regional grid arrived at by considering conservative values.

<sup>5</sup><http://www.cea.nic.in/>

The baseline under the adopted methodology AMS I.D is calculated by multiplying the grid emission factor (tCO<sub>2</sub>/MWh) and the net electricity exported (in MWh) by the project activity to the NEWNE grid system.

The project activity has applied "Tool to calculate the emission factor for an electricity system" Version 02 for baseline calculation as required by the applied methodology AMS.ID. The same is verified and found to be valid version as on date<sup>6</sup>.

The grid emission factor chosen by the project activity is the combined margin emission factor with ex-ante option, which is fixed for the crediting period. The emission factor is calculated as per the tool, published by CEA<sup>/cea/</sup> and worked out as three years weighted average simple OM for the NEWNE grid and combined margin of the latest available year. The details of the calculations are provided below:

| Parameter               | Value  | Unit                  |
|-------------------------|--------|-----------------------|
| NEWNE Grid              |        |                       |
| OM (2006-2007)          | 1.0085 | tCO <sub>2</sub> /MWh |
| OM (2007-2008)          | 0.9999 | tCO <sub>2</sub> /MWh |
| OM (2008-2009)          | 1.0066 | tCO <sub>2</sub> /MWh |
| OM (3 years average)    | 1.0049 | tCO <sub>2</sub> /MWh |
| BM (2008-2009)          | 0.6752 | tCO <sub>2</sub> /MWh |
| Ex-ante EF calculations | 0.8400 | tCO <sub>2</sub> /MWh |

The OM values provided in the above table are inclusive of electricity imports to the grid system and are calculated as simple OM based on generation weighted average.

According to paragraph 105 of the VVM<sup>VVM/</sup>, the applied methodology AMS I.D. prescribes the baseline scenario for this type of project and no further analysis is required in identification of alternatives.

The methodology clearly indicates that the baseline is the MWh produced by the renewable generating multiplied by the grid emission coefficient. Thus, the PDD describes baseline identification in an accurate manner and is well in line with methodology, which is verified.

## 5.2.4 Calculation of GHG Emission Reductions

As per the monitoring procedure mentioned in AMS.I.D methodology the data/parameters are rightly monitored. As detailed in the above section (5.2.3) the grid emission factor selected is ex-ante and is fixed for the crediting period. The

<sup>6</sup>[http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.2.1.pdf/history\\_view](http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.2.1.pdf/history_view)



energy generation values are recorded by HPSEB officials and PP representative. The net energy exported each month is mentioned in the JMRs issued by HPSEB and same will be used for emission reduction calculation. Net electricity exported is calculated based on the difference between export and import of electricity from the grid by the project activity, based on the meter readings at the grid interconnection point.

The Grid Emission Factor based on combined margin approach remains fixed throughout the crediting period. This value has been sourced from the published values of Central Electricity Authority<sup>7</sup>, CDM CO<sub>2</sub> database, Version 5 which was latest available at the time of webhosting of PDD for global stakeholders consultation. All the value taken for GHG Emission Reduction calculations is transparent and conservative. The value taken for OM (incl. imports) is 1.0049tCO<sub>2</sub>e/MWh and BM is 0.6752tCO<sub>2</sub>e/MWh. After applying weight of 0.5 to OM and weight 0.5 to BM the combined margin value is calculated and the value for CM is 0.8400tCO<sub>2</sub>e/MWh, which is fixed as Ex-ante for the entire crediting period. Pls refer to section 5.2.3 of this report for detailed calculations. The emission factor calculations are checked and found to be correct by DOE. The estimation of emission reductions by the project are detailed below:

| Parameter  | Unit                   | 2.5 MW (X 2)   |
|--|------------------------|----------------|
| PLF <sup>/PLF/</sup>   | %                      | 56.644%        |
| Annual electricity generation  | MWh                    | 24,810 (gross) |
| Transmission Losses (4.5%), Transformation Loss (0.5%) & Auxiliary Power Consumption (0.5%)  | %                      | 5.5%           |
| Transmission Losses, Transformation Loss & Auxiliary Power Consumption   | MWh                    | 1364.55        |
| Net Power export   | MWh                    | 23,445         |
| Emission factor  | tCO <sub>2</sub> / MWh | 0.840          |
| Total Emission reductions  | tCO <sub>2</sub> e     | 19,693         |
| * No ex-ante project emissions are considered for the project and leakage emissions are not applicable. Hence, baseline emissions will be equivalent to the emission reductions. |                        |                |

The net electricity supplied to the grid by the project activity is taken from the Detailed Project Report<sup>/DPR/</sup>, which are mentioned above. Hence, the estimated generation for the calculation is in line with EB 48, annex 11.

The emission reductions (ER<sub>y</sub>) of the project activity are the difference between the baseline emissions (BE<sub>y</sub>), project emissions (PE<sub>y</sub>) and the leakage emissions (L<sub>y</sub>) as follows:

<sup>7</sup>[www.cea.nic.in](http://www.cea.nic.in)



$$ER_y = BE_y - PE_y - LE_y$$

As the project is being green field and renewable energy based project, no ex-ante project emissions are considered and no leakage emissions are applicable to the project activity, which is in line with the applied methodology AMS.I.D, version 17. Hence, the baseline emissions will be equivalent to the emission reductions,  $BE_y = ER_y$ . However, the project activity may use DG set during shutdown and other periods during the crediting period, hence, the same will be monitored as project emissions and deducted from baseline emissions during the crediting period. The following calculation approach is adopted from the 'Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion' <sup>/Tool-PLE/</sup> version 02. for estimation of project emissions, which will be used during the crediting period:

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

Though, conceptually the same formulas from the tool are applied for  $PE_{FC,j,y}$  and  $COEF_{i,y}$  calculations, further elaboration of the same is provided for transparency, for application of conversion factors below:

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

$PE_{FC,j,y}$  the CO<sub>2</sub> emissions from fossil fuel combustion in process  $j$  during the year  $y$  (tCO<sub>2e</sub> / yr)

$FC_{i,j,y}$  Quantity of fuel type  $i$  (HSD) combusted in process  $j$  during the year  $y$  (Litre)

$COEF_{i,y}$  CO<sub>2</sub> emission coefficient of fuel type  $i$  (HSD) in year  $y$  (tCO<sub>2e</sub> / kg)

$D_{HSD}$  Density of HSD (kg/l)

As per the tool, PP has selected the option B for  $COEF_{i,y}$ , as testing facility for "Weighted average mass fraction of carbon in fuel type  $i$  in year  $y$ " under option A is not available to PP. The same is calculated as follows:

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y}$$

$$COEF_{i,y} = NCV_{i,y} \times EF_{CO2,i,y} \times 4.186 \text{ (Conversion factor for kcal to kj)}$$

$NCV_{i,y}$  is the weighted average net calorific value of the fuel type  $i$  (HSD) in year  $y$  (kcal/kg)

$EF_{CO_2,i,y}$  Weighted average CO<sub>2</sub> emission factor of fuel type i (HSD) in year y (tCO<sub>2</sub>e/TJ)

$$COEF_{i,y} = 9975 \text{ kcal/kg} \times 74.8 \text{ tCO}_2\text{e/TJ} \times 4.186 \text{ kJ/kcal} \times 10^{-9}$$

$$= 0.0031233 \text{ tCO}_2/\text{kg}$$

$$PE_y \text{ or } PEFC_{i,y} = 0 \text{ (for ex-ante)} \times 0.83 \text{ kg/l} \times 0.0031233 \times \text{tCO}_2/\text{kg}$$

$$= 0 \text{ tCO}_2 \text{ for ex-ante estimations}$$

In the above applied parameters,  $D_{HSD}$  and  $EF_{CO_2,i,y}$  are fixed for the crediting period. Since, the density of diesel is considered from the authentic national specific data source (CEA) and the diesel used by the project will be limited only to the situations of shutdowns and emergency situations, as the project is already equipped with electricity import facility from grid, any change in the density of the diesel is considered negligible on the emissions and hence, accepted.  $EF_{CO_2,i,y}$  for diesel is applied from the table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines and upper limit of the uncertainty at a 95% confidence interval is applied conservatively. Hence, the same is considered appropriate. The remaining parameters,  $FC_{i,j,y}$  and  $NCV_{i,y}$  are monitored during the crediting period and assessment is provided in section 5.2.7 of this report.

As shown in the above table, it is checked and verified that the project is mostly likely to achieve 19,693 tCO<sub>2</sub> emission reductions per annum and 196,930 tCO<sub>2</sub> emission reduction during the chose crediting period of 10 years.

## 5.2.5 Additionality Determination

### Consideration of CDM in decision making (if project start before validation)

The project start date is given as 2009-02-23 which is the date of issue of Supply contract for the Hydro Mechanical Items <sup>(PO&IPSD)</sup> for the project activity. Copy of the PO for same has been verified. As this document signifies the commitment of the PP to meet a major project related expenditure, considering this as the start date is in accordance with the CDM glossary of terms. So the project start date is before the commencing of validation.

As per Annex 13 of EB 62, the prior consideration of CDM is appropriately provided in the PDD. The documents validated regarding prior consideration of CDM are found to be appropriate and presented below:

| Date       | Project milestone  |
|------------|--|
| 14/03/2007 | Investment decision by the Management to implement the project activity. |

|                   |   |
|-------------------|---|
| 23/02/2009        | Agreement for the Supply for the Hydro Mechanical Items (Start Date)  |
| <b>16/07/2009</b> | <b><i>E-mail of the Prior Consideration of the CDM form to submit the notification of the commencement of the project activity and the intention to seek CDM status to UNFCCC</i></b>   |
| <b>27/07/2009</b> | <b><i>Submission of the Prior Consideration of the CDM form to Indian DNA for the notification of the commencement of the project activity and the intention to seek CDM status</i></b> |

The start date of the project is after 2<sup>nd</sup> August-2008 and PP has submitted the evidences of prior consideration intimation mails/letters to UNFCCC and Indian DNA (MoEF), which are checked (provided above) and considered to be real action for the CDM project. Thus, as per EB 62, Annex 13, the project activity is found to have seriously considered CDM for project implementation.

All the above mentioned documents are submitted by the project proponent to prove that the serious consideration was exercised to take the project as a CDM project activity. Thus it is confirmed that all the submitted documents are valid and appropriate for serious consideration of CDM as per Annex 13 of EB 62. Thus it has been validated based on para 100 & 102 of VVM and found to be acceptable.

### **Application of methodology / methodological tools**

Additionality justifications have followed the requirements of 'Guidelines on the Demonstration of Additionality of Small-Scale Project Activities', Version 09, Annex 27, EB 68<sup>/EB 68-A27/</sup>. Thus, the additionality is carried out as per the requirement of AMS.I.D

### **Alternatives**

No other alternative is identified in the PDD.

### **Investment analysis**

The project proponent has chosen a benchmark approach to compare the project IRR with that of Weighted Average Cost of Capital (WACC) approach. The baseline is continuation of grid supply on which no investment needs to be made and on which the PP has no control and hence benchmark analysis is considered appropriate.

The financial indicator selected for the investment analysis is IRR. Since IRR gives the rate of return of a project activity for the whole project life time, the IRR is a suitable financial indicator for this project activity.

The project activity being an electricity generation project based on hydro energy, which could be developed by an entity other than the project participant, as per the guidance on investment analysis the benchmark should be based on standard

parameter available in the market. In line with this, the WACC is calculated based on publicly available data. The WACC calculated by the PP at the time of investment decision is 13.47%. The benchmark identified to compare the financial attractiveness of the project activity has been verified and found to be appropriate and conservative at the time of decision making.

In the course of validating the parameters used in the IRR calculation, supporting documents provided by the PP have been utilized and relevant background information such as public available sources are taken into account as well. The detailed validation and assessment of financial parameters with regard to rationale against VVM have been provided in Table A-3, Annex 3, Assessment of financial parameters of this report. After closure of respective CARs / CLs the validation team arrived at the conclusion that the assumptions and computations in the IRR spreadsheet are in line with the supporting documents provided by the PP. Thus, the validity of IRR calculation can be confirmed. The calculation of the financial indicator (project IRR) reflecting the project's feasibility in financial terms has demonstrated its additionality when comparing the IRR with the benchmark value – WACC. Moreover, the sensitivity analysis revealed that the variation of key financial parameters substantiate project's additionality as the benchmark is still not crossed even by variation of the PLF, project cost, O&M and tariff by  $\pm 10\%$ . Also, meeting the benchmark by 10% reduction of capital cost is an unlikely event as observed because the project is already commissioned, when the validation team visited the site PP has placed the purchase order which is justified with supporting documents<sup>/DPR/ & /PO/</sup>. TÜV NORD found that the actual project cost<sup>/PO&/CAC/</sup> is 58.9% higher than the cost considered in the DPR<sup>/DPR/</sup>. However, since the increase in cost difference is very high, 10% range of sensitivity analysis, the project cost assumed by the project proponent for IRR analysis is conservative and acceptable. The project cost increased unexpectedly due to various difficulties faced during implementation, in particular, for civil costs of the project. Taking into consideration all these factors and based on the local and sectoral expertise, the Validation Team concludes that the project cost is reliable, appropriate and conservative when compared to actual cost. Also, the capital investment phasing of the project has been assessed and found to be considered in accordance with the project implementation schedule in the DPR and corresponding Chartered Accountant Certificate available to PP at the time of investment decision. This is also cross checked with similar project implemented in the region and found to be comparable. Please refer to closure of CAR B8 for complete assessment. For detailed assessment project cost, please refer Annex-3 of this report.

The O&M cost mentioned for financial analysis is taken from DPR<sup>/DPR/</sup> prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. As per the DPR, the O&M cost for the first year after commissioning date is considered as 2.25% of the Project Cost with 5% escalation in every year. Hence, the applied value of O&M charges and respective escalation is considered appropriate. The O&M costs are cross verified with the "HPERC Order on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007". The value mentioned in both the documents is same and deemed

acceptable. For detailed assessment O&M cost and escalation, please refer Annex-3 of this report.

The PP has considered the Gross Electricity generation as 24.810 GWh (million kWh) based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. Correspondingly the Plant Load Factor works out to be 56.644%. As the Plant Load Factor is considered as per "the plant load factor determined by a third party contracted by the project participants", the value is also in line with the Annex 11, EB 48, "Guidelines for the Reporting and Validation of Plant Load Factors"

Also, the PLF values considered for the project activity is higher than PLF of 45% as considered in the "HPERC Order on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007"Hence, the PLF considered by the project proponent for investment analysis is conservative and deemed to be appropriate and also in line with EB 48 Annex 11 'Guidelines on plant load factor'. Also, the validation team carried out assessment of the financials, which reveals that the project IRR crosses the benchmark only in case the PLF goes up by 22.9%, which is highly unlikely scenario. Hence, the PLF value considered for the project activity is therefore appropriate, correct and conservative. For detailed assessment on financial parameters, please refer to Annex 3.

The Auxiliary Power Consumption, Transformation losses and Transmission losses are considered as 0.5%, 0.5% and 4.5% based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. Also, the auxiliary power consumption and Transformation losses considered for the project activity are crosschecked and found to be in line with the "HPERC Order on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007". Hence, the auxiliary power consumption considered by the project proponent for investment analysis are deemed appropriate. for transmission losses, the Power Purchase Agreement signed with HPSEB by the PP also indicates that the Transmission losses of 4.5% will be considered for calculating the Saleable Energy. Hence, the transmission losses considered by the project proponent for investment analysis is reasonable and appropriate. For detailed assessment on financial parameters, please refer to Annex 3.

The tariff is derived from Hydro Power Policy 2006<sup>8</sup>, which is 2.50 INR/kWh. As per VVM § 109 the validation team conducted a thorough assessment of the tariff and confirms its accuracy and validity of the tariff considered during the decision making context of the project and is in line with the guidance 6 of Annex 5, EB 62. The PPA of the project has been checked, however, the PPA found to be signed at a tariff of 2.95 INR/kWh. This increase in the tariff has occurred as a result of new tariff order (issued by HPERC) post the investment decision by the PP, but before the signing of PPA, which was not envisaged by PP during investment decision. Nevertheless, the

<sup>8</sup><http://www.ireda.gov.in/Compendium/Data/HP/HP%20%20SHPup%20to%205%20MW-03.pdf>

validation team has checked the project IRR for the actual scenario with 2.95 INR/kWh and project cost at the time of investment decision. The IRR in this scenario works out to 12.80% against the benchmark of 13.47%, hence, the same is found to be still below the benchmark. However, the validation team has also assessed scenario of the project IRR with actual capital cost phasing, actual capital investment and actual tariff, which resulted in project IRR of 4.90% and found to be much below the project benchmark. It is also to be noted that the actual capital subsidy (28.8 million INR only, against expected 41.25 million INR) is not taken into account in the above assessment, which would have further reduced the project IRR. In addition to this, the sensitivity analysis of the project reveals that the project crosses benchmark only in case the tariff is increased by 22.9% which is very unlikely scenario, as the PPA is signed for the project activity for period of 40 years and the tariff is fixed for a period of 40 years. Hence, the validation team concludes that the applied tariff is valid and appropriate. Thus, any variation of tariff in future is unlikely. For detailed assessment on financial parameters, please refer to Annex 3.

The General and Administrative expenses are considered based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. As per the DPR, the General and Administrative Expenses for the first year after commissioning date are considered as 0.5% of the Project Cost with 5% escalation in every year. Hence, the applied value of General and Administrative Expenses and respective escalation is considered appropriate. The same has been cross verified with the Certificate issued by the CA detailing the General and Administrative expenses incurred by the PP from April 2012 till October 2012 (7 months). The Certificate issued by CA provides the General and Administrative Expenses incurred as 2.86 million INR, which is much higher (proportionately) than the value considered in the investment analysis. Since, the expenses are bound to be effected by the inflation increment in the host country, escalation is considered appropriate. For detailed assessment on financial parameters, please refer to Annex 3.

The capital subsidy is considered as per the Hydro Power Policy 2006 which was available at the time of decision making. The capital subsidy is calculated as 45% of Project cost limited to 22.5 million INR + 3.75 million INR per MW available at the time of decision making which works out to be 41.25 million INR. As the subsidy is sourced from the Publicly available document, the same is considered to be appropriate. The actual subsidy available to the project has been revised vide "Scheme for Financial Support to Set Up New SHP Projects upto 25 MW Capacity in the Private, Co-operative, Joint Sector Etc" issued by Ministry of New and Renewable Energy (MNRE) dated 11/2/2009. The actual subsidy available to the project activity is calculated as 20 million INR for the 1stMW + 3 million INR per MW for the additional MW which works out to be INR 32 million INR. The project activity is thus eligible to avail the Capital Subsidy of INR 32 million INR, which is actually about 9 million INR less than subsidy value considered during the investment decision. Hence, the value considered is quite conservative. However owing to the delay in the commissioning of the project activity, the capital subsidy actually available to the PP is only INR 28.80 million INR, which is further less than the





potential that could be availed. The same is also verified vide the CA Certificate on the total project cost (16 million INR has been granted so far). Thus the consideration of 41.25 million INR as capital subsidy is deemed conservative and appropriate considering the actual subsidy that can be availed by project is only 28.80 million INR.

Salvage value has been considered as land cost plus 10% of the depreciable assets for the project activity. Considering the fact that the assets have been depreciated to the maximum extent in both books as well as for income tax purposes, the 10% salvage value represents only the potential profit and hence, conforms to Guidance 4 of Annex 5 EB 62. Hence, salvage value considered is appropriate.

The Corporate tax, MAT, tax depreciation, book depreciation and tax holiday (10 years) input values have been checked and found to be appropriately considered in the financial analysis for demonstration of additionality and are in line with the acceptable accounting practices. For detailed assessment of the stated parameters, pls refer to Annex-3 of this report.

### **Benchmark:**

The project activity has appropriately considered the benchmark WACC method, as per the guidance on investment analysis. In computing the WACC, debt equity ratio has been taken at 70:30, which is the debt equity ratio as per the Detailed Project Report which was available at the time of decision making, prevailing PLR i.e. 12.375%<sup>9</sup> has been considered as the cost of debt and cost of equity has been computed based on CAPM. The WACC works out to 13.47%. The widely accepted formula of WACC is applied for the project activity, as provided below:

WACC = Cost of Debt X % of Debt X (1 – tax) + cost of Equity X % of Equity

Whereas, the cost of equity has been determined based upon the Capital Asset Pricing Model (CAPM) applying following formula:

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

Where;

CoE = Cost of equity

$r_f$  = Risk free rate

ERP = Equity risk premium for the market

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

Out of which, beta has been computed for all power generating companies listed and traded in the stock exchange and having a minimum track period of 5 years. There were in all 4 companies for the decision taken by PP vis-a-vis CESC Limited, Gujarat

<sup>9</sup><http://www.rbi.org.in/scripts/WSSView.aspx?Id=10923>

Industries Power Co. Ltd. (GIPCL), Tata Power Limited, Neyveli Lignite Corporation Limited.

The beta of the selected companies was computed using 5 years trading data by regressing the stock return on BSE 100 index and the resultant beta represents both business and leverage risk. The leverage risk has been eliminated by using the well accepted HAMADA equation and using the gearing and the tax rate of the respective companies. Out of the beta the weighted average beta has been chosen to compute the risk premium to reflect the risk of the project type. This works out to 0.94 for the project activity. The applied value has been verified to be correct and appropriate as the data sources are validated by the validation team and the calculation of beta is in line with the best financial practices

Market Index representing a widely diversified portfolio with the timeline comparable to the period of assessment has been selected to compute the market return. BSE 100 is in operation for more than 20 years which represents the assessment period of the financial indicator. The base value of BSE 100 index is considered as 100 as on 01/04/1984. The return on BSE 100 index has been computed from 01/04/1984 till 12/03/2007 the day prior to which the decision was taken for the project activity. This return works out to 19.97% for the project activity. As the market return represents the time period greater than the assessment period, the consideration of BSE 100 for the market return is found appropriate. Further the values have been cross verified with the values of BSE 100 from the BSE India Web Portal and found to be correct.

The Yield to Maturity on the Government Securities having a maturity of 20 years comparable with the assessment period of the project activity is considered. The value is considered from the Website of Reserve Bank of India which is the authority to issue the Government Securities as on 12/03/2007, which was before the investment decision making date. As the value is considered from the Government source which has the authority to issue the risk free securities and the time period of the return is comparable to the assessment period of the project activity, the value is considered appropriate.

The Cost of Equity is calculated using the Capital Asset Pricing Model (CAPM) which represents one of the best financial practices for the calculation of Cost of Equity. The cost of equity has been computed as risk free rate plus beta times the risk premium (i.e., market return less risk free return), which works out to 19.29%. As all the data sources are based on the parameters that are standard in the market and are clearly validated by the validation team, the calculated value of Cost of Equity is appropriate in line with the para 15 of Guidelines on the assessment of Investment analysis, EB 62, Annex 05.

For the purpose of interest rate, the PLR at the time of investment decision (14/03/2007) 12.25%-12.50% for the week ending 23 February 2007, published on 2007-03-09 is considered. The average value of the PLR range which is 12.375% is considered as interest rate for calculating the cost of debt. The interest rate of 12.50% is also indicated from the Detailed Project Report which was available at the



time of decision making. Since, the cost of debt is considered from RBI published data, which is the authority (India's central bank) to regulate the banking and investment sector in the host country, the source of information is considered authentic and credible. As per the loan disbursement statements the actual interest rate applicable to the project is 12.11%, which is comparable to the value considered for this project activity. Hence the prime lending rate value considered as interest rate for this project activity is appropriate.

Based on the assessment of all the benchmark related parameters discussed above and applying the WACC method, the benchmark value of 13.47% has been derived for the project activity, which is found to be appropriate.

### **Sensitivity Analysis:**

The Project IRR of the project activity is 9.89% without carbon credits when compared to the benchmark of 13.47 %.

However the IRR improves to 12.98 % with revenue from carbon credits, which is attractive than the base case IRR. Thus, the project faces investment return constraints that can be overcome by the additional revenues associated with the generation of CERs as described in the PDD and along with supporting evidences.

The results of sensitivity analysis are presented below

| FACTOR       | VARIATION |       |        |
|--------------|-----------|-------|--------|
|              | -10%      | 0%    | 10%    |
| PLF          | 8.08%     | 9.89% | 11.55% |
| Project Cost | 11.91%    | 9.89% | 8.11%  |
| O&M Expenses | 10.23%    | 9.89% | 9.53%  |
| Tariff       | 8.08%     | 9.89% | 11.55% |

Above mentioned Project IRR reveals that the project IRR does not cross the benchmark even after subjecting all the parameters to both sides of variation of sensitivity analysis.

In addition, the DOE has calculated actual scenario (only the tariff, not actual project cost) of the project activity with 2.95 INR/kWh tariff. Even in this scenario, the IRR worked out to 12.80% only and is still below the benchmark. Hence, the investment barrier is found to be valid even with real time assessment of project parameters. Since there is no possibility for any further change in the financial parameters as the project is already commissioned, is under operation and PLF value assumed for financial analysis is very high, actual project cost overrun by more than 50%, the project activity is clearly additional based on demonstrated investment barrier.

Thus, the established investment barrier has been assessed to be appropriate and sufficient in order to comply with relevant requirements such as EB 62, Annex 5. The arguments with supporting spreadsheets<sup>/IRR/</sup> provide proof for the non-viability of the project. The input data and assumptions for calculation of IRR like (profit after tax,

project cost, net cash flow, additional depreciation, interest on term loan) are verified with references<sup>/PO/, /Loan/, /HPERC/, /PLF/, /PPA/</sup> provided by PP.

In summary the validation team concluded that the project activity complies with all relevant additionality requirements and deemed the investment barrier to be significant in order to prevent the project activity from being implemented without additional revenues from CERs.

### **Barrier analysis**

The project has applied investment barrier to demonstrate the additionality. The details information and assessment of the same is provided above under 'Investment barrier'. Further assessment of investment barrier and inputs values is provided in Annex-3 of this report.

### **Common practice analysis**

Not Applicable for SSC projects

### **Summary**

The procedure to justify the additionality of the project activity is derived from the methodology or required by methodological tools has been applied correctly and is transparently and sufficiently documented in the PDD.

Considering all statements above, it is confirmed that the project activity is additional because anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the project activity.

For an in depth evaluation of these topics, please refer to section 4 and section B4 of Annex 1. Section 4 above can be referred for CAR B2, CAR B3, CAR B4, CAR B5, CAR B6, CAR B7, CAR B8 and CL B9, which are raised in this regard and successfully closed.

### **5.2.6 Monitoring Methodology**

The chosen methodology AMS-I.D, Version 17, in paragraph 24 table-1, parameter 5, requires that 'Quantity of net electricity supplied to the grid during the year y' is monitored.

Accordingly, PDD has included the monitoring parameter 'Quantity of net electricity supplied to the grid by the project activity in year y (MWh) by the project activity. Thus, the project complies with the monitoring methodology AMS I.D. Version 17.

### **5.2.7 Monitoring Plan**

The project applies the monitoring methodology AMS I.D, version 17, for grid-connected renewable electricity generation<sup>/AMS ID/</sup>.

As the emission factors are calculated ex-ante in accordance with "Tool to calculate the emission factor for an electricity system", monitoring is not necessary, as this remain fixed over the fixed crediting period. The methodology stipulates the monitoring of net electricity supplied to the grid ( $EG_{BL,y}$ ) and the same will be calculated under the project activity as detailed below:

The project activity consists of a main meter and check meter of accuracy class 0.2s. These are bi- directional electrical meters capable of recording both electricity export as well as import by the project activity on a monthly basis. The readings are taken by representatives of PP and HPSEB authorities each billing month. The meter recorded sheets are signed by the representatives of both the parties and are called Joint Meter Readings or JMRs. The Annexure "A" Calculation of JMR consists of net saleable Energy Based on the Meter reading, including the details of transmission losses, which are calculated by the representative of HPSEB as detailed in the section B.7.2 of the PDD. The difference between the electricity exported and the electricity imported and the transmission losses is derived as the "Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity". The net energy export mentioned in the JMR reports will be considered for the purpose of emission reduction calculations..

Both main and check meters under the project activity will be calibrated once in every six months. The class of accuracy of the meter is 0.2s. All meters are sealed and kept under the control of HPSEB. The net electricity supplied (i.e., Quantity of net electricity supplied to the grid by the project activity in year  $y$  (MWh)) will be cross checked with the electricity sales receipt/invoices.

The project activity may use DG set during the shutdowns and other emergency periods during the crediting period. Hence, the same are accounted under the project emissions and monitored throughout the crediting period. The parameter  $FC_{i,j,y}$  has been included as part of monitoring and the same will be monitored to measure the quantity of diesel/HSD used during the each year of the crediting period. The measurements will be carried out by standard dipstick approach based on level indicator and a separate fuel tank will be maintained for the DG set operations. The frequency of measurement and recording will be based on as and when the DG is operated during the year. After each usage the fuel tank will be filled again to the maximum level. The dipstick used for the measurements will be calibrated once in a year.

For the purpose of estimation of project emissions, net calorific value (NCV) of diesel/HSD will be monitored under the project activity, as  $NCV_{i,y}$ . The parameter is considered from the authentic national data source, as the PP has no such facility to undertake the measurements on-site due to the small scale nature of the project activity. The value applied is from the latest version of the Central Electricity Authority (CEA) Baseline Carbon Dioxide Emission database published by the host party (India). The GCV values published by CEA will converted to NCV by applying Delta value as provided in the CEA data base (delta value is currently 5%; which is simply calculated as 95% of GCV;  $10500 \times 95\% = 9975$  ). Since, the QA/QC is not under the direct control of the PP, as the same are published by host country agency, the appropriateness of the values applied in the PDD will be checked annually by



comparing the same with the latest available version of the Central Electricity Authority (CEA) Baseline Carbon Dioxide Emission database and the latest available value will be applied for the verifications during the crediting period.

The monitoring plan is in line with the AMS I.D version 17. The procedure for calibration, accuracy and maintenance of monitoring equipment are clearly mentioned as per QA/QC procedure in the PDD<sup>/PDD/</sup>.

For the incomplete and inconsistency identified with regard to the monitoring information, CL B10 has been raised and closed successfully. Pls refer to closure of CL B10 for complete details.

### **5.2.8 Project Management Planning**

The project management will be taken care of by the project proponent themselves (M/s. Raajratna Energy Holding Pvt. Ltd). The site is having the provisions for continuous measurement of the electricity generated by the project activity. The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the Board of Directors. The Boards may delegate the same to a competent person identified for the purpose. The identified person will be the in charge of GHG monitoring activities and necessary reports will be submitted to the management

The O&M team will have experience and qualified personal for regularly operation and maintenance of the project activity. Thus, the generated data will follow a proper QA/QC check. All the monitored data will be archived and kept till the end of 2 years after the crediting period.

The above details are also confirmed during the site visit<sup>/IM01/</sup>. Hence, the details mentioned in the section B.7.2 of the PDD regarding the project management planning is found appropriate and correct.

### **5.2.9 Crediting Period**

The crediting period mentioned in the PDD is the fixed crediting period of 10 years. The lifetime of the project activity is 30 years. The crediting period start date is appropriate which is clearly explained under section C.2.2.1 of the PDD. The start date of the crediting period is 2013-01-01 or the date of registration (whichever is later).

### **5.2.10 Environmental Impacts**

As per the Schedule 1 of the EIA notification 2006, given by the Ministry of Environment and Forests under the Environment (Protection) Act 1986, the proposed project activity doesn't fall under the list of activities requiring EIA<sup>10</sup>. Hence, there is no host country requirement to assess the environmental impacts of the project activity.

<sup>10</sup><http://www.envfor.nic.in/divisions/iass/notif/eia.htm>

### **5.2.11 Comments by Local Stakeholders**

A local stakeholders meeting is reported to have been conducted on 2009-12-16 at the project site. Information about the proposed project has been given to the stakeholders through invitation and local news paper (dated 2009-12-15) and their comments have been recorded and the same are verified. The main parameter to assess the adequacy of the stakeholder consultation process was the cross section of the society that the invitees represented. The meeting was attended by people of the village and local workers. Secondly, whether adequate and advance information was provided to the invitees about the likely agenda for the meeting and whether the information about the project was available to them before hand. That these two factors had been taken care of was confirmed during the interview<sup>/IM01/&/SHCP/</sup>. All the comments received for the project activity and the response received about the project is positive and same are also presented in the PDD. The major points covered are about the view of the project proponent investment in the region, environmental aspects, employment, socio-economic impacts and general view about the project activity. Thus, the stakeholder consultation process is considered adequate and satisfactory.

## 6 VALIDATION OPINION

Raajratna Energy Holding Pvt Ltd has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt. Ltd" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the pre-validation 11 Corrective Action Requests (CARs) and 8 Clarification Requests (CLs) were raised and successfully closed.

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

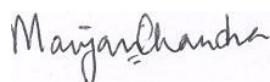
In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria India and all relevant UNFCCC requirements for CDM. Project activity approval have been obtained from DNA of India vide the Letter of Approval (HCA) dated 2011-03-11.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 196,930 tCO<sub>2</sub>e are most likely to be achieved within the fixed crediting period of 10 years.

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

Bangalore, 2012-12-18

Essen, 2012-12-18



Manjari Chandra  
TÜV NORD JI/CDM CP  
Validation Team Leader



Stefan Winter TÜV NORD JI/CDM  
CP  
Final Approval

## 7 REFERENCES

**Table 7-1:** Documents provided by the project participant

| Reference | Document  |
|-----------|---|
| /BoD/     | Minutes of meeting by the Board of Directors dated 2007-03-14 by Belij Hydro Power Limited<br>Minutes of meeting by the Board of directors dated 2011-06-16 by Gehra Hydro Power Private Limited – for abandoning the project   |
| /Cle/     | Irrigation & Public Health Department Clearance for set up small Hydro Project in Chamba District dated 2002-12-02<br><br>Clearance from Public Works Department for setting up a small Hydro Project in Chamba District dated 2003-01-08<br><br>Clearance from Local Gram Panchayat for setting up a small Hydro Project in Chamba District dated 2003-08-05<br><br>Project Activity implementation Agreement between M/s Belij Hydro Power Ltd., and Govt. of Himachal Pradesh, dated 2007-06-14<br><br>Directorate of Fisheries clearance for setting up a small Hydro Project in Chamba District dated 2008-05-23<br><br>Clearance from HPSPCB for setting up a small Hydro Project in Chamba District dated 2008-07-14 |
| /CC/      | Commissioning Certificate of Belij Hydro project from HPSEB dated 2012-06-17  |
| /CAC/     | Total project investment details certified by Chartered account dated 2012-07-28  |
| /CAEX/    | Project capital expenditure phasing provided by Chartered Account dated 2007-03-10<br>The Chartered Accountant certificate on the General and administrative expenses   |
| /HCA/     | The Host Country Approval for the project activity, vide Letter Number 4/12/2010-CCC dated 2011-03-11   |
| /IRR/     | IRR and benchmark calculation sheet, version 01 based on (PDD version 01 and Version 02)  |



| Reference   | Document   |
|-------------|--|
|             | IRR and benchmark calculation sheet, version 02 based on (PDD version 03)<br>IRR calculation sheet, version 03 based on (PDD version 03.1)   |
| /Loan/      | Loan disbursement statements from Rural Electrification Corporation Limited  |
| /MOC/       | Modalities of Communication dated 2012-11-05   |
| /DPR/       | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007  |
| /PDD/       | <ol style="list-style-type: none"> <li>1. Draft Project Design Document (version 01) named "7 MW Bundled Hydro power project at Himachal Pradesh of Raajratna Energy Holdings Pvt. Ltd" hosted from 2009-12-01</li> <li>2. Project Design Document Form (CDM PDD) – Version 02 dated 2011-11-04</li> <li>3. Project Design Document Form (CDM PDD) – Version 03 dated 2012-09-12</li> <li>4. Project Design Document Form (CDM PDD) – Version 03.1 dated 2012-12-11</li> </ol> |
| /PLF/       | Section 1.3.9, Page Number 9 of Detailed Project Report Prepared by Sai Engineering Foundation, February 2007  |
| /PO/& /PSD/ | Letter of Intent for supply of Hydro mechanical items pertaining to 5 MW Belij MHEP to KSK Fabricators and Erectors Private Limited dated 2009-02-23   |
| /PPA/       | Power purchase Agreement with HPERC dated 2008-08-20   |
| /Rep/       | Annual reports of Belij Hydro Power Private Limited for the financial years 2009-10, 2010-11 and 2011-12 for supporting the capital expenditure of the project   |
| /SHCP/      | <p>Stakeholder consultation process evidence:</p> <p>Invitation informing Local Stake Holders (LSH) about the LSH meeting in local newspapers and minutes of LSH meeting dated 2009-12-16</p>  |
| /HPP/       | <p>Hydro Power Policy, 2006</p> <p><a href="http://www.ireda.gov.in/Compendium/Data/HP/HP%20%20SHPup%20to%205%20MW-03.pdf">http://www.ireda.gov.in/Compendium/Data/HP/HP%20%20SHPup%20to%205%20MW-03.pdf</a></p>   |
| /TS/        | Electro Mechanical Supply Agreement between Belij Hydro Power Private Limited and Puissance de l'eau Power Systems Private Limited.  |
| /XLS/       | Emission reduction calculation spreadsheet, Version 01 (PDD Version 01)  |



| Reference | Document  |
|-----------|---|
|           | Emission reduction calculation spreadsheet, Version 02 (PDD Version 03)<br>Emission reduction calculation spreadsheet, Version 03 (PDD Version 03.1)  |
| /Reports/ | Annual Reports of CESC Limited, GIPCL, Neyveli Lignite Corporation, Tata Power Limited for calculating the Asset Beta   |
| /MNRE/    | Scheme for Financial Support to Set Up New SHP Projects upto 25 MW Capacity in the Private, Co-operative, Joint Sector Etc" issued by Ministry of New and Renewable Energy (MNRE) dated 11/2/2009 |

**Table 7-2:** Background investigation and assessment documents

| Reference    | Document  |
|--------------|---|
| /AMS I D/    | AMS I D. Grid connected Renewable electricity generation (Version 17)   |
| /CPM/        | TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)   |
| /EB 68-A27/  | 'Guidelines on The Demonstration of Additionality of Small-Scale Project Activities", Version 09  |
| /EB 62-A5/   | Guidance on the Assessment of Investment Analysis(version 05) – EB 62, Annex 5.   |
| /EB 62-A13/  | Guidelines for the demonstration and assessment of prior consideration of the CDM (version 04) – EB 62 Annex 13.  |
| /EB 50-A 15/ | Tool to determine remaining life time of the equipment  |
| /GCP/        | UNFCCC: Guidelines for completing CDM-PDD and CDM-NM  |
| /GLOS/       | Glossary of CDM terms   |
| /IPCC/       | <ul style="list-style-type: none"> <li>IPCC Good Practice Guidance &amp; Uncertainty Management in National Greenhouse Gas Inventories, 2000</li> <li>Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual</li> </ul> |
| /PDD-T/      | Project Design Document Form (CDM PDD) – Version 03   |
| /KP/         | Kyoto Protocol (1997)   |
| /MA/         | Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))   |

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| Reference  | Document   |
|------------|--|
| /TOOL-EF/  | Tool to calculate the emission factor for an electricity system, Version 02                            |
| /Tool-PLE/ | Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion, Version 02 |
| /Val/      | Validation agreement signed between TUV NORD and Raajratna Energy Holding Pvt Ltd dated 2009-11-09     |
| /VVM/      | Validation and Verification Manual (Version 01.2, Annex 1, EB 55)                                      |

**Table 7-3:** Websites used

| Reference   | Link  | Organisation   |
|-------------|---|--|
| /dna/       | <a href="http://cdmindia.nic.in/host_approval_criteria.htm">http://cdmindia.nic.in/host_approval_criteria.htm</a>   | National CDM Authority, Ministry of Environment and Forests, India.                            |
| /cea/       | <a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a>   | Central Electricity Authority, Ministry of Power,  |
| /ipcc/      | <a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>  | IPCC publications  |
| /hperc/     | <a href="http://www.hperc.org/orders2007.html">http://www.hperc.org/orders2007.html</a>   | Himachal Pradesh Electricity Regulatory Commission tariff order 2007                           |
| /RBI/       | <a href="http://www.rbi.org.in/scripts/WSSView.aspx?Id=10923">http://www.rbi.org.in/scripts/WSSView.aspx?Id=10923</a>   | RBI web-link for Interest Rate (PLR)   |
| /RBI-Gsecs/ | <a href="http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=8293">http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=8293</a>   | RBI Web Link for the Government Securities Considered as proxy for Risk Free Rate              |
| /BSE 100/   | <a href="http://beta.bseindia.com/indices/DispIndex.aspx?iname=BSE100&amp;sensid=100&amp;type=SENS&amp;graphpath=/applet/images/graph_appBSE100.gif&amp;page=5B6DA9E7-CD6D-48D3-880A-05D1E9E1AA56">http://beta.bseindia.com/indices/DispIndex.aspx?iname=BSE100&amp;sensid=100&amp;type=SENS&amp;graphpath=/applet/images/graph_appBSE100.gif&amp;page=5B6DA9E7-CD6D-48D3-880A-05D1E9E1AA56</a> | Historic Values of BSE 100 considered for calculating Market return and the Beta of the stocks |
| /BSE/       | <a href="http://www.bseindia.com/markets/equity/EQReports/StockPrchHistory.aspx?flag=0&amp;expandable=6">http://www.bseindia.com/markets/equity/EQReports/StockPrchHistory.aspx?flag=0&amp;expandable=6</a>   | Historic Value of Stocks considered for calculation of Beta                                    |
| /LAT & LON/ | <a href="http://www.satsig.net/maps/lat-long-finder.htm">http://www.satsig.net/maps/lat-long-finder.htm</a>   | Satellite signal   |
| /IT/        | <a href="http://law.incometaxindia.gov.in/TaxmannDit/DisplayPage/dpage1.aspx?md=2&amp;typ=se&amp;yr=2008&amp;ch=">http://law.incometaxindia.gov.in/TaxmannDit/DisplayPage/dpage1.aspx?md=2&amp;typ=se&amp;yr=2008&amp;ch=</a>   | Section 80IA of Income Tax Act 1961<br>India Budget  |

| Reference  | Link   | Organisation                        |
|------------|--|-------------------------------------|
|            | <a href="http://indiabudget.nic.in/ub/2007-08/fb/bill81.pdf">http://indiabudget.nic.in/ub/2007-08/fb/bill81.pdf</a><br><a href="http://indiabudget.nic.in/ub/2006-07/bh/bh1.pdf">http://indiabudget.nic.in/ub/2006-07/bh/bh1.pdf</a><br><a href="http://indiabudget.nic.in/ub/2007-08/fb/bill81.pdf">http://indiabudget.nic.in/ub/2007-08/fb/bill81.pdf</a><br><a href="http://indiabudget.nic.in/ub/2007-08/fb/bill2.pdf">http://indiabudget.nic.in/ub/2007-08/fb/bill2.pdf</a> |                                     |
| /IT-DP/    | <a href="http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&amp;schT=rul&amp;csId=4a23cee1-1818-45d6-ab19-f155e08ed789&amp;rNo=&amp;sch=&amp;title=Taxmann%20-%20Direct%20Tax%20Laws">http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&amp;schT=rul&amp;csId=4a23cee1-1818-45d6-ab19-f155e08ed789&amp;rNo=&amp;sch=&amp;title=Taxmann%20-%20Direct%20Tax%20Laws</a>  | IT depreciation, India              |
| Map        | <a href="http://www.wikimapia.org">www.wikimapia.org</a>   | Wikimapia organization              |
| /EIA/      | <a href="http://envfor.nic.in/legis/legis.html">http://envfor.nic.in/legis/legis.html</a>  | Ministry of Environment and Forests |
| /unfccc/   | <a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>  | UNFCCC                              |
| /Book-Dep/ | <a href="http://taxguru.in/company-law/rates-of-depreciation-under-the-companies-act-as-mentioned-in-schedule-xiv.html">http://taxguru.in/company-law/rates-of-depreciation-under-the-companies-act-as-mentioned-in-schedule-xiv.html</a>  | Company's Act Depreciation, India   |

**Table 7-4:** List of interviewed persons

| Reference | Mol <sup>1</sup> |  | Name                    | Organisation / Function           |
|-----------|------------------|--|-------------------------|-----------------------------------|
| /IM01/    | V                | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | A. V. S. Radha Krishnan | Manager - Projects REPL           |
|           | V                | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | JagadishChoudhury       | Executive Advisor Accounts - REPL |

| Reference | Mol <sup>1</sup> |  | Name              | Organisation / Function           |
|-----------|------------------|--|-------------------|-----------------------------------|
|           | V                | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | M. Venugopal      | Senior Engineer Mechanical - REPL |
|           | V                | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | B. Raveendran     | Head Civil Hydro Projects - REPL  |
|           | T,E              | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | Mohan RaoAdhikari | CFO – REPL                        |
|           | T,E              | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | Sandeep Kota      | Core CarbonXSolutions Pvt Ltd     |
|           | T,E              | <input checked="" type="checkbox"/> Mr.<br><input type="checkbox"/> Ms | Kartik Iyer       | Core CarbonXSolutions Pvt Ltd     |

<sup>1)</sup> Means of Interview: (Telephone, E-Mail, Visit)

# ANNEX

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

## ANNEX 1: VALIDATION PROTOCOL

**Table A-1: Requirements Checklist**

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.   | Draft<br>Concl. | Final<br>Concl. |
|---|--|--------|-----------------|-----------------|
| <b>A. General Description of Project Activity</b>   |  |        |                 |                 |
| <b>A.1. Approval</b><br><i>The written approval of the parties involved is a mandatory requirement</i>  |  |        |                 |                 |
| A.1.1. Has the project provided written approvals of all parties involved? (EB 55 Annex 1, § 44)<br><i>Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.</i><br><i>Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA</i> | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to DOE.<br><i>Conclusion:</i><br>Hence CAR A1 has been raised. | /IM01/ | CAR<br>A1       | OK              |
| A.1.2. Are the approvals issued from organisations listed as DNAs on the UNFCCC CDM website?<br>(EB 55 Annex 1, §§ 44, 47, 48, 49 (b), 49 (c), 53)  | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to   | /IM01/ | CAR<br>A1       | OK              |



| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.   | Draft<br>Concl. | Final<br>Concl. |
|--|--|--------|-----------------|-----------------|
| <i>Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.</i> | DOE.<br><br><i>Conclusion:</i><br>Hence CAR A1 has been raised.  |        |                 |                 |
| A.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol?<br><br>(EB 55 Annex 1, § 45(a))   | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to DOE.<br><br><i>Conclusion:</i><br>Hence CAR A1 has been raised. | /IM01/ | CAR<br>A1       | OK              |
| A.1.4. Do the written approvals confirm that the participation is voluntary?<br><br>(EB 55 Annex 1, § 45(b))   | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to DOE.<br><br><i>Conclusion:</i><br>Hence CAR A1 has been raised. | /IM01/ | CAR<br>A1       | OK              |
| A.1.5. Does the written approval from the host country confirm <sup>7</sup> that the project contributes to the sustainable development in the country?<br><br>(EB 55 Annex 1, § 45(c))                        | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to DOE.  | /IM01/ | CAR<br>A1       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.   | Draft<br>Concl. | Final<br>Concl. |
|--|--|--------|-----------------|-----------------|
|  | <i>Conclusion:</i><br>Hence CAR A1 has been raised.  |        |                 |                 |
| A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the project activity, e.g. PDD version number?<br>(EB 55 Annex 1, §§ 45(d), 50) | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to DOE.<br><i>Conclusion:</i><br>Hence CAR A1 has been raised.         | /IM01/ | CAR<br>A1       | OK              |
| A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6?<br>(EB 55 Annex 1, § 46)   | <i>Description:</i><br>Host country approval is a pre requisite for project registration.<br><i>Justification of evidences:</i><br>Written approval from Host Government has not been submitted to DOE.<br><i>Conclusion:</i><br>Hence CAR A1 has been raised.         | /IM01/ | CAR<br>A1       | OK              |
| A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other?<br>(EB 55 Annex 1, § 51)  | <i>Description:</i><br>Yes, the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent with each other.<br><i>Justification of evidences:</i><br>The PDD is checked by the assessment team and found that | /PDD/  | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.            | Draft<br>Concl. | Final<br>Concl. |
|--|---|-----------------|-----------------|-----------------|
|  | <p>section A3 and Annex 1 of the PDD are correct.</p> <p><i>Conclusion:</i></p> <p>The name of the project proponents listed in section A3 and Annex 1 are consistent in the PDD.</p>   |                 |                 |                 |
| <p>A.1.9. Are all project participants listed in the PDD approved at least by one Party involved?</p> <p>(EB 55 Annex 1, § 51)</p> <p><i>Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.</i></p> <p><i>Describe the means of validation employed to draw this conclusion.</i></p> | <p><i>Description:</i></p> <p>The only project participant listed in the PDD is M/s Raajratna Energy Holdings Pvt Limited. Written approval by Host Government has not been submitted to DOE.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been checked in this regard. However, no approval from host party has been provided for reference.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR A1 has been raised.</p> | /IM01/<br>/PDD/ | CAR<br>A+       | OK              |
| <p>A.1.10. Are any other project participants approved but not listed in the PDD?</p> <p>(EB 55 Annex 1, § 52)</p>   | <p><i>Description:</i></p> <p>Host country approval is a pre requisite for project registration.</p> <p><i>Justification of evidences:</i></p> <p>Written approval from Host Government has not been submitted to DOE.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR A1 has been raised.</p>  | /IM01/<br>/PDD/ | CAR<br>A+       | OK              |
| <p>A.1.11. Does the DoE have a direct contractual relationship with the PP?</p> <p>(EB 55 Annex 1, § 51; EB 50 Annex 48, §§ 7–9)</p>   | <p><i>Description:</i></p> <p>The DOE has direct contractual relationship with Raajratna Energy Holdings Pvt Ltd which is the project participant.</p>  | /Val/<br>/PDD/  | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.             | Draft<br>Concl. | Final<br>Concl. |
|---|--|------------------|-----------------|-----------------|
| <i>Check whether the PPs listed in the published PDD are still listed in the PDD going to be submitted to request for registration.</i>   | <p><i>Justification of evidences:</i></p> <p>The contract is checked and found to be correct.</p> <p><i>Conclusion:</i></p> <p>The DOE has a direct contractual relationship with the project participant. The project activity complies with the requirement.</p>   |                  |                 |                 |
| <p><b>A.2. Contribution to Sustainable Development</b></p> <p><i>The project's contribution to sustainable development is assessed.</i></p>   |  |                  |                 |                 |
| <p>A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development?</p> <p>(EB 55 Annex 1, §§ 125–127)</p> <p><i>Contains a statement confirming whether the letter of approval by the DNA of the host party confirmed the contribution of the project to the sustainable development of the Host Party.</i></p> | <p><i>Description:</i></p> <p>Host country approval is a pre requisite for project registration.</p> <p><i>Justification of evidences:</i></p> <p>Written approval from Host Government has not been submitted to DOE.</p> <p><i>Conclusion:</i></p> <p>Hence CAR A1 has been raised.</p>  | /IM01/           | CAR<br>A+       | OK              |
| <p>A.2.2. Will the project create other environmental or social benefits than GHG emission reductions?</p> <p>(EB 55 Annex 1, §§ 125–127)</p> <p><i>Describe the other positive aspects not related to GHG emission reduction on the environment.</i></p>   | <p><i>Description:</i></p> <p>Yes, The project creates other environmental and social benefits in addition to GHG emission reductions.</p> <p>Project activity improves the road &amp; related infrastructure in the project area; Indirectly reduces the dependability of fossil fuel in power generation; Creates employments during construction as well as in operational stage;</p> | /PDD1/<br>/IM01/ | CAR<br>A+       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                      | Draft<br>Concl. | Final<br>Concl. |
|---|--|---------------------------|-----------------|-----------------|
|   | <p><i>Justification of evidences:</i></p> <p>Based on the sectoral and local expertise, TÜV Nord conforms that the above mentioned benefits are possible from the project activity. It is also conformed during site visit.</p> <p><i>Conclusion:</i></p> <p>However, the same should be conformed in the host country approval letter. Since the host country approval letter has not been submitted yet, CAR A1 is raised.</p>   |                           |                 |                 |
| <p><b>A.3. PDD editorial aspects</b></p> <p><i>The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.</i></p> |  |                           |                 |                 |
| <p>A.3.1. Has the latest version of the PDD form been applied?<br/>(EB 55 Annex 1, § 55)</p>  | <p><i>Description:</i></p> <p>Yes, the PDD is applying the latest PDD template (Version 03)</p> <p><i>Justification of evidences:</i></p> <p>PDD has been checked against the PDD template available on UNFCCC website.</p> <p><a href="http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form02_v03.doc">http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form02_v03.doc</a> and confirms that latest template for PDD is applied by the PP. TÜV Nord therefore confirms that the project activity meets the stipulation made under EB 55 Annex 1, § 55 and found to be OK</p> <p><i>Conclusion:</i></p> <p>The UNFCCC CDM website was checked and thus concluded that</p> | <p>/PDD/<br/>/unfccc/</p> | <p>GL-A5</p>    | <p>OK</p>       |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.               | Draft<br>Concl.         | Final<br>Concl. |
|---|--|--------------------|-------------------------|-----------------|
|   | the PDD form used in this Project activity is the latest version (version 3). However, CLA5 raised.  |                    |                         |                 |
| A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)?<br>(EB 55 Annex 1, §§ 56–57)   | <p><i>Description:</i><br/>Yes, PDD has been presented as per the guidelines contained in Annex 01 of EB 55.</p> <p><i>Justification of evidences:</i><br/>The PDD is verified with the “Guideline for completing the <a href="#">simplified Project Design document (CDM-SSC-PDD)</a> and the form for proposed new <a href="#">Small Scale Methodologies (CDM-SSC-NM)</a>” version 5 dated 14 September 2007.<br/><a href="http://cdm.unfccc.int/Reference/Guidclarif/PDD1/PDD_guid02.pdf">http://cdm.unfccc.int/Reference/Guidclarif/PDD1/PDD_guid02.pdf</a></p> <p><i>Conclusion:</i><br/>The PDD been duly filled in accordance with the latest guidance.<br/>However, CL A3, CL A4 and CL A5 are raised. .</p> | /unfccc /<br>/PDD/ | CL A3<br>CL A4<br>CL A5 | OK              |
| <b>A.4. Technology to be employed</b><br><i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.</i> |  |                    |                         |                 |
| A.4.1. Does the PDD contain a clear, accurate and complete project description?<br>(EB 55 Annex 1, §§ 58–59, 64)  | <p><i>Description:</i><br/>Sections A.2, A.4.2 &amp; A.4.3 of the PDD contain project description. Under Section A.2, the baseline scenario is provided along with a concise description of the project activity. It also provides details of</p>  | /unfccc/<br>/PDD/  | CL A3                   | OK              |

| <b>Checklist Item</b><br>(incl. guidance for the validation team)   | <b>Validation Team Comments</b><br>(justification and substantiation of information, data and evidences)   | <b>Ref.</b>     | <b>Draft<br/>Concl.</b> | <b>Final<br/>Concl.</b> |
|---|--|-----------------|-------------------------|-------------------------|
| <p><i>The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.</i></p> <p><i>Pl. consider esp. chapters A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.</i></p> <p><i>§64 (a) Describe the process undertaken to validate the accuracy and completeness of the project description.</i></p> <p><i>§64 (b) Contain the DOE's opinion on the accuracy and completeness of the project description.</i></p> | <p>other sustainable developments that will occur as a result of implementation of the project activity. Section A.4 provides exact location details of the project activity, specifications of the power plant and in the section A.4.3, an estimate of the likely reductions achieved over the crediting period is provided.</p> <p><i>Justification of evidences:</i></p> <p>The type and category of the project have been applied correctly which have been verified from the website UNFCCC</p> <p>All the available physical conditions of the projects has been verified during site visit. The project activity involves in two hydro projects located in the state of Himachal Pradesh, with a total capacity of 7 MW (5 MW Belij + 2 MW Gehra).</p> <p><i>Conclusion:</i></p> <p>However, there are some inconsistencies and inappropriate filings of PDD have been observed. Hence, CL A3 is raised.</p> |                 |                         |                         |
| <p>A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description?</p>  | <p><i>Description:</i></p> <p>The project activity is currently under implementation. Hence, the description mentioned in the PDD is accordance with the real situation.</p> <p><i>Justification of evidences:</i></p> <p>Interview with the PP have been carried out to assess the real and likely situation and possibility of implementation of the projects as per the project description.</p> <p><i>Conclusion:</i></p> <p>In this regard, CAR A6 is raised.</p>   | /IM01/<br>/PDD/ | CAR<br>A6               | OK                      |



| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                    | Draft<br>Concl. | Final<br>Concl. |
|--|--|-------------------------|-----------------|-----------------|
| <p>A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation?</p> <p>(EB 55 Annex 1, §§ 63–64)<br/>Describe the steps taken to validate this issue.</p> | <p><i>Description:</i></p> <p>The project does not involve alteration of any existing installation. The project activity comprises of newly installation of Hydro- turbine generators</p> <p><i>Justification of evidences:</i></p> <p>The project activity comprises of newly installed Hydro- turbine generators</p> <p><i>Conclusion:</i></p> <p>During site visit purchase orders for civil constructions and the submitted contract agreement for equipment are verified to conclude that the project activity is a new installation and not having any existing installations.</p>         | <p>/IM01/<br/>/PDD/</p> | OK              | OK              |
| <p>A.4.4. Does the project design engineering reflect current good practices?</p> <p>Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.</p>  | <p><i>Description:</i></p> <p>The project activity is establishment of 5 MW Belij and 2 MW Gehra project Hydro – Turbine Generators. Based on the local expertise, the validation team checked the details on-site and found that the project design engineering reflects current good practises.</p> <p><i>Justification of evidences:</i></p> <p>Project DPR and respective specifications provided for the project activity are verified.</p> <p><i>Conclusion:</i></p> <p>Thus, it is concluded that the project design engineering reflects current good practises in the host country.</p> | <p>/PDD/<br/>/DPR/</p>  | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                              | Draft<br>Concl. | Final<br>Concl. |
|---|---|-----------------------------------|-----------------|-----------------|
| <p>A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?</p> <p><i>Describe the process undertaken to assess the state of the art technology.</i></p> | <p><i>Description:</i></p> <p>The technology adopted by the project is on par with the current industrial practices.</p> <p><i>Justification of evidences:</i></p> <p>The technical specifications of the project activity are checked against the DPR provided.</p> <p><i>Conclusion:</i></p> <p>Thus, the project design engineering reflects current good practises and on par with the current industrial practices.</p>  | /DPR/                             | OK              | OK              |
| <p>A.4.6. Does the project make provisions for meeting training and maintenance needs?</p> <p><i>Describe the process undertaken to assess the maintenance and training needs.</i></p>  | <p><i>Description:</i></p> <p>According to the discussions with PP, the service provider will provide technical knowledge transfer, provide adequate spares for the operation and maintenance manuals of the project activity</p> <p><i>Justification of evidences:</i></p> <p>Thought the PP confirmed during the discussion that equipment suppliers will provided the training, supporting documents, such as, agreement for supply of electro mechanical equipment, etc., are not provided for validation</p> <p><i>Conclusion:</i></p> <p>The same is requested under a common CL B9 for document requirements. CL B9 is raised.</p> | <p>/PDD/<br/>/IM01/<br/>/DPR/</p> | CL B9           | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                            | Draft<br>Concl. | Final<br>Concl. |
|--|---|---------------------------------|-----------------|-----------------|
| <b>A.5. Small scale project activity</b><br><i>It is assessed whether the project qualifies as small-scale CDM project activity</i>  |   |                                 |                 |                 |
| A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II?<br>(EB 55 Annex 1, §§ 135–136 (a))  | <p><i>Description:</i></p> <p>Yes, the project qualifies as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM. The total capacity of the project activity is about 7 MW which is less than 15 MW as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities.</p> <p><i>Justification of evidences:</i></p> <p>The evidences such as hydro mechanical agreement, Clearances and PPAsubmitted by the PP have been verified.</p> <p><i>Conclusion:</i></p> <p>It is concluded that the project activity qualifies the small scale CDM project as per CMP.1 annex II. The above evidences are verified and found to be valid and fulfils the small scale CDM requirements</p> | /PDD/<br>/PPA/<br>/PO/<br>/Cle/ | OK              | OK              |
| A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein?<br>(EB 55 Annex 1, § 136 (b))<br><i>Check, if applicable the expiry dates of the applied</i> | <p><i>Description:</i></p> <p>The Project uses the methodology AMS I D, Grid connected renewable electricity generation, version 15. This is was the latest available version at the time of webhosting.</p> <p><i>Justification of evidences:</i></p>  | /unfccc/<br>/PDD/<br>/AMS ID/   | CAR<br>A2       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                        | Draft<br>Concl. | Final<br>Concl. |
|---|--|-----------------------------|-----------------|-----------------|
| <i>methodology. Further, take into consideration the general guidance to the methodologies<sup>11</sup>, which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.</i>   | <p><a href="http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html">http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html</a> has been checked and the version 15 is applicable at the time of webhosting. However, during the course of validation, the methodology version applied is found to be expired.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR A2 is raised in this regard.</p>   |                             |                 |                 |
| <p>A.5.3. Is the small scale project activity not a debundled component of a larger project activity?</p> <p>(EB 55 Annex 1, § 136 (c))</p> <p><i>Describe the steps taken to validate this issue. PI refer to the Compendium of guidance on debundling (EB 36, Annex 27 54, Annex 13).</i></p> | <p>The proposed small scale project activity can be deemed a de-bundled component of large scale project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:</p> <ul style="list-style-type: none"> <li>• With the same project participants</li> <li>• In the same project category and technology/measure;</li> <li>• Registered within the previous 2 years; and</li> <li>• Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.</li> </ul> <p>Assessment team confirmed that the project activity is not a debundled component of a large project activity as the project proponent have not registered or applied for registration any other small scale project activity which meets any of the above mentioned condition.</p> <p>Justification of evidences: <a href="http://cdm.unfccc.int/Projects/index.html">http://cdm.unfccc.int/Projects/index.html</a> has been crosschecked by the validation team and found to be correct.</p> | /unfccc/<br>/IM01/<br>/PDD/ | OK              | OK              |

<sup>11</sup><http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                          | Draft<br>Concl. | Final<br>Concl. |
|---|---|-------------------------------|-----------------|-----------------|
|   | Conclusion: The project is not a de-bundled component of a larger project activity.   |                               |                 |                 |
| A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party?<br>(EB 55 Annex 1, § 136 (d))                                   | <p><i>Description:</i></p> <p>Indian government does not require an environmental impact assessment for small scale hydro power projects.</p> <p><i>Justification of evidences:</i></p> <p>As per the EIA notification 2006 issued by Ministry of Environment &amp; Forest (MoEF) (<a href="http://envfor.nic.in/legis/eia/eia-2006.htm">http://envfor.nic.in/legis/eia/eia-2006.htm</a>), the project activity does not fall under the category which requires an EIA study.</p> <p><i>Conclusion:</i></p> <p>Host party does not require an Environmental Impact Assessment for small scale hydro project activities.</p> | /EIA/                         | OK              | OK              |
| <b>B. Project Baseline, Additionality and Monitoring Plan</b>   |   |                               |                 |                 |
| <b>B.1. Application of the Methodology</b>  |   |                               |                 |                 |
| B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof?<br>(EB 55 Annex 1, § 65)<br><i>Describe the steps taken to validate this issue.</i> | <p><i>Description:</i></p> <p>The project falls under Type I: Renewable Energy Projects and applies the approved baseline methodology of AMS I D Version 15 titled "Grid connected renewable electricity generation".</p> <p><i>Justification of evidences:</i></p>   | /AMS ID/<br>/unfccc/<br>/PDD/ | CAR<br>A2       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.  | Draft<br>Concl. | Final<br>Concl. |
|---|--|---|-----------------|-----------------|
|   | <p>The website: <a href="http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXC-SA7BDQ7FU1X">http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXC-SA7BDQ7FU1X</a> was checked and found that the methodology applied in the Project activity is an approved CDM methodology at the time of webhosting. However, the methodology applied was expired.</p> <p><i>Conclusion:</i></p> <p>However, CAR A2 is already raised in this regard.</p>  |   |                 |                 |
| <p>B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website?</p> <p>(EB 55 Annex 1, §§ 65, 70)</p> <p><i>Describe the steps taken to validate this issue.</i></p>   | <p><i>Description:</i></p> <p>Yes, the version 15 of the methodology applied is identical to the latest version available on the UNFCCC website at the time of webhosting.</p> <p><i>Justification of evidences:</i></p> <p>Reference UNFCCC website <a href="http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXC-SA7BDQ7FU1X">http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXC-SA7BDQ7FU1X</a> was verified. However, the methodology applied was expired.</p> <p><i>Conclusion:</i></p> <p>In this regard, CAR A2 is already raised</p> | <p>/AMS ID/<br/>/unfccc/<br/>/PDD/</p>            | CAR<br>A2       | OK              |
| <p>B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled?</p> <p>(EB 55 Annex 1, §§ 66(a)–(b), 68, 71, 76)</p> <p><i>Describe for each applicability criterion listed in the selected approved methodology the steps taken to assess the</i></p> | <p><i>Description:</i></p> <p>The project fulfils the applicability criteria defined in AMS I.D. This is justified as following:</p> <ul style="list-style-type: none"> <li>The project is installation of renewable (hydro) energy generation that supply electricity to Regional (NEWNE) grid of India. This is verified during site visit</li> </ul>  | <p>/AMS ID/<br/>/unfccc/<br/>/PDD/<br/>/IM01/</p> | CAR<br>B+       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                                   | Draft<br>Concl. | Final<br>Concl. |
|--|--|--|-----------------|-----------------|
| information contained in the PDD.  | <ul style="list-style-type: none"> <li>The project is installation of a new hydro project activity and this has been verified with license, PPA and PO etc.,</li> <li>The total installed capacity of project is 7 MW which is within the small scale limit of 15 MW. The capacity of power plant has been verified with project documents</li> </ul> <p>Thus, all the applicability criteria of the methodology are fulfilled by the project activity.</p> <p><i>Justification of evidences:</i></p> <p>The applicability criteria with reference to the project activity have been checked during the site visit and with documentary evidences submitted.</p> <p><i>Conclusion:</i></p> <p>However, CAR B1 is raised.</p> |  |                 |                 |
| <p>B.1.4. In case one or more applicability criteria have not been met, has the validation team requested clarification to, revision of or deviation from the methodology in accordance with the latest guidelines?</p> <p>(EB 55 Annex 1, §§ 72–75)</p> | <p><i>Description:</i></p> <p>The project activity meets all the applicable criteria of the approved methodology AMS.I.D Version 15.</p> <p><i>Justification of evidences:</i></p> <p>Justification provided in the PDD, which is in line with the requirements of methodology AMS I.D criteria have been checked</p> <p><i>Conclusion:</i></p> <p>It has been validated that all the applicability conditions have been met. However, CAR B1 is already raised in this regard</p>   | <p>/AMS ID/<br/>/unfccc/<br/>/PDD/</p> | CAR<br>B+       | OK              |
| B.1.5. Is the project in accordance with every other stipulation or requirement mentioned in all   | <p><i>Description:</i></p> <p>The Project is meeting all the other stipulations or requirements</p>  | <p>/PDD/<br/>/AMS ID/</p>              | CAR<br>B+       |                 |



| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                    | Draft<br>Concl. | Final<br>Concl. |
|---|---|-------------------------|-----------------|-----------------|
| <p>sections of the methodology and in guidances for approved methodologies provided by the CDM EB?</p> <p>(EB 55 Annex 1, § 69, 71)</p> <p><i>Describe the steps taken to check whether the proposed project activity meets <u>all the other possible stipulations and/or limitations</u> mentioned in all sections of the approved methodology selected.</i></p> | <p>mentioned in the methodology.</p> <p><i>Justification of evidences:</i></p> <p>The methodology and justification provided in the PDD is checked for every other stipulation or requirements as per the guidance.</p> <p><i>Conclusions:</i></p> <p>Based on available information from the sources other than the one mentioned in the PDD the DOE concluded that the project meets all the other stipulations or requirements as per the approved methodology. Since this is hydro project all the major approvals such as NOC from Fisheries, Forest and Irrigation &amp; Public Health department and consent to establish are verified in this regard along with PPA to establish that the project is in accordance with every other stipulation or requirements mentioned in all sections of the methodology.</p> <p>However, CAR B1 is already raised in this regard</p> |                         |                 | OK              |
| <p><b>B.2. Project Boundaries</b></p> <p><i>Project Boundaries are the limits and borders defining the GHG emission reduction project</i></p>   |   |                         |                 |                 |
| <p>B.2.1. Are the project's spatial boundaries (geographical) clearly defined?</p> <p>(EB 55 Annex 1, §§ 67(a), 78–80)</p> <p><i>Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p>                    | <p><i>Description:</i></p> <p>The geographical boundaries of the project site have been provided in the PDD. The project boundary includes diversion weir, intake chamber, de-silting chamber, power channel, headrace tunnel, penstock, powerhouse, tailrace and the transmission system till the evacuation point. The project activity is located in Chamba district, Himachal Pradesh. The geographical coordinates are given for each project in the PDD.</p>  | <p>/PDD/<br/>/IM01/</p> | <p>GL A3</p>    | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.               | Draft<br>Concl. | Final<br>Concl. |
|--|--|--------------------|-----------------|-----------------|
|  | <p><i>Justification of evidences:</i></p> <p>The project boundary is defined as described in the methodology. The Geographical coordinates of the hydro project sites are verified during site visit.</p> <p><i>Conclusion:</i></p> <p>It has been concluded that the Project boundary is clearly defined which were verified to be appropriate. However, CL A3 is already raised in this regard.</p>  |                    |                 |                 |
| <p>B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?</p> <p>(EB 55 Annex 1, §§ 67(a), 78–80)</p> <p><i>Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p> | <p><i>Description:</i></p> <p>There is no description in the methodology which allows the choice of a source and/or gases are to be included.</p> <p><i>Justification of evidences:</i></p> <p>As per AMS ID version 15, there are no selection of GHGs is required. PDD has been checked in this regard and found to be appropriate.</p> <p><i>Conclusion:</i></p> <p>As there is no description in the methodology which requires the choice of a source and/or gases, the Project boundary mentioned in the PDD complies with the same.</p> | /PDD /             | OK              | OK              |
| <p>B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified?</p> <p>(EB 55 Annex 1, §§ 67(a), 78–80)</p>  | <p><i>Description:</i></p> <p>This is no requirement as per the methodology AMS.I.D.</p> <p><i>Justification of evidences:</i></p> <p>As per AMS ID version 15, there are no selection of GHGs is required. PDD has been checked in this regard and found to be</p>  | /PDD /<br>/AMS ID/ | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                  | Draft<br>Concl. | Final<br>Concl. |
|--|---|-----------------------|-----------------|-----------------|
| <i>Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.</i>  | appropriate.<br><br><i>Conclusion:</i><br><br>The methodology has been correctly applied. Hence, project complies with the requirement.   |                       |                 |                 |
| <b>B.3. Baseline Identification</b><br><br><i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i> |   |                       |                 |                 |
| B.3.1. What possible baseline scenarios have been considered?<br><br>(EB 55 Annex 1, §§ 67(b), 83)<br><i>Fill in all alternatives in table A-2.</i>  | <i>Description:</i><br><br>The identified baseline scenario is "the continued supply of electricity from the regional grid"<br><br><i>Justification of evidences:</i><br><br>As per AMS ID version 15, there is no requirement for identification of possible baseline scenarios, since the same is a small scale methodology. PDD has been checked in this regard and found the appropriate baseline scenario of 'continued supply of electricity from the regional grid' is considered appropriately.<br><br><i>Conclusion:</i><br><br>The baseline scenario has been taken as per the approved methodology for this project activity. However, CAR B1 is already raised in this regard | /PDD/<br><br>/AMS ID/ | CAR<br>B1       | OK              |
| B.3.2. Is the list of alternatives complete?   | <input checked="" type="checkbox"/> All plausible alternative scenarios listed in the approved methodology have been considered. In the course of   |                       |                 |                 |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                        | Draft<br>Concl. | Final<br>Concl. |
|---|--|-----------------------------|-----------------|-----------------|
| (EB 55 Annex 1, §§ 67(b), 83)<br><i>Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration</i>   | document review and site visit, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted.<br><input type="checkbox"/> The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued  | /PDD/<br>/AMS ID/           | CAR<br>B1       | OK              |
| B.3.3. What has been identified as the baseline scenario?<br>(EB 55 Annex 1, §§ 81–82, 86)<br><i>Describe the chosen BL scenario, taking into consideration the technology that would be employed and / or the activities that would take place in the absence of the proposed CDM project activity.</i>                                      | <i>Description:</i><br>In the absence of the project activity, equivalent amount of power would have been generated by the grid with existing power plants connected to the system or future capacity additions.<br><i>Justification of evidences:</i><br>PDD has been checked in this regard and found the appropriate baseline scenario of 'continued supply of electricity from the regional grid' is considered appropriately.<br><i>Conclusion:</i><br>However, CAR B1 is already raised in this regard | /PDD/<br>/AMS ID/<br>/IM01/ | CAR<br>B1       | OK              |
| B.3.4. Has the baseline scenario been determined according to the methodology?<br>(EB 55 Annex 1, §§ 82, 87(e))<br><i>Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.</i> | For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2.<br><input checked="" type="checkbox"/> The determination has been carried out as per the procedure contained in the applied methodology.<br><input type="checkbox"/> The following CARs / CLs have been identified with respect to the selection of the baseline scenario:<br><br>However, CAR B1 is already raised in this regard   | /AMS<br>I.D/                | CAR<br>B1       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.           | Draft<br>Concl. | Final<br>Concl. |
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| <p>B.3.5. Has any plausible alternative scenario been excluded?</p> <p>(EB 55 Annex 1, § 83)<br/><i>Describe how it is validated that no plausible alternative scenario has been excluded.</i></p>   | <p>For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2.</p> <p><input checked="" type="checkbox"/> No plausible baseline scenario has been excluded.<br/> <input type="checkbox"/> The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued:<br/> However, CAR B1 is already raised in this regard</p>  | /AMS<br>I.D/   | CAR<br>B+       | OK              |
| <p>B.3.6. Is the identified baseline scenario reasonable and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources?</p> <p>(EB 55 Annex 1, §§ 84–86(a)–(c))<br/><i>Describe whether the choice of the identified baseline scenario is reasonable by validating the <u>key assumptions, calculations and rationales</u> used in the PDD. Describe whether these are listed, relevant and <u>conservatively interpreted</u> in the PDD.</i></p> | <p><input checked="" type="checkbox"/> The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer to comments in table A-2 and sections B.3.2 to B.3.5 above.<br/> <input type="checkbox"/> The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative<br/> However, CAR B1 is already raised in this regard</p>   | /PDD/          | CAR<br>B+       | OK              |
| <p>B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?</p> <p>(EB 55 Annex 1, §§ 85, 87(d))<br/><i>Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly</i></p>   | <p><i>Description:</i><br/>Political aspirations desire enormous expansion in power generation at the most economical prices to meet the continuously increasing demand for power, and with assured cheap and easy availability of coal, coal fired thermal power stations offer themselves as the most attractive option. Thus, the emission intensive technologies have a market driven advantage. Sectoral policies of providing subsidies to small scale renewable power projects, allowing depreciation advantages, or offering tax holidays</p> | /cea/<br>/PDD/ | CAR<br>B+       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                                | Draft<br>Concl. | Final<br>Concl. |
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| <i>considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).</i>  | <p>have failed to enthuse the investors to develop less emission intensive power sources. Baseline scenario takes these conditions to account.</p> <p><i>Justification of evidences:</i></p> <p>The CEA database published by CEA, considers all therelevant national and/or sectoral policies, macro-economic trends and political aspirations, while determining the baseline grid emission factor. Since the project activity has applied the same, which is an official publication by Indian Govt department, the same is considered appropriate.</p> <p><i>Conclusion:</i></p> <p>However, CAR B1 is already raised in this regard</p> |                                     |                 |                 |
| <p>B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?</p> <p>(EB 55 Annex 1, § 87(a)–(c))</p> <p><i>Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.</i></p> | <p><i>Description:</i></p> <p>Yes the baseline scenario determination compatible with the available data and all literature and sources are clearly referenced.</p> <p><i>Justification of evidences:</i></p> <p>The baseline scenario is continuation of electricity supply by the power plants operating in the grid system. The CEA database published by CEA is applied for grid emission factor. Since the project activity has applied an official publication by Indian Govt department, the same is considered appropriate.</p> <p><i>Conclusion:</i></p> <p>However, CAR B1 is already raised in this regard</p>                    | <p>/PDD/<br/>/AMS ID/<br/>/cea/</p> | CAR<br>B1       | OK              |
| <p>B.3.9. Does the PDD contain a <i>verifiable</i> description of the identified baseline scenario, including a description of the technology that would be</p>   | <p><i>Description:</i></p> <p>The baseline scenario identified in the PDD is the scenario mentioned in the methodology, AMS.I.D. The project is a small</p>  | <p>/PDD/<br/>/cea/</p>              | CAR<br>B1       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.              | Draft<br>Concl. | Final<br>Concl. |
|---|---|-------------------|-----------------|-----------------|
| employed and/or the activities that would take place in the absence of the proposed CDM project activity.<br>(EB 55 Annex 1, § 86)  | scale hydro based energy project; the baseline description is justified in the PDD and verifiable with the methodology. It is clear from the description provided that on the absence of the CDM project, the electricity supplied to the grid would be from the most prevalent technology, which is fossil fuel based power plants. The PDD states "the project activity is replacing the same amount of electricity from NEWNE grid that would have been generated from the carbon intensive generation".<br><br>Justification of evidences:<br><br>Since the PDD provided with appropriate details on the baseline scenario, which is the connected grid system and also as per the applied methodology AMS.I.D, Version 15, same is found to be appropriate<br><br><i>Conclusion:</i><br><br>However, CAR B1 is already raised in this regard |                   |                 |                 |
| <b>B.4. Additionality Determination</b><br><i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>       |   |                   |                 |                 |
| <b>B.4.1. Methodology</b>   |   |                   |                 |                 |
| B.4.1.1. Does the PDD describe how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools? | <i>Description:</i><br><br>The project additionality has been assessed as per Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. In section B5 of the PDD it is explained that how the project activity is additional.  | /PDD/<br>/AMS ID/ | CAR<br>B2       | OK              |



| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                  | Draft<br>Concl. | Final<br>Concl. |
|--|--|-----------------------|-----------------|-----------------|
| <p>(EB 55 Annex 1, §§ 67(d), 94–95)</p> <p><i>Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.</i></p>   | <p>The arguments under investment barrier are found to be in line with best practice examples given under Annex 34 of EB 35 "Non – binding best practice examples to demonstrate additionality for SSC project activities."</p> <p><i>Justification of evidences:</i></p> <p>The PDD provided for validation have been checked to ensure the same. Appropriate description is provided in section B.5.</p> <p><i>Conclusion:</i></p> <p>However, CAR B2 is raised in this regard.</p>  |                       |                 |                 |
| <b>B.4.2. Consideration of CDM before project start</b>  |  |                       |                 |                 |
| <p>B.4.2.1. Is the project starting date reported in accordance with the CDM glossary of terms?</p> <p>(EB 55 Annex 1, § 99, 104(a))</p> <p><i>Assess why the chosen starting date can be considered as the earliest date at which either the implementation or construction or real action of a project has begun or will begin.</i></p> <p><i>Check that no other activities related to the project that happened before the identified start date can be considered as start date. In this context please also take into consideration infrastructural expenses if they are relevant (in terms of costs and importance for the project implementation) in the specific context of the project activity. Appropriate evidence should be given.</i></p> | <p><i>Description:</i></p> <p>The Purchase order for equipment supply has been referred to support the PP's contention that the start date of project be considered as 2009-02-23. Though, as referred in the PDD, the start date is considered appropriate, the evidencing documents for validation by DOE have been provided.</p> <p><i>Justification of evidences:</i></p> <p>Purchase order dated 2009-02-23 is verified and found to be appropriate.</p> <p><i>Conclusion:</i></p> <p>The project start date is found to be in line with the requirements and the same complies with the CDM glossary of terms.</p> | <p>/PDD/<br/>/PO/</p> | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                               | Draft<br>Concl. | Final<br>Concl. |
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| <p>B.4.2.2. In case the project start date is on or after 2<sup>nd</sup> August 2008 has the PP informed the DNA and UNFCCC about the intension to seek CDM status?</p> <p>(EB 55 Annex 1, §§ 99–101)<br/>Describe whether such a notification has been provided by the project participants within six months of the project activity start date; if NOT it shall be determined that the CDM was not seriously considered.</p> | <p><i>Description:</i></p> <p>The project start date is 2009-02-23 (date of issue of purchase order) which is after 2008-08--02.</p> <p><i>Justification of evidences:</i></p> <p>However, there is no information provided about intimation of PP to Indian DNA nor UNFCCC.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR B4 is raised.</p> | <p>/PDD/<br/>/PO/<br/>/unfccc/</p> | CAR<br>B4       | OK              |
| <p>B.4.2.3. In case the project start date is before commencing of validation and 2<sup>nd</sup> August 2008, was the incentive from the CDM seriously considered and are details given in the PDD?</p> <p>(EB 55 Annex 1, §§ 100, 102)<br/>Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</p>   | <p>The project start date is after 2<sup>nd</sup> August 2008. Hence not applicable.</p>   | /PDD/                              | OK              | OK              |
| <p>B.4.2.4. How and when was the decision to proceed with the project taken?</p> <p>Describe the steps taken to validate the starting date.</p>   | <p><i>Description:</i></p> <p>The decision was taken by the Board of Directors to implement the proposed project and seek CDM status on 2007-03-14, as referred in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>Minutes of Board meeting of the company as referred in the PDD has not been submitted</p>                     | /PDD/                              | <del>CLB9</del> | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.           | Draft<br>Concl.  | Final<br>Concl. |
|---|---|----------------|------------------|-----------------|
|   | <i>Conclusion:</i><br>Hence, CL B9 is already raised in this regard.  |                |                  |                 |
| B.4.2.5. Is the project start date consistent with the available evidences?<br>(EB 55 Annex 1, § 102)<br><i>Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i> | <i>Description:</i><br>The project starting date 2009-02-23 is considered in the PDD.<br><i>Justification of evidences:</i><br>The start date evidence document is verified and found to be appropriate.<br><i>Conclusion:</i><br>Project start date is consistent with available evidences. Project complies with the requirement. | /PDD/<br>/PO/  | OK               | OK              |
| B.4.2.6. Was the decision to proceed with the project taken by a person which has the authority to do so?<br>(EB 55 Annex 1, § 102(a))<br><i>Describe the steps taken to validate this issue.</i>   | This is not applicable as the start date is after 2008-08-02.<br>However, CL B9 is already raised in this regard.   | /PDD/          | <del>CL B9</del> | OK              |
| B.4.2.7. How was the CDM involved in the decision making process?<br>(EB 55 Annex 1, § 102)<br><i>Describe why CDM was a decisive factor in the decision making process.</i>  | This is not applicable as the start date is after 2008-08-02.<br>However, CL B9 is already raised in this regard.   | /PDD/          | <del>CL B9</del> | OK              |
| B.4.2.8. Do the evidences provided doubtlessly prove that continuous and real actions   | This is not applicable as the start date is after 2008-08-02.<br>However, CL B9 is already raised in this regard.   | /PDD/<br>/DPR/ | <del>CL B9</del> | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.           | Draft<br>Concl.  | Final<br>Concl. |
|---|--|----------------|------------------|-----------------|
| were taken in order to secure the CDM status?<br>(EB 55 Annex 1, § 102; EB 6249 Annex 1322 § 7)   |  |                |                  |                 |
| B.4.2.9. Is the gap of documented evidences to secure the CDM status less than 3 years and are the evidences relevant for substantiating the action taken, credible, reliable and complete?<br>(EB 6249 Annex 1322 § 8)   | This is not applicable as the start date is after 2008-08-02.<br>However, CL B9 is already raised in this regard.  | /PDD/<br>/DPR/ | <del>CL B9</del> | OK              |
| B.4.2.10. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM?<br>(EB 62 Annex 5, § 7)<br><i>Describe the reasons for ceasing the project and explain why the incentive from CDM was necessary to recommence the implementation.</i> | Not applicable to this project activity. The Project activity is still under implementation and the investment decision in the first instance itself is taken only after the CDM consideration.  | /PO/<br>/PDD/  | <del>CL B9</del> | OK              |
| B.4.2.11. Can the CDM involvement in the decision assessed as serious?<br>(EB 55 Annex 1, § 104(b)–(c))<br><i>Describe whether or not the project would have been undertaken without the incentive of the CDM.</i>  | <i>Description:</i><br>As indicated in the PDD, project activity provided explanation that the same is not feasible and cannot be undertaken without the incentive from CDM. The same is also referred as being considered in the board decision.<br><i>Justification of evidences:</i><br>However, the Board of directors minutes of meeting is not provided for validation and hence, CDM involvement in decision could not be | /PDD/          | <del>CL B9</del> | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences) | Ref.              | Draft<br>Concl. | Final<br>Concl. |
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|   | assessed.<br><i>Conclusion:</i><br>Hence, CL B9 is raised.  |                   |                 |                 |
| <b>B.4.3. Identification of alternatives Step 1</b><br>(in case of SSC projects pl. skip steps 1 and 2 if appropriate)  |   |                   |                 |                 |
| B.4.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?<br><br>(EB 55 Annex 1, §§ 105–107)<br><i>Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.</i> | Not applicable as it is a SSC project   | /PDD/<br>/AMS ID/ | OK              | OK              |
| B.4.3.2. Have all realistic alternatives been identified to the project?<br><br>(EB 55 Annex 1, §§ 105–107)<br><i>Describe whether the list of alternatives is credible and complete. Describe how it is validated that the alternatives are realistic.</i>   | Not applicable as it is a SSC project   | /PDD/<br>/AMS ID/ | OK              | OK              |
| B.4.3.3. Do all identified alternatives comply with enforced legislations?<br><br>(EB 55 Annex 1, §§ 106(c))  | Not applicable as it is a SSC project   | /PDD/<br>/AMS ID/ | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                             | Draft<br>Concl.  | Final<br>Concl. |
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| <i>Describe the steps taken to validate this issue. Refer to the legislations.</i>  |  |                                  |  |                 |
| <b>B.4.4. Investment analysis Step 2</b><br><i>In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide additional details of the calculation parameters..</i> |  |                                  |  |                 |
| <b>B.4.4.1.</b> Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasible without the revenues from the sale of CERs?<br>(EB 55 Annex 1, § 108)              | <i>Description:</i><br>The project activity is the installation of hydro turbine generators to generate power and supply to grid. Under section B.5 it is clearly evidenced that the project is not the most financial attractive one without the benefits from the sales of CERs.<br><i>Justification of evidences:</i><br>Investment analysis based on project IRR is used to prove the additionality.<br><i>Conclusion:</i><br>Based on the PDD review, it is understood that the project is not financially viable without the CER revenue. However, detailed financial spread sheet analysis is not submitted for validation.<br>Hence, CAR B2, CAR B3, CAR B5, CAR B6, CAR B8 and CL B9 are raised in this regard. | /PDD/<br>/EB 50-A15/<br>/AMS ID/ | CAR<br>B2<br>CAR<br>B3<br>CAR<br>B5<br>CAR<br>B6<br>CAR<br>B8<br>CL B9 | OK              |
| <b>B.4.4.2.</b> Is an appropriate analysis method chosen for the project (simple cost analysis,   | <i>Description:</i><br>The PP has taken the WACC analysis to prove the additionality of  | /PDD/                            | CAR<br>B2  | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                      | Draft<br>Concl.   | Final<br>Concl. |
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| investment comparison analysis or benchmark analysis)?<br>(EB 55 Annex 1, § 108; EB 39 Annex 10)<br><i>Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.</i> | the project activity and compared with Project IRR, which is appropriate.<br><i>Justification of evidences:</i><br>The baseline is continuation of grid supply on which no investment needs to be made and on which the PP has no control and hence benchmark analysis is considered appropriate.<br><i>Conclusion:</i><br>It is concluded that the benchmark analysis method is the appropriate method to prove that the project additionality in such cases. It is verified and found to be valid.<br>However , CAR B2, CAR B3, CAR B5, CAR B6, CAR B8 and CL B9 are already raised in this regard. |                           | CAR<br>B3<br><br>CAR<br>B5<br><br>CAR<br>B6<br><br>CAR<br>B8<br>CL B9 |                 |
| B.4.4.3. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation?<br>(EB 55 Annex 1, § 110; EB 51, Annex 58, §8)<br><i>Describe the steps taken to validate this issue.</i>   | <input type="checkbox"/> Yes, a clear, viewable and unprotected Excel spreadsheet is available.<br><input checked="" type="checkbox"/> No, a respective Excel spreadsheet needs to be made available for investment calculation.<br><br>In this context the following additional findings have been identified:<br>Hence, CAR B3 is raised.   | /PDD/                     | CAR<br>B3   | OK              |
| B.4.4.4. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity's assets at the end of the investment analysis period (as a cash inflow) included?            | <i>Description:</i><br>The technical lifetime of the Hydro power plant is considered as 30 years as per the Detailed project report.<br><i>Justification of evidences:</i><br>The period chosen for investment analysis is 20 years. Hence, the fair value of the project activity assets is added back at the end of project life time   | /DPR/<br>/PDD/<br>/hperc/ | CAR<br>B5<br>CL B9<br>CAR<br>C4                                       | OK              |



| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.  | Draft<br>Concl.                                  | Final<br>Concl. |
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| (EB 55 Annex 1, § 109; EB 62 Annex 5, § 3 – 4)<br><i>Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.</i>  | <i>Conclusion:</i><br>However, CAR B5, CL B9 and CAR C1 are raised in this regard.  |       |  |                 |
| B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the <i>Tool to determine the remaining lifetime of equipment?</i><br>(EB 50 Annex 15)   | The project is a new initiative by PP and hence, not applicable   | /PDD/ | OK   | OK              |
| B.4.4.6. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice?<br>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 4)<br><i>State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.</i> | <i>Description:</i><br>The PP has not provided the IRR spread sheet to cross check the same.<br><br><i>Justification of evidences:</i><br>PDD has been checked. However, no traceability of fair value calculations or details are available.<br><br><i>Conclusion:</i><br>Hence, CAR B3, CAR B5, CAR B6 and CAR B7 have been raised in this regard | /PDD/ | CAR<br>B3<br>CAR<br>B5<br>CAR<br>B6<br>CAR<br>B7 | OK              |
| B.4.4.7. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?  | <i>Description:</i><br>The PP has not provided the IRR spread sheet to cross check the same.  | /PDD/ | CAR<br>B3<br>CAR                                 | OK              |

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| (EB 55 Annex 1, § 109; EB 62 Annex 5, § 4)   | <p><i>Justification of evidences:</i></p> <p>PDD has been checked. However, no traceability of fair value calculations or details are available.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR B3, CAR B5, CAR B6 and CAR B7 have been raised in this regard</p>  |                           | <p>B5</p> <p>CAR B6</p> <p>CAR B7</p>                   |                 |
| <p>B.4.4.8. Are depreciation and other non-cash related items only considered in the tax calculation and not as cash outflow?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 5)</p>  | <p><i>Description:</i></p> <p>The PP has not provided the IRR spread sheet to cross check the same.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been checked. However, no traceability of depreciation or tax related calculations are found.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR B3, CAR B5, CAR B6 and CAR B7 have been raised in this regard</p>                          | /PDD/                     | <p>CAR B3</p> <p>CAR B5</p> <p>CAR B6</p> <p>CAR B7</p> | OK              |
| <p>B.4.4.9. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?</p> <p>(EB 55 Annex 1, § 109,112; EB 62 Annex 5, § 6)</p> <p><i>In case the basis for input values is a Feasibility Study Report (FSR) describe how it has been ensured that the period in time between the finalisation of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed. Further confirm the consistency of values in FSR and PDD.</i></p> | <p><i>Description:</i></p> <p>The PP has not provided the IRR spread sheet to cross check the same.</p> <p><i>Justification of evidences:</i></p> <p>PDD and DPR have been checked. Since the IRR spread sheet is not provided, the appropriate consideration of input values could not be traced.</p> <p><i>Conclusion:</i></p> <p>Hence, CAR B2, CAR B3, CAR B5, CAR B6, CAR B7, CAR B8 and</p> | <p>/PDD/</p> <p>/DPR/</p> | <p>CAR B2</p> <p>CAR B3</p> <p>CAR B5</p> <p>CAR B6</p> | OK              |

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|  | CL B9 have been raised in this regard  |                           | CAR<br>B7<br>CAR<br>B8<br>CL B9 |                 |
| B.4.4.10. Is the plant load factor (PLF) chosen in a conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER?<br>(EB 48, Annex 11) | <p><i>Description:</i></p> <p>The PLF considered by this project activity is based on the DPR submitted to Government of Himachal Pradesh for approval.</p> <p><i>Justification of evidences:</i></p> <p>PDD and the DPR submitted by the PP are verified. The PLF value considered is appropriate. However the calculation of net generation is not found to be appropriately considered.</p> <p><i>Conclusion:</i></p> <p>The PLF considered is based on the DPR prepared by third party. However, CAR A3, CAR B5, and CL B9 are raised in tis regard.</p> | /DPR/<br>/hperc/<br>/PLF/ | CAR<br>A3<br>CAR<br>B5<br>CL B9 | OK              |
| B.4.4.11. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR?<br>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 9)                            | <p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes, the costs of financing expenditures have been included.</p> <p><input type="checkbox"/> No, this requirement is not met.</p> <p>In this context the following additional findings have been identified:</p> <p>The PP has not provided the IRR spread sheet to cross check the same. Hence, CAR B3 is already raised.</p>   | /PDD/                     | CAR<br>B3                       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.  | Draft<br>Concl.        | Final<br>Concl. |
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| <p>B.4.4.12. In cases where a post-tax benchmark is applied please ensure that actual interest payable is taken into account in the calculation of income tax.</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 11)</p> <p><i>If this is not the case, ensure that taxation is excluded from the investment analysis.<br/>As per the guidance it is recommended to select a pre tax benchmark in order to describe the steps taken in assessing this requirement.</i></p> | <p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes, the interest has been taken into account.</p> <p><input type="checkbox"/> No, this requirement is not met.</p> <p>In this context the following additional findings have been identified:<br/>The PP has not provided the IRR spread sheet to cross check the same. Hence, CAR B3 is already raised.</p> | /PDD/ | CAR<br>B3              | OK              |
| <p>B.4.4.13. In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 10)</p>   | <p><input checked="" type="checkbox"/> N/A</p> <p><input type="checkbox"/> Yes, in- and outflows have been considered correctly.</p> <p><input type="checkbox"/> No, this requirement is not met.</p> <p>In this context the following additional findings have been identified:<br/>N/A</p>  | /PDD/ | OK                     | OK              |
| <p>B.4.4.14. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)?</p> <p>(EB 55 Annex 1, § 111; EB 62 Annex 5, §§12 – 185)</p> <p><i>In case risk premiums are applied precisely describe its suitability</i></p>   | <p><i>Description:</i></p> <p>The project benchmark has been determined using well known, WACC method, which takes into account cost of equity and debit and respective returns on the investment. The chosen WACC benchmark is most appropriate indicator for project IRR for comparison.</p> <p><i>Justification of evidences:</i></p>                                      | /PDD/ | CAR<br>B6<br>CAR<br>B7 | OK              |

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| <i>to reflect the risks associated with the project activity, considering the project type and market situation.</i>  | <p>Section B.5 of the PDD has been checked, which clearly provides the details of benchmark consideration, which is WACC in project case.</p> <p><i>Conclusion:</i><br/>The benchmark approach chosen is appropriate for the project activity as the financing pattern is debt and equity based.</p> <p>However, CAR B6 and CAR B7 are already raised.</p>  |                 |                        |                 |
| <p>B.4.4.15. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made at a rate of a lower return than the benchmark?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, §§13 – 185)<br/><i>Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.</i></p> | <p><i>Description:</i><br/>The benchmark taken for the project activity is 14.58% (during the webhosted PDD) and it is calculated based on the prevailing market situation at the time of investment decision using WACC method.</p> <p><i>Justification of evidences:</i><br/>Section B.5 of the PDD has been checked, which clearly provides the details of benchmark consideration, which is WACC in project case.</p> <p><i>Conclusion:</i><br/>However, CAR B2,CAR B3, CAR B5 and CAR B6 are already raised.</p> | /PDD/<br>/RBI/  | CAR<br>B6<br>CAR<br>B7 | OK              |
| <p>B.4.4.16. Is it ensured that the project cannot be developed by other developers than the PP?</p> <p>(EB 55 Annex 1 § 109; EB 62 Annex 5, §§ 13 – 14)<br/><i>Describe why the benchmark does not include the subjective profitability expectations or risk profile of the project developer. If</i></p>  | <p><i>Description:</i><br/>Since it is a green field project, it can be developed by other developers also. In compliance with Guidance 13 of EB 62 Annex 5, and as the project can be developed by any entity, the benchmark chosen is the WACC, which is calculated based publicly available data.</p>  | /PDD/<br>/IM01/ | OK                     | OK              |

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| <i>applicable assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.</i>  | <p><i>Justification of evidences:</i></p> <p>Project features in the PDD have been checked and interviews carried out with PP.</p> <p><i>Conclusion:</i></p> <p>Since the benchmark chosen by the PP is derived based on publicly available and govt. authorized information, the project adheres to guidance 13 EB 62 Annex 5.</p>   |                   |                 |                 |
| <p>B.4.4.17. Was the benchmark consistently used in the past for similar projects with similar risks?</p> <p>(EB 55 Annex 1, § 112(c))</p>  | <p><i>Description:</i></p> <p>Not applicable as internal benchmark has not been used. The benchmark chosen for the project is the WACC estimated based on the information available at the time of investment decision.</p> <p><i>Justification of evidences:</i></p> <p>The benchmark has been derived based on WACC approach based on values the time of the project investment decision.</p> <p><i>Conclusion:</i></p> <p>Since internal benchmark has not been used, the question does not arise.</p> | /IM01/<br>/PDD/   | OK              | OK              |
| <p>B.4.4.18. Does the PDD and related spreadsheets contain a sensitivity analysis and does the same contain variation of parameters which may vary throughout the project lifetime,</p> <p>(EB 55 Annex 1, §§ 109–110(e); EB 62 Annex 5, § 2017–2118)</p> <p><i>Describe relevance of parameters used in the sensitivity analysis</i></p> | <p><i>Description:</i></p> <p>Sensitivity analysis has been presented in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>Sensitivity analysis details provided in the PDD have been checked. However, IRR spread sheets are not provided for validation.</p> <p><i>Conclusion:</i></p>  | /PDD/<br>/unfccc/ | CAR<br>B3       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.  | Draft<br>Concl. | Final<br>Concl. |
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| <i>as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.</i>   | In this regard, CAR B3 has been raised.   |       |                 |                 |
| B.4.4.19. Were only variables that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation?<br>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 2047)   | <p><i>Description:</i><br/>The variables that constitute more than 20% of either project cost or total project revenue are not subjected to reasonable variation. Only generation, electro mechanical works, plant civil works are considered in the sensitivity analysis.</p> <p><i>Justification of evidences:</i><br/>Sensitivity analysis provided in the PDD has been verified and found that the analysis incomplete. Also, IRR sheets are not submitted for validation.</p> <p><i>Conclusion:</i><br/>Based on the sensitivity analysis provided in the PDD, CAR B3 has been raised.</p> | /PDD/ | CAR<br>B3       | OK              |
| B.4.4.20. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter?<br>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 2047)<br><i>Describe whether those parameters are considered in the sensitivity analysis?</i> | <p><i>Description:</i><br/>The variables that constitute less than 20% of either project cost or revenues are not subjected to reasonable variation. Only generation, electro mechanical works, plant civil works are considered in the sensitivity analysis.</p> <p><i>Justification of evidences:</i><br/>Sensitivity analysis provided in the PDD has been verified and found that the analysis incomplete. . Also, IRR sheets are not submitted for validation.</p> <p><i>Conclusion:</i><br/>Based on the sensitivity analysis provided in the PDD, CAR B3</p>                             | /PDD/ | CAR<br>B3       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                      | Draft<br>Concl. | Final<br>Concl. |
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|  | has been raised.  |                           |                 |                 |
| <p>B.4.4.21. Is the range of variation reasonable in the specific context of the project activity, taking into consideration historic trends in the business sector?</p> <p>(EB 55 Annex 1, § 109; EB 62 Annex 5, § 2148)</p> <p><i>Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.</i></p>   | <p><i>Description:</i></p> <p>Considering the historic trends &amp; publically available resource the variability in parameters, <math>\pm 10\%</math> variation considered for the critical parameters is appropriate for the business sector.</p> <p><i>Justification of evidences:</i></p> <p>By DOE experience and historic trend of the parameters it is conformed the considering the variation of <math>\pm 10\%</math> is adequate.</p> <p><i>Conclusion:</i></p> <p>Range of variation considered is reasonable for the project activity considering the historic trends.</p>  | /PDD/                     | OK              | OK              |
| <b>B.4.5. Barrier analysis Step 3 or SSC additionality assessment</b>  |   |                           |                 |                 |
| <p>B.4.5.1. Are there any barriers given which have a clear and direct impact on the financial returns of the project?</p> <p>(EB 55 Annex 1, §§ 115, 134, 137)</p> <p><i>In case of LSC projects those issues cannot be considered as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 62 Annex 5.</i></p> | <p><i>Description:</i></p> <p>The additionality arguments under section B.5 of the PDD are in line with Attachment A of Appendix B of simplified Modalities and procedures. The investment barrier has been provided, which was assessed in the above sections. In addition, other barriers, such as, Geological risk and Lack of infrastructure have been applied. However, substantiating evidences to demonstrate the barriers are not provided for validation.</p> <p><i>Justification of evidences:</i></p> <p>Section B.5 of the PDD provides the other barriers, however, substantiating evidences for the other barriers are missing.</p> <p><i>Conclusion:</i></p> | <p>/PDD/<br/>/AMS ID/</p> | CAR<br>B8       | OK              |



| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.  | Draft<br>Concl. | Final<br>Concl. |
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|   | Since, the other barriers are provided, but, substantiating evidences for the same are missing, CAR B8 has been raised in this regard.  |       |                 |                 |
| <p>B.4.5.2. Are the barriers described risk related (e.g technology failure, other performance related risks)?</p> <p>(EB 55 Annex 1, §§ 116, 134, 137)</p> <p><i>Are there other barriers or barriers due to prevailing practice existent which would have led to higher emissions?</i></p>      | <p><i>Description:</i></p> <p>Other barriers such as, geological risk and lack of infrastructure are provided in the PDD, other than barriers described in the above section.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been reviewed and found other barriers related to risk are provided.</p> <p><i>conclusion:</i></p> <p>However, substantiating evidences are missing, CAR B8 is already raised in this regard.</p>  | /PDD/ | CAR<br>B8       | OK              |
| <p>B.4.5.3. Has the unavailability of means of finance for the project been described and adequately substantiated? Do evidences doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM?</p> <p>(EB 55 Annex 1, §§ 116, 137, EB 50 Annex 13, § 9)</p> | <p><i>Description:</i></p> <p>Other barriers such as, geological risk and lack of infrastructure are provided in the PDD, other than barriers described in the above section. No such barrier, as unavailability of means of finance for the project has been described.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been reviewed and found that no such barriers related to means of finance are provided.</p> <p><i>conclusion:</i></p> <p>Since no such barrier is considered, this section is not applicable.</p> | /PDD/ | OK              | OK              |
| B.4.5.4. How is it justified and evidenced that the   | <i>Description:</i> The PP has not submitted evidences for the barriers   | /PDD/ | CAR             | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.  | Draft<br>Concl.      | Final<br>Concl. |
|---|---|-------|----------------------|-----------------|
| barriers given in the PDD are real?<br>(EB 55 Annex 1, § 116(a))  | provided in the PDD. However, the assessment on the investment barrier has been provided in section B4.4.1 to B4.4.20 above<br><br><i>Justification of evidences:</i><br><br>PDD submitted for validation has been reviewed, however, justification and substantiating evidences are missing for other barriers provided.<br><br><i>Conclusion:</i><br><br>Reality of investment barrier given in PDD depends upon the closure of CARs & CLs raised in the section B4.4.1 to B4.4.20 and substantiating evidences that are missing for Other barriers.<br><br>In this regard, CAR B8 has been raised. |       | B8                   |                 |
| B.4.5.5. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives?<br>(EB 55 Annex 1, § 116(b)) | <i>Description:</i><br><br>The PP has not submitted evidences for the barriers provided in the PDD.<br><br><i>Justification of evidences:</i><br><br>PDD submitted for validation has been reviewed;however, justification and substantiating evidences are missing.<br><br><i>Conclusion:</i><br><br>The prevention of implementation of other alternatives depend upon the substantiating evidences that are missing to be submitted for demonstrating the barriers.<br><br>In this regard, CAR B8 has been raised.   | /PDD/ | <del>CAR</del><br>B8 | OK              |
| B.4.5.6. Does the review of relevant background information on the nature of the  | PDD has been reviewed and found that no such barriers related to lack of access to capital, technologies and skilled labour are provided. Hence, this section is not applicable.  | /PDD/ | OK                   | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.  | Draft<br>Concl. | Final<br>Concl. |
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| company(ies) and entity(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real?<br>(EB 50 Annex 13, § 4)   |  |       |                 |                 |
| B.4.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers?<br>(EB 50 Annex 13, § 5)  | <p><i>Description:</i></p> <p>The PP has not submitted evidences for the barriers provided in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>PDD submitted for validation has been reviewed and found that substantiating evidences are missing.</p> <p><i>Conclusion:</i></p> <p>The prevention of implementation of other alternatives depend upon the substantiating evidences that are missing to be submitted for barriers.</p> <p>In this regard, CAR B8 has been raised.</p> | /PDD/ | CAR<br>B8       | OK              |
| B.4.5.8. Would provision of additional financial means lead to the mitigation of the barrier(s) demonstrated?<br>(EB 50 Annex 13, § 7)<br><i>Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analysing the project's additionality within the framework of an investment analysis is inappropriate. .</i> | <p><i>Description:</i></p> <p>Section B.5 of the PDD has clearly mentioned about the project IRR and the impact of CDM revenues on the project. This provides information that the project will be financially attractive and alleviate the barriers through availing CDM benefits.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been verified and found that PDD provides information that the project would be financially unattractive without CDM revenues.</p>                | /PDD/ | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.  | Draft<br>Concl. | Final<br>Concl. |
|---|--|-------|-----------------|-----------------|
|   | <p><i>Conclusion:</i></p> <p>PDD clearly provides the information and investment analysis that the project is not feasible in its own and requires CDM revenues in order make the same attractive. Project complies with the requirements.</p> |       |                 |                 |
| <b>B.4.6. Common practice analysis Step 4</b><br>(in case of SSC projects skip this step)   |  |       |                 |                 |
| <p>B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type?</p> <p>(EB 55 Annex 1, § 120(a))</p> <p><i>Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.</i></p> | Not applicable as it is a SSC project  | /PDD/ | OK              | OK              |
| <p>B.4.6.2. To what extent similar projects have been undertaken in the relevant region?</p> <p>(EB 55 Annex 1, § 120(b))</p>   | Not applicable as it is a SSC project  | /PDD/ | OK              | OK              |
| <p>B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are</p>   | Not applicable as it is a SSC project  | /PDD/ | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                           | Draft<br>Concl. | Final<br>Concl. |
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| observed?<br>(EB 55 Annex 1, § 120(c))  |   |                                |                 |                 |
| <b>B.5. Ex-Ante Calculation of GHG Emission Reductions</b><br><br><i>It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.</i>  |   |                                |                 |                 |
| <b>B.5.1. Are the equations applied correctly according to the applied approved methodology?</b><br>(EB 55 Annex 1, §§ 67(c), 89–90, 92)<br><i>Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.</i> | <input checked="" type="checkbox"/> The equations applied for calculation are correctly applied according to the approved methodology.<br><input type="checkbox"/> The following mistakes have been identified in this context:<br><br><i>Description:</i><br>The methodology applied for the project activity is AMS.I.D, version 15. For Ex-ante calculation of GHG emission reduction all the values are applied as per the methodology.<br><br><i>Justification of evidences:</i><br>The evidences such as plant load factor, emission factor of the NEWNE grid, CEA database, are taken into consideration to calculate baseline emissions. Since it is a hydro energy project activity, there are no project and leakage emissions considered for estimation of emission reduction.<br><br><i>Conclusion:</i> | /PDD/<br>/AMS<br>I.D/<br>/cea/ | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                                 | Draft<br>Concl.      | Final<br>Concl. |
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|   | It is concluded that the all the parameters taken for baseline calculation can be replicated using the data and parameter values provided in the PDD. It is verified in the PDD and emission reduction calculations are appropriate.  |                                      |                      |                 |
| <p>B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)?</p> <p>(EB 55 Annex 1, §§ 90–91)</p> <p><i>Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.</i></p> | <p><i>Description:</i></p> <p>The methodology applied for the project activity is AMS I.D. All equation has been referred from methodology</p> <p><i>Justification of evidences:</i></p> <p>The validation team has checked methodology, central electricity authority website and PDD for emission reduction calculation and monitoring parameters of the project activity.</p> <p><i>Conclusion:</i></p> <p>Since it is a hydro project activity all the baseline and monitoring parameters equations are explained and found to be appropriate.</p>  | <p>/AMS ID/<br/>/cea/</p>            | OK                   | OK              |
| <p>B.5.3. Have conservative assumptions been used when calculating the project emissions?</p> <p>(EB 55 Annex 1, §§ 90–91)</p> <p><i>Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.</i></p>   | <p><i>Description:</i></p> <p>Since it is a hydro power project activity, there are no ex-ante project and leakage emissions are considered.</p> <p><i>Justification of evidences:</i></p> <p>By means of on-site observation and checking the PDD and AMS I.D, no project emission sources are observed. Though the project has energy import during shutdown or other situations, the energy import is deducted from the total export in order to arrive at net energy export. Hence, no separate emissions are attributable due to usage of import of electricity to the project activity. However, possibility of DG set usage during project operation cannot be</p> | <p>/PDD/<br/>/AMS I.D/<br/>/cea/</p> | <del>CL</del><br>B11 | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                                | Draft<br>Concl.          | Final<br>Concl. |
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|  | <p>excluded. However, PDD has not addressed the same.</p> <p><i>Conclusion:</i></p> <p>It is concluded that implementation of project activity would not lead to GHG emissions. However, during the operation, project is likely to use DG sets in case of shutdowns and same is not addressed in the PDD. Hence, CL B11 is raised in this regard.</p>   |                                     |                          |                 |
| <p>B.5.4. Does the implementation of the project activity lead to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology?</p> <p>(EB 55 Annex 1, § 77)</p> | <p><i>Description:</i></p> <p>The project activity comprises of generation of power by using renewable resources and exporting it to a carbon intensive regional grid. As the project is hydro based energy generation no project emissions applicable.</p> <p><i>Justification of evidences:</i></p> <p>By means of on-site observation and checking the PDD and AMS I.D, no emission sources are observed. However, possibility of DG set usage during project operation cannot be excluded. However, PDD has not addressed the same.</p> <p><i>Conclusion:</i></p> <p>It is concluded that implementation of project activity would not lead to GHG emissions. However, during the operation, project is likely to use DG sets in case of shutdowns and same is not addressed in the PDD. Hence, CL B11 is raised in this regard.</p> | <p>/AMS ID/<br/>/cea/<br/>/PDD/</p> | <p><del>CL B11</del></p> | OK              |
| <p>B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions?</p>   | <p><i>Description:</i></p> <p>The PLF has been taken ex-ante based on the estimation provided in the DPR, which is based on third party report.</p>  | <p>/PDD /<br/>/IM01/<br/>/DPR/</p>  | <p><del>CL B9</del></p>  | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                                     | Draft<br>Concl.   | Final<br>Concl. |
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| <p>(EB 48 Annex 11, §§ 1, 3–4)</p> <p><i>Describe why the PLF is conservative in the framework of calculating emissions reductions and whether the PLF is the same in the framework of demonstrating additionality by applying the investment analysis. Note, in order to be conservative in both cases the PLF may be different.</i></p>  | <p><i>Justification of evidences:</i></p> <p>PDD has been checked and found that the PLF and corresponding generation have been appropriately considered.</p> <p><i>Conclusion:</i></p> <p>Consideration of PLF from approved DPR is found to be appropriate. However, the conformity of the PLF assumed to Annex 11, EB 48 is not clear.. Hence, CL B9 is already raised in this context.</p>  |  |                   |                 |
| <p>B.5.5. Are all data sources and assumptions appropriate and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions?</p> <p>(EB 55 Annex 1, § 91)</p> <p><i>Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.</i></p> | <p><i>Description:</i></p> <p>The most important parameter which remains fixed throughout the crediting period and has a huge influence on ER calculations is the grid emission factor. This value has been sourced from the published values of Central Electricity Authority, CDM CO<sub>2</sub> database, Version 5. This was the most recent official data that was available at the time of preparation of the first version of PDD which was web hosted.</p> <p><i>Justification of evidences:</i></p> <p>The PDD and emission factor of the NEWNE grid under CEA database have been checked.</p> <p><i>Conclusion:</i></p> <p>Since the emission factor, which is the key parameters of the project, is constant over the crediting period and is considered from the publicly available data source, which is CEA, the same is found to be appropriate.</p> | <p>/PDD/<br/>/AMS<br/>I.D/<br/>/cea/</p> | OK                | OK              |
| <p>B.5.6. Are all ex-ante calculation values for monitoring parameters (as defined as per</p>  | <p><input type="checkbox"/> All "Values of data to be applied for the purpose of calculating expected emissions reductions" are</p>   | /PDD/                                    | <del>CL B11</del> | OK              |



| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.  | Draft<br>Concl.      | Final<br>Concl. |
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| chapter B.7.1) reasonable?<br>(EB 55 Annex 1, § 91)<br><i>Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity</i> | considered to be reasonable, applicable and conservative.<br><input checked="" type="checkbox"/> The following mistakes have been identified in this context:<br><br>However, there is no clear details provided about the project emissions. Hence, CL B11 is raised.   |       |                      |                 |
| B.5.7. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.<br><i>Describe the steps taken to validate this issue.</i>  | <i>Description:</i><br>The project activity generates power from a renewable resource (hydro) and supplies it to carbon intensive grid. The project being a hydro project the emission reductions are real, measurable and contribute in mitigating climate change.<br><i>Justification of evidences:</i><br>Based on the submitted PDD and submitted documents, it is found that the emission reductions considered are appropriate.<br><i>Conclusion:</i><br>Thus, the emission reductions associated with such renewable power generation are real, measurable and give long term benefits related to mitigation of climate change<br>However, CL B10 is already raised in this regard. | /PDD/ | <del>CL</del><br>B10 | OK              |
| <b>B.6. Monitoring of Emission Reductions</b><br><i>It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.</i>   |  |       |                      |                 |
| B.6.1. Are all monitoring parameters required by the   | <i>Description:</i>  | /PDD/ | OK                   | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.            | Draft<br>Concl. | Final<br>Concl. |
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| <p>applied methodology contained in the monitoring plan?</p> <p>(EB 55 Annex 1, §§ 67(e), 121, 123(a), 124)</p> <p><i>Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.</i></p> <p><i>Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.</i></p> <p><i>In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.</i></p> | <p>The monitoring of proposed project activity will be done as per approved small scale methodology AMS- I.D. (Version- 15). As per paragraph 17 of the approved methodology "Monitoring shall consist of metering the net electricity supplied by the project activity to the grid. Measurement results shall be cross-checked with records for sold electricity. The only monitoring parameter included under monitoring plan is net electricity supplied by the project activity which is in line with monitoring plan as per the applied methodology.</p> <p><i>Justification of evidences:</i></p> <p>AMS I.D has been checked against the PDD and found that the parameter net electricity exported to grid as required by the methodology is considered appropriately.</p> <p><i>Conclusion:</i></p> <p>All the applicable parameters as per the methodology are included in the monitoring plan and hence, project complies with the requirement.</p> | /AMS<br>I.D/    |                 |                 |
| <p>B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology?</p> <p>(EB 55 Annex 1, § 123(a)–(b), 124)</p> <p><i>Assess whether the provided information for all parameters w.r.t.</i></p> <p>a) <i>Label (name of the data / parameter)</i></p> <p>b) <i>data unit</i></p>  | <p><i>Description:</i></p> <p>The energy meters installed in the project measure both import and export quantum of electricity. The table under section B.7.1 of the PDD is not complete with information as required for monitoring the net electricity supplied to the grid and thus meeting the requirements of the methodology.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been checked. During the site visit the validation team verified the actual monitoring plan at the project site.</p>   | /PDD/<br>/IM01/ | CL<br>B10       | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.            | Draft<br>Concl.                 | Final<br>Concl. |
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| c) <i>description</i><br>d) <i>source of data</i><br>e) <i>measurement equipment / method / procedure</i><br>f) <i>monitoring frequency</i><br>g) <i>QA/QC procedures</i><br><i>are appropriately described and in compliance with the requirements of the methodology..</i>   | <i>Conclusion:</i><br>However, it is found that the description and details of monitoring equipment and procedure are not provided appropriately. In this regard, CL B10 is raised.  |                 |                                 |                 |
| B.6.3. Are all parameters presented as per international standards?<br>a) <i>Format: Standard format (e.g. 1,000 representing one thousand and 1.0 representing one).</i><br>b) <i>Units: Values shall be directly given in SI units – or additionally to original units transferred to SI.</i><br>c) <i>Short scale naming system: (Only) million = 10<sup>6</sup> and billion 10<sup>9</sup> shall be used.</i><br><i>Please refer to the International System of Units (SI) as published within Guidance 11/08.</i> | <input checked="" type="checkbox"/> Standard formats have been used<br><input checked="" type="checkbox"/> SI units were used – or added<br><input checked="" type="checkbox"/> The short scale naming is correct<br>In this context the following additional findings have been identified:<br>N/A  | /PDD/           | OK                              | OK              |
| B.6.4. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology?<br>(EB 55 Annex 1, §§ 123(b), 124)<br><i>Check whether all necessary equations have been provided</i>   | <i>Description:</i><br>Yes, the monitoring arrangements described in the monitoring plan are feasible with the project design. The parameter to be monitored is the net electricity supplied to the grid. However, the information provided in this regard is incomplete.<br><i>Justification of evidences:</i><br>PDD has been checked. During the site visit the validation team | /PDD/<br>/IM01/ | <del>CL</del><br><del>B10</del> | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.                    | Draft<br>Concl.   | Final<br>Concl. |
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| <p><i>in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.</i></p> <p><i>Please consider that additional equations might be necessary to calculate auxiliary parameters.</i></p>  | <p>verified the actual monitoring plan at the project site.</p> <p><i>Conclusion:</i></p> <p>It is concluded that the formula mentioned for emission reduction calculation are in line with the methodology.</p> <p>However, CL B10 is already raised in this regard.</p>   |                         |                   |                 |
| <p>B.6.5. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity?</p> <p>(EB 55 Annex 1, § 124(c))</p> <p><i>Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.</i></p> | <p><i>Description:</i></p> <p>Yes, the monitoring arrangements described in the monitoring plan are feasible with the project design. The parameter to be monitored is the net electricity supplied to the grid. However, the information provided in this regard is incomplete.</p> <p><i>Justification of evidences:</i></p> <p>PDD has been checked. During the site visit the validation team verified the actual monitoring plan at the project site.</p> <p><i>Conclusion:</i></p> <p>It is concluded that the monitoring arrangements described in the PDD are insufficient. Hence, CL B10 is already raised in this regard.</p> | <p>/PDD/<br/>/IM01/</p> | <p>CL<br/>B10</p> | <p>OK</p>       |
| <p>B.6.6. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activit can be reported ex-post and verified?</p> <p>(EB 55 Annex 1, § 124(b))</p> <p><i>Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and</i></p>                        | <p><i>Description:</i></p> <p>All measuring instruments are subject to calibration. However, no calibration frequency mentioned.</p> <p><i>Justification of evidences:</i></p> <p>By means of onsite validation and checking the PDD, it is found that calibration frequency is not clearly provided.</p> <p><i>Conclusion:</i></p>   | <p>/PDD/<br/>/IM01/</p> | <p>CL<br/>B10</p> | <p>OK</p>       |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.                    | Draft<br>Concl. | Final<br>Concl. |
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| <i>maintenance of equipment. Address further any review procedures.</i>   | It is concluded that the QA/QC procedures are not appropriately described and insufficient to ensure the emission reduction achieved by the project activity can be reported in a transparent manner. Hence, CL B10 is already raised.   |                         |                 |                 |
| <p>B.6.7. Are procedures identified for data management?</p> <p>(EB 55 Annex 1, § 124(b))</p> <p><i>Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation</i></p> <p><i>Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.</i></p> | <p><i>Description:</i></p> <p>The real time performance of the system is being monitored by the the PP. In the event of any discrepancies, corrective action will be taken up comparing readings from the various measuring and monitoring equipments.</p> <p>Provisions have been made for archiving and preservation of data for a period of 2 years beyond the crediting period.</p> <p><i>Justification of evidences:</i></p> <p>Section B.7.2 of the PDD has been checked and found that appropriate provisions for data management are provided.</p> <p><i>Conclusion:</i></p> <p>The data management is found to be appropriate and hence, project complies with the requirement.</p> | <p>/PDD/<br/>/IM01/</p> | OK              | OK              |
| <p><b>C. Duration of the Project/ Crediting Period</b></p> <p><i>It is assessed whether the temporary boundaries of the project are clearly defined.</i></p>  |  |                         |                 |                 |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.  | Draft<br>Concl. | Final<br>Concl. |
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| <p><del>C.1. Is the project's starting date clearly defined and evidenced?</del></p> <p><del>(EB 55 Annex 1, § 99)</del></p> <p><del>Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".</del></p>   | <p><i>Description:</i></p> <p><i>Justification of evidences:</i></p> <p><i>Conclusion:</i></p>   |       |                 |                 |
| <p>C.2. Is the project's operational lifetime clearly defined and evidenced?</p> <p>Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).</p> <p>Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.</p> | <p><i>Description:</i></p> <p>Operational lifetime of the project is 30 years. However, evidence for life time is missing.</p> <p><i>Justification of evidences:</i></p> <p>PDD submitted for validation has been reviewed.</p> <p><i>Conclusion:</i></p> <p>The investment calculation is considered for 20 years as per the guidance on assessment of investment analysis. However, life time evidence is missing.</p> <p>Hence, CL C1 is raised in this regard.</p> | /PDD/ | CL C1           | OK              |
| <p>C.3. Is the start of the crediting period clearly defined and reasonable?</p> <p>Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.</p>  | <p><i>Description:</i></p> <p>The crediting period start date applied is not considered reasonable.</p> <p><i>Justification of evidences:</i></p> <p>Version 01 of the PDD has been checked</p> <p><i>Conclusion:</i></p>  | /PDD/ | CL C1           | OK              |

| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.           | Draft<br>Concl. | Final<br>Concl. |
|--|---|----------------|-----------------|-----------------|
|  | Hence, CL C1 is raised in this regard   |                |                 |                 |
| <b>D. Environmental Impacts</b><br><i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.</i>  |   |                |                 |                 |
| D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)?<br>(EB 55 Annex 1, §§ 131–133)<br><i>Check the host party regulations, regarding EIA.</i>   | <p><i>Description:</i></p> <p>As per the Schedule 1 of the EIA notification 2006, issued by the Ministry of Environment and Forests under the Environment (Protection) Act 1986, small hydro projects activity do not fall under the list of activities requiring EIA.</p> <p><i>Justification of evidences:</i></p> <p>The link <a href="http://envfor.nic.in/legis/eia/so1533.pdf">http://envfor.nic.in/legis/eia/so1533.pdf</a> of the Minister of the Environment of India has been verified</p> <p><i>Conclusion:</i></p> <p>It is concluded that the host party, India does not stipulate EIA clearance for the setting up of the small hydro projects in India. It is verified from the above evidence and hence, project complies with the requirement.</p> | /PDD/<br>/EIA/ | OK              | OK              |
| D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved?<br>(EB 55 Annex 1, §§ 131–133)<br><i>Check the EIA and its approval, if applicable.</i> | <p><i>Description:</i></p> <p>As per the Schedule 1 of the EIA notification 2006, issued by the Ministry of Environment and Forests under the Environment (Protection) Act 1986, small hydro projects activity do not fall under the list of activities requiring EIA.</p> <p><i>Justification of evidences:</i></p>  | /PDD/<br>/EIA/ | OK              | OK              |

| Checklist Item<br>(incl. guidance for the validation team)  | Validation Team Comments<br>(justification and substantiation of information, data and evidences)  | Ref.           | Draft<br>Concl. | Final<br>Concl. |
|---|--|----------------|-----------------|-----------------|
|   | <p>The link <a href="http://envfor.nic.in/legis/eia/so1533.pdf">http://envfor.nic.in/legis/eia/so1533.pdf</a> of the Minister of the Environment of India has been verified</p> <p><i>Conclusion:</i></p> <p>It is concluded that the host party, India does not stipulate EIA clearance for the setting up of the small hydro projects in India. It is verified from the above evidence and hence, project complies with the requirement.</p>   |                |                 |                 |
| <p>D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation?</p> <p>(EB 55 Annex 1, §§ 130–132)</p> <p><i>Check the PDD (section D). Check whether the project will create any adverse environmental effects.</i></p> <p><i>Check the relevant national environmental legislation.</i></p> | <p><i>Description:</i></p> <p>As per MoEF guidelines, small hydro power project does not require EIA. The PDD of the project states clearly that there are no likely adverse impacts as a result of the implementation of the project activity.</p> <p><i>Justification of evidences:</i></p> <p>The following web link has been verified <a href="http://envfor.nic.in/legis/legis.html">http://envfor.nic.in/legis/legis.html</a> and assessment in PDD has been checked.</p> <p><i>Conclusion:</i></p> <p>As the small hydro project activity is not required to conduct any environmental impacts as per host country legislations, no dedicated assessment is carried out. However, the small hydro project activity is considered to have no adverse impacts on the environment. Hence, the project complies with the requirement.</p> | /PDD/<br>/EIA/ | OK              | OK              |
| <p>D.1.4. Are transboundary environmental impacts considered in the analysis?</p> <p>(EB 55 Annex 1, §§ 131–133)</p>  | <p><i>Description:</i></p> <p>As per MoEF guidelines, hydro power project does not require EIA. The PDD of the project states clearly that there are no likely adverse impacts as a result of the implementation of the project</p>  | /PDD/<br>/EIA/ | OK              | OK              |



| Checklist Item<br>(incl. guidance for the validation team)   | Validation Team Comments<br>(justification and substantiation of information, data and evidences)   | Ref.            | Draft<br>Concl. | Final<br>Concl. |
|--|---|-----------------|-----------------|-----------------|
| <i>Check the documents and local official sources / expertise regarding transboundary environmental impacts.</i>   | <p>activity.</p> <p><i>Justification of evidences:</i></p> <p>The following web link has been verified <a href="http://envfor.nic.in/legis/legis.html">http://envfor.nic.in/legis/legis.html</a> and assessment in PDD has been checked.</p> <p><i>Conclusion:</i></p> <p>As the small hydro project activity is not required to conduct any environmental impacts as per host country legislations, no dedicated assessment is carried out. However, the small hydro project activity is considered to have no adverse impacts on the environment.</p> <p>Hence, it is concluded that the project does not create any transboundary impacts and complies with the requirement.</p> |                 |                 |                 |
| <p><b>E. Stakeholder Comments</b></p> <p><i>The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i></p>   |   |                 |                 |                 |
| <p>E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD?</p> <p>(EB 55 Annex 1, § 128)</p> <p><i>Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.</i></p> | <p><i>Description:</i></p> <p>A local stakeholders meeting is reported to have been conducted on 2009-12-16 at project sites. Information about the proposed project has been given to the participants and their comments have been recorded.</p> <p><i>Justification of evidences:</i></p> <p>The documentary evidences such as stake holder invitation letter, minutes of the meeting are not submitted by the PP for validation.</p>  | /PDD/<br>/IM01/ | GL-E1           | OK              |

| <b>Checklist Item</b><br>(incl. guidance for the validation team)  | <b>Validation Team Comments</b><br>(justification and substantiation of information, data and evidences)  | <b>Ref.</b>             | <b>Draft<br/>Concl.</b> | <b>Final<br/>Concl.</b> |
|--|---|-------------------------|-------------------------|-------------------------|
|  | <p><i>Conclusion:</i></p> <p>The documents related to stake holder meeting conducted are missing. Hence, CL E1 is raised.</p>   |                         |                         |                         |
| <p>E.2. Can the local stakeholder consultation process be assessed as adequate?</p> <p>(EB 55 Annex 1, § 129(a)–(c))</p> <p><i>Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.</i></p> <p><i>Please consider the following requirements in this context:</i></p> <p><i>(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity, have been invited;</i></p> <p><i>(b) The summary of the comments received as provided in the PDD is complete;</i></p> <p><i>(c) The project participants have taken due account of any comments received and have described this process in the PDD.</i></p> | <p><i>Description:</i></p> <p>A local stakeholders meeting is reported to have been conducted on 2009-12-16 at project site appropriately. Information about the proposed project has been given to the participants and their comments have been recorded.</p> <p><i>Justification of evidences:</i></p> <p>The documentary evidences such as stake holder invitation letter, minutes of the meeting are not submitted by the PP for validation.</p> <p><i>Conclusion:</i></p> <p>The documents related to stake holder meeting conducted are missing. Hence, CL E1 is raised.</p> | <p>/PDD/<br/>/IM01/</p> | <p><del>CL E1</del></p> | <p>OK</p>               |

## ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

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

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

| Baseline Alternatives identified                               | Inline with the Methodology?        | Eliminated               | Reasons for elimination / non-elimination from list of alternatives   | Evidence used  | DOE Assessment                      |  |
|--|-------------------------------------|--------------------------|---|--|-------------------------------------|--|
|  |                                     |                          |   |  | Appropriateness of elimination      | Assessment of validation team (results and means of assessment)  |
| Electricity generation from power plants connected to the grid | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NEWNE Grid caters to the power supply requirements in the state. In the absence of the project activity the equivalent amount of electricity would have been generated by the operation of existing/proposed grid connected power plants that are predominantly GHG intensive Thermal power plants. | CEA CO <sub>2</sub> Baseline Database for Indian Power Sector, Version 5.0, <a href="http://www.cea.nic.in">www.cea.nic.in</a> | <input checked="" type="checkbox"/> | <p>Project activity is the installation of new grid connected Hydro project hence as per paragraph 10 of the approved methodology AMS I D, the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources.</p> <p>This is the most plausible alternative for the small scale hydro power projects as per AMS I.D, hence the baseline alternative/scenario considered for the project activity is appropriate.</p> |

### ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

**Table A-3:** Assessment of Financial Parameters (EB 55 Annex 1, §§ 111, 112, 114/ in case financial parameters stem from FSR §113,)

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |             |   |                                 |                                     |   |
|-------------------------------------|--|-------------|---|---------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |             |   |                                 |                                     |   |
| Parameter                           | Value applied  | Unit        | Source of Information (please indicate document and page)   | Reference                       | DOE ASSESSMENT                      |   |
|                                     |  |             |   |                                 | Correctness of value applied        | Comment   |
| Installed Capacity                  | 5  | MW          | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007, Electro-mechanical equipment supply contract                               | /DPR/<br>/Cle/<br>/CC/<br>/PPA/ | <input checked="" type="checkbox"/> | The installed capacity is evidenced by the Detailed Project Report (which was available at the time of decision making) and the Electro-mechanical Supply Contract issued subsequently. The project consists of two numbers of 2.5 MW Pelton Turbines. The provided data source for the project activity has been checked and the applied value was verified. The value is correct and appropriate for the project.   |
| Project Cost                        | 349.82   | million INR | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 and the Chartered Accountant Certificate on the total Project Cost incurred | /DPR/<br>/CAC/<br>/CAEX/        | <input checked="" type="checkbox"/> | The average project cost works out to Rs 69.96 million INR/MW. The project cost considered to demonstrate the additionality is based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which was the available data at the time of investment decision to the project participant and is in line with the guidance 6 of Annex 5, EB 62. The same has been cross checked with the Chartered Accountant Certificate on the total Project Cost incurred as per the requirements set forth by VVM paragraph 109. Consequently, it was found that the actual Project cost incurred is 58.9% higher than the project cost considered from the Detailed Project Report at the time of decision making. However, it has been demonstrated in the PDD under the investment analysis that even |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |      |   |                  |                                     |   |
|-------------------------------------|--|------|---|------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |      |   |                  |                                     |   |
| Parameter                           | Value applied  | Unit | Source of Information (please indicate document and page)                     | Reference        | DOE ASSESSMENT                      |   |
|                                     |  |      |   |                  | Correctness of value applied        | Comment   |
|                                     |  |      |   |                  |                                     | for a 10% reduction in project cost, the project IRR is still below the benchmark. In addition, it is also been checked that the project IRR crosses benchmark only when the cost of the project comes down by 18.6%. As the project purchase orders were already placed and project is commissioned, there is no possibility for any reduction in the cost of the project. In fact, the project cost increase observed unreasonably due to various difficulties faced during implementation. Taking into consideration all these factors and based on the local and sectoral expertise, the Validation Team concludes that the project cost is reliable, appropriate and conservative when compared to actual cost.<br>In addition, registered CDM project activities with reference numbers 4272, 2729 and 3598 have been checked, which are implementing Hydro Power Projects in the state of Himachal Pradesh and the project cost is found to be 71.92, 69.19 and 76 (2007 level) million INR/MW respectively. As referred above, the project cost considered is found to be lower than the other comparable projects. Hence, the project cost considered is appropriate and conservative. |
| Operation & Maintenance Cost        | 2.25% of the Project Cost  | %    | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/<br>/hperc/ | <input checked="" type="checkbox"/> | This value is based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. As per the DPR, the O&M cost for the first year after commissioning date is considered as 2.25% of the Project Cost with 5% escalation in every year. Hence, the applied value of O&M charges and respective escalation is considered appropriate and cross verified with the "HPERC Order  |
| Operation & Maintenance             | 5  | %    | Detailed Project Report Prepared by   | /DPR/<br>/hperc/ | <input checked="" type="checkbox"/> |   |

| <input type="checkbox"/>                         | No financial parameters are used for additionality justification |         |   |               |                                     |  |
|--|--|---------|---|---------------|-------------------------------------|--|
| <input checked="" type="checkbox"/>              | Assessment of all financial parameters see below                 |         |   |               |                                     |  |
| Parameter  | Value applied  | Unit    | Source of Information (please indicate document and page)                     | Reference     | DOE ASSESSMENT                      |  |
|  |  |         |   |               | Correctness of value applied        | Comment  |
| Escalation                                       |  |         | SaiEngineering Foundation, February 2007                                      |               |                                     | on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007". The value mentioned in both the documents is same and deemed acceptable.<br>In addition, registered CDM project activities with reference number 2729, 4272 and 1203 have been checked, which have implemented Hydro Power Projects in the state of Himachal Pradesh and the O&M costs considered are found to be 2.25% of Project Cost, 2.25% of the Project cost and 2.5% of the Project Cost respectively. The O&M considered by other comparable project is in the same range or higher than the project activity. Hence, the O&M cost used by the project activity is found to be reasonable and acceptable.<br>The escalation for O&M considered by the registered CDM project activities with reference number 2698, 1753, 1363 and 1203 have been checked and found to be considered as 5%. The escalation of 6% has been considered by the registered CDM project activities with reference number 862. Since, all the compared projects above are of Himachal Pradesh state only, the escalation considered is found to be appropriate and acceptable. |
| Gross Electricity Generation / Plant Load Factor | 24.810 / 56.644  | GWh / % | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/ /hperc/ | <input checked="" type="checkbox"/> | The PP has considered the Gross Electricity generation as 24.81 GWh (million kWh) based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. Correspondingly the Plant Load Factor works out to be 56.644%. As the Plant Load Factor is considered as "the plant load factor determined by a third party contracted by the project participants", the value is also in line with  |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |      |   |                  |                                     |   |
|-------------------------------------|--|------|---|------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |      |   |                  |                                     |   |
| Parameter                           | Value applied  | Unit | Source of Information (please indicate document and page)                     | Reference        | DOE ASSESSMENT                      |   |
|                                     |  |      |   |                  | Correctness of value applied        | Comment   |
|                                     |  |      |   |                  |                                     | the Annex 11, EB 48, "Guidelines for the Reporting and Validation of Plant Load Factors"<br>Also, the PLF values considered for the project activity is higher than PLF of 45% as considered in the "HPERC Order on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007"Hence, the PLF considered by the project proponent for investment analysis is conservative and deemed to be appropriate and also in line with EB 48 Annex 11 'Guidelines on plant load factor'. In addition, registered CDM project activities with reference numbers 4272, 2729 have been checked, which are implementing Hydro Power Projects in the state of Himachal Pradesh and the PLF is found to be 58%, 54.80% respectively. As referred above, the PLF considered is found to be comparable to the other registered and small scale registered projects in the region. Hence, the PLF considered is appropriate and conservative. Also, the validation team carried out assessment of the financials, which reveals that the project IRR crosses the benchmark only in case the PLF goes up by 22.9 %, which is highly unlikely scenario. Hence, the PLF value considered for the project activity is therefore appropriate, correct and conservative. |
| Auxiliary Power Consumption         | 0.5  | %    | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/<br>/hperc/ | <input checked="" type="checkbox"/> | The PP has considered Auxiliary Power Consumption as 0.5% based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision.<br>Also, the auxiliary power consumption considered for the project activity is of 0.5% which is same as the value considered in the  |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |      |   |                  |                                     |   |
|-------------------------------------|--|------|---|------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |      |   |                  |                                     |   |
| Parameter                           | Value applied  | Unit | Source of Information (please indicate document and page)                     | Reference        | DOE ASSESSMENT                      |   |
|                                     |  |      |   |                  | Correctness of value applied        | Comment   |
|                                     |  |      |   |                  |                                     | "HPERC Order on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007"Hence, the auxiliary power consumption considered by the project proponent for investment analysis is conservative and deemed to be appropriate. In addition, registered CDM project activities with reference numbers 3434, 2729 have been checked, which are implementing Hydro Power Projects in the state of Himachal Pradesh and the auxiliary power consumption is considered as 0.5%. As referred above, the auxiliary power consumption considered is found to be comparable to the other registered projects.   |
| Transformation losses               | 0.5  | %    | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/<br>/hperc/ | <input checked="" type="checkbox"/> | The PP has considered Transformation losses as 0.5% based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision.<br>Also, the transformation losses considered for the project activity is of 0.5% which is same as the value considered in the "HPERC Order on "SMALL HYDRO POWER PROJECTS TARIFF AND OTHER ISSUES dated 18/12/2007". Further the Power Purchase Agreement signed with HPSEB by the PP also indicates that the Transformation losses of 0.5% will be considered for calculating the Saleable Energy. Hence, the transformation losses considered by the project proponent for investment analysis is deemed to be appropriate. In addition, registered CDM project activities with reference numbers 3434, 2729 have been checked, which are implementing Hydro Power Projects in the state of Himachal |



| <input type="checkbox"/>            | No financial parameters are used for additionality justification |         |   |                |                                     |   |
|-------------------------------------|--|---------|---|----------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |         |   |                |                                     |   |
| Parameter                           | Value applied  | Unit    | Source of Information (please indicate document and page)                     | Reference      | DOE ASSESSMENT                      |   |
|                                     |  |         |   |                | Correctness of value applied        | Comment   |
|                                     |  |         |   |                |                                     | Pradesh and the transformation losses is considered as 0.5%. As referred above, the transformation losses considered is found to be comparable to the other registered projects.  |
| Transmission losses                 | 4.5  | %       | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/<br>/PPA/ | <input checked="" type="checkbox"/> | The PP has considered Transmission losses as 4.5% based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. Further the Power Purchase Agreement signed with HPSEB by the PP also indicates that the Transmission losses of 4.5% will be considered for calculating the Saleable Energy. Hence, the transmission losses considered by the project proponent for investment analysis is conservative and deemed to be appropriate. In addition, registered CDM project activities with reference numbers 3434, 2729 have been checked, which are implementing Hydro Power Projects in the state of Himachal Pradesh and the transmission losses is considered as 4% and 4.5% respectively. As referred above, the transmission losses considered is found to be comparable to the other registered projects. |
| Tariff                              | 2.50   | INR/kWh | Hydro Power Policy 2006   | /HPP/<br>/PPA/ | <input checked="" type="checkbox"/> | The tariff is derived from Hydro Power Policy 2006 <sup>12</sup> , which is 2.50 INR/kWh; As per VVM § 109 the validation team conducted a thorough assessment of the tariff and confirms its accuracy and validity of the tariff considered during the decision making context   |

<sup>12</sup><http://www.ireda.gov.in/Compendium/Data/HP/HP%20%20SHPup%20to%205%20MW-03.pdf>

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |       |   |            |                                     |  |
|-------------------------------------|--|-------|---|------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |       |   |            |                                     |  |
| Parameter                           | Value applied  | Unit  | Source of Information (please indicate document and page) | Reference  | DOE ASSESSMENT                      |  |
|                                     |  |       |   |            | Correctness of value applied        | Comment  |
|                                     |  |       |   |            |                                     | <p>of the project and is in line with the guidance 6 of Annex 5, EB 62. The PPA of the project has been checked, which further evidences the tariff availed by the project activity. However, for the project activity, the PPA signed is at a tariff of 2.95 INR/kWh. This increase in the tariff has occurred as a result of new tariff order (issued by HPERC) post the investment decision by the PP, but before the signing of PPAs, which was not envisaged by PP during investment decision. Nevertheless, the validation team has checked the project IRR for the actual scenario with 2.95 INR/kWh. The IRR in this scenario works out to 12.52% against the benchmark of 13.47%, hence, the same is found to be still below the benchmark. In addition to this, the sensitivity analysis of the project reveals that the project crosses benchmark only. In case the tariff is increased by 25.1%, which is very unlikely scenario, as the PPAs is signed for the project activity for period of 40 years and the tariff is fixed for a period of 40 years. Hence, the validation team concludes that the applied tariff is valid and appropriate.</p> <p>In addition, the tariff applied for the project is compared with the tariff of registered CDM projects with reference number 5175 and 3022 have been checked, which have implemented Hydro Power Projects in the state of Himachal Pradesh applied the tariff 2.50 INR/kWh respectively, which is same as the tariff applicable to the project activity. Hence, the tariff applied by project is acceptable.</p> |
| Period of the Financial Assessment  | 20   | Years | Guidelines on the Assessment of Investment Analysis       | /EB 62-A5/ | <input checked="" type="checkbox"/> | The period considered for Project IRR calculation is 20 years which is recommended as the maximum assessment period for the Project IRR calculation and the fair value of 10% of the project   |

| <input type="checkbox"/>                                   | No financial parameters are used for additionality justification |      |   |                 |                                     |  |
|--|--|------|---|-----------------|-------------------------------------|--|
| <input checked="" type="checkbox"/>                        | Assessment of all financial parameters see below                 |      |   |                 |                                     |  |
| Parameter  | Value applied  | Unit | Source of Information (please indicate document and page)                     | Reference       | DOE ASSESSMENT                      |  |
|  |  |      |   |                 | Correctness of value applied        | Comment  |
|  |  |      |   |                 |                                     | cost and the fair value of the land and the value of the working capital margin has been included at the end of assessment period in accordance with EB 62, Annex 5.   |
| General and Administrative Expenses                        | 0.5  | %    | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/<br>/CAEX/ | <input checked="" type="checkbox"/> | This value is based on the Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 which is available at the time of investment decision. As per the DPR, the General and Administrative Expenses for the first year after commissioning date is considered as 0.5% of the Project Cost with 5% escalation in every year. Hence, the applied value of General and Administrative Expenses and respective escalations considered appropriate. The same has been cross verified with the Certificate issued by the CA detailing the General and Administrative expenses incurred by the PP from April 2012 till October 2012 (7 months). The Certificate issued by CA provides the General and Administrative Expenses incurred as INR 2.86 million which is much higher than the value considered in the investment analysis. |
| Escalation on General & Administrative Expenses every year | 5  | %    | Detailed Project Report Prepared by Sai Engineering Foundation, February 2007 | /DPR/           | <input checked="" type="checkbox"/> | In addition, registered CDM project activities with reference number 5175 and 3022 have been checked, which have implemented Hydro Power Projects in the state of Himachal Pradesh and the Administrative Expenses considered are found to be INR 2 million (i.e. 0.78% of Project Cost) and INR 1.80 million (0.58% of the Project cost). The Administrative expenses considered by other comparable project are in the same range or higher than the project activity. Hence, the General and Administrative Expenses used by the project activity is found to be appropriate and acceptable.  |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |             |   |                          |                                     |  |
|-------------------------------------|--|-------------|---|--------------------------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |             |   |                          |                                     |  |
| Parameter                           | Value applied  | Unit        | Source of Information (please indicate document and page) | Reference                | DOE ASSESSMENT                      |  |
|                                     |  |             |   |                          | Correctness of value applied        | Comment  |
|                                     |  |             |   |                          |                                     | The escalation for Administrative Expenses considered by the registered CDM project activities with reference number 5175 and 3022 have been checked and found to be considered as 5%. Hence, escalation considered is also found to be appropriate and acceptable.  |
| Capital Subsidy                     | 41.25  | million INR | Hydro Power Policy 2006                                   | /HPP/<br>/CAC/<br>/MNRE/ | <input checked="" type="checkbox"/> | <p>The capital subsidy is considered as per the Hydro Power Policy 2006 which was available at the time of decision making. The capital subsidy is calculated as 45% of Project cost limited to 20 million INR for the 1st MW + 3 million INR per MW available at the time of decision making which works out to be 41.25 million INR. As the subsidy is sourced from the Publicly available document, the same is considered to be appropriate.</p> <p>The actual subsidy available to the project has been revised vide "Scheme for Financial Support to Set Up New SHP Projects upto 25 MW Capacity in the Private, Co-operative, Joint Sector Etc" issued by Ministry of New and Renewable Energy (MNRE) dated 11/2/2009. The actual subsidy available to the project activity is calculated as 20 million INR for the 1st MW + 3 million INR per MW for the additional MW which works out to be INR 32 million INR. The project activity is thus eligible to avail the Capital Subsidy of INR 32 million INR, which is actually about 9 million INR less than subsidy value considered during the investment decision. Hence, the value considered is quite conservative.</p> <p>However owing to the delay in the commissioning of the project activity, the capital subsidy actually available to the PP is only INR 28.80 million INR, which is further less than the potential that could</p> |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification    |      |   |           |                                     |   |
|-------------------------------------|---|------|---|-----------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                    |      |   |           |                                     |   |
| Parameter                           | Value applied   | Unit | Source of Information (please indicate document and page)     | Reference | DOE ASSESSMENT                      |   |
|                                     |   |      |   |           | Correctness of value applied        | Comment   |
|                                     |   |      |   |           |                                     | be availed. The same is also verified vide the CA Certificate on the total project cost (16 million INR has been granted so far). Thus the consideration of 41.25 million INR as capital subsidy is deemed conservative and appropriate considering the actual subsidy that can be availed by project is only 28.80 million INR.                                  |
| Income Depreciation Tax             | 15% for Electro Mechanical, Hydro Mechanical Works and Transmission | %    | Income tax department, India                                  | /IT-DP/   | <input checked="" type="checkbox"/> | Depreciation provided for computation of IT liability is based on the Income Tax Rules. The rate has been verified and found to be correct and appropriate for the project activity. Since, income tax department is the authority to publish all the depreciation rates for computation of tax payable in India, the same is considered appropriate and correct. |
|                                     | 10% for Plant Civil Works and Other Infrastructure Works            |      |   |           |                                     |   |
| Income Tax Rate                     | Normal Income tax – 30%   | %    | Indian Union Budget 2006-2007 for MAT and Indian Union Budget | /IT/      | <input checked="" type="checkbox"/> | The rate is based on the Income tax rate applicable to the financial year 07-08 as per the Indian Union Budget presented on February 28, 2007 which was before the decision making time. The tax rate   |

| <input type="checkbox"/>                                 | No financial parameters are used for additionality justification                   |      |   |            |                                     |   |
|--|--|------|---|------------|-------------------------------------|---|
| <input checked="" type="checkbox"/>                      | Assessment of all financial parameters see below                                   |      |   |            |                                     |   |
| Parameter  | Value applied  | Unit | Source of Information (please indicate document and page) | Reference  | DOE ASSESSMENT                      |   |
|  |  |      |   |            | Correctness of value applied        | Comment   |
|  | Minimum Alternate Tax – 10%  |      |   |            |                                     |   |
|  | Surcharge – 10%  |      |   |            |                                     |   |
|  | Education Cess – 2%  |      |   |            |                                     |   |
|  | Secondary and Higher Education Cess – 1%   |      |   |            |                                     |   |
| Book Depreciation Rate (Written Down Value Method basis) | 15.33 % for Electro Mechanical, Hydro Mechanical Works and Transmission<br>10% for | 8 %  | Company's Act, 1956 Schedule XIV                          | /Book-Dep/ | <input checked="" type="checkbox"/> | The book depreciation is considered based on Schedule XIV of the Company's Act 1956 available at the time of decision making. Since, the book depreciation values are considered from Company's Act, which is the authority to regulate/decide Book Depreciation rates for consideration in the books of accounts for the companies in India, the source of information is considered authentic and credible. Hence, the value considered is correct and appropriate. |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |      |   |   |                                     |  |
|-------------------------------------|--|------|---|---|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |      |   |   |                                     |  |
| Parameter                           | Value applied  | Unit | Source of Information (please indicate document and page)   | Reference                                   | DOE ASSESSMENT                      |  |
|                                     |  |      |   |   | Correctness of value applied        | Comment  |
|                                     | Plant Civil Works and Other Infrastructure Works                 |      |   |   |                                     |  |
| Interest Rate – PLR (Cost of Debt)  | 12.375   | %    | Weekly Statistical Supplement, March 03, 2007 Reserve Bank of India - <a href="http://www.rbi.org.in/scripts/WSSView.aspx?Id=10923">http://www.rbi.org.in/scripts/WSSView.aspx?Id=10923</a>   | /RBI/<br>/Loan/                             | <input checked="" type="checkbox"/> | The PLR at the time of investment decision (14/03/2007) is 12.25%-12.50% for the week ending 23 February 2007, published on 2007-03-09. The average value of the PLR range which is 12.375% is considered as interest rate for calculating the cost of debt. The interest rate of 12.50% is also considered from the Detailed Project Report which was available at the time of decision making. Since, the cost of debt is considered from RBI published data, which is the authority (India's central bank) to regulate the banking and investment sector in the host country, the source of information is considered authentic and credible. As per the loan disbursement statements the actual interest rate applicable to the project is 12.11%, which is comparable to the value considered for this project activity. Hence the prime lending rate value considered as interest rate for this project activity is appropriate. |
| Beta                                | 0.94   |      | <a href="http://beta.bseindia.com/indices/DisplIndex.aspx?iname=BSE100&amp;sensid=100&amp;type=SENS&amp;graphpath=/applet/images/graph_appBSE100.gif&amp;page">http://beta.bseindia.com/indices/DisplIndex.aspx?iname=BSE100&amp;sensid=100&amp;type=SENS&amp;graphpath=/applet/images/graph_appBSE100.gif&amp;page</a> | /BSE<br>100/<br>/BSE/<br>/Reports/<br>/IRR/ | <input checked="" type="checkbox"/> | Beta has been computed for all power generating companies listed and traded in the stock exchange and having a minimum track period of 5 years. There were in all 4 companies for the decision taken by PP vis-a-vis CESC Limited, Gujarat Industries Power Co. Ltd. (GIPCL), Tata Power Limited, Neyveli Lignite Corporation Limited.   |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |      |   |           |                                     |  |
|-------------------------------------|--|------|---|-----------|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |      |   |           |                                     |  |
| Parameter                           | Value applied  | Unit | Source of Information (please indicate document and page)   | Reference | DOE ASSESSMENT                      |  |
|                                     |  |      |   |           | Correctness of value applied        | Comment  |
|                                     |  |      | <a href="#">=5B6DA9E7-CD6D-48D3-880A-05D1E9E1AA56</a><br><br><a href="http://www.bseindia.com/markets/equity/EQReports/StockPrchHistori.aspx?flag=0&amp;expandable=6">http://www.bseindia.com/markets/equity/EQReports/StockPrchHistori.aspx?flag=0&amp;expandable=6</a><br><br>Annual Reports of CESC Limited, GIPCL, Neyveli Lignite Corporation, Tata Power Limited for calculating the Asset Beta |           |                                     | The beta of the selected companies was computed using 5 years trading data by regressing the stock return on BSE 100 index and the resultant beta represents both business and leverage risk. The leverage risk has been eliminated by using the well accepted HAMADA equation and using the gearing and the tax rate of the respective companies. Out of the beta the weighted average beta has been chosen to compute the risk premium to reflect the risk of the project type. This works out to 0.94 for the project activity. The applied value has been verified to be correct and appropriate as the data sources are validated by the validation team and the calculation of beta is in line with the best financial practices |
| Market Return                       | 19.97  | %    | <a href="http://beta.bseindia.com/indices/DisplIndex.aspx?iname=BSE100&amp;sensid=100&amp;type=SENS&amp;graphpath=/applet/images/graf_appBSE100.gif&amp;page=5B6DA9E7-CD6D-48D3-880A-05D1E9E1AA56">http://beta.bseindia.com/indices/DisplIndex.aspx?iname=BSE100&amp;sensid=100&amp;type=SENS&amp;graphpath=/applet/images/graf_appBSE100.gif&amp;page=5B6DA9E7-CD6D-48D3-880A-05D1E9E1AA56</a>       | /BSE 100/ | <input checked="" type="checkbox"/> | As required by CAPM, market Index representing a widely diversified portfolio with the timeline comparable to the period of assessment has been selected to compute the market return. BSE 100 is in operation for more than 20 years which represents the assessment period of the financial indicator. The base value of BSE 100 index is considered as 100 as on 01/04/1984. The return on BSE 100 index has been computed from 01/04/1984 till 12/03/2007 the day prior to which the decision was taken for the project activity. This return works out to 19.97% for the project activity. As the market return represents the time period greater than the assessment period, the consideration of BSE 100 for the               |



| <input type="checkbox"/>            | No financial parameters are used for additionality justification |       |   |  |                                     |   |
|-------------------------------------|--|-------|---|--|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |       |   |  |                                     |   |
| Parameter                           | Value applied  | Unit  | Source of Information (please indicate document and page)   | Reference                                      | DOE ASSESSMENT                      |   |
|                                     |  |       |   |  | Correctness of value applied        | Comment   |
|                                     |  |       |   |  |                                     | market return is found appropriate. Further the values have been cross verified with the values of BSE 100 from the BSE India Web Portal and found to be correct.   |
| Risk Free Rate                      | 8.067  | %     | <a href="http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=8293">http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=8293</a> | /RBI-Gsecs/                                    | <input checked="" type="checkbox"/> | The Yield to Maturity on the Government Securities having a maturity of 20 years comparable with the assessment period of the project activity is considered. The value is considered from the Website of Reserve Bank of India which is the authority to issue the Government Securities as on 12/03/2007 which was before the investment decision making date. As the value is considered from the Government source which has the authority to issue the risk free securities and the time period of the return is comparable to the assessment period of the project activity, the value is considered appropriate.                 |
| Cost of Equity                      | 19.29  | %     | Calculated using the Capital Asset Pricing Model using the values computed as risk free rate, market return and the beta            | /RBI-Gsecs/<br>/BSE 100/<br>/BSE/<br>/Reports/ | <input checked="" type="checkbox"/> | The Cost of Equity is calculated using the Capital Asset Pricing Model (CAPM) which represents one of the best financial practices for the calculation of Cost of Equity. The cost of equity has been computed as risk free rate plus beta times the risk premium (i.e., market return less risk free return), which works out to 19.29%. As all the data sources are based on the parameters that are standard in the market and are clearly validated by the validation team, the calculated value of Cost of Equity is appropriate in line with the para 15 of Guidelines on the assessment of Investment analysis, EB 62, Annex 05. |
| Tax holiday (out of first 15 years) | 10   | Years | Section 80IA of Income Tax Act, 1961  | /IT/   | <input checked="" type="checkbox"/> | As per Sec. 80IA of the Income Tax Act, infrastructure companies (under which the project activity falls) are entitled to claim tax   |

| <input type="checkbox"/>            | No financial parameters are used for additionality justification |          |   |           |                                     |   |
|-------------------------------------|--|----------|---|-----------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Assessment of all financial parameters see below                 |          |   |           |                                     |   |
| Parameter                           | Value applied  | Unit     | Source of Information (please indicate document and page)   | Reference | DOE ASSESSMENT                      |   |
|                                     |  |          |   |           | Correctness of value applied        | Comment   |
|                                     |  |          | 8.1.1   |           |                                     | holiday for any 10 consecutive years in the first 15 years of operation. Since, values are considered from income tax department of India, which is the authority to publish all the tax rates in the host country the assumption and computation of tax liability are correct and appropriate for the project activity   |
| Salvage value                       | 10   | %        | Standard consideration  | /DPR/     | <input checked="" type="checkbox"/> | Salvage value has been considered as land cost plus 10% of other assets. Considering the fact that the assets have been depreciated to the maximum extent in both books as well as for income tax purposes, the 10% salvage value represents only the potential profit and hence conforms to guidance 4 of Annex 5 EB 62. Internationally, the reasonable salvage value is 5 to 10% and hence, the salvage value provided conforms to international standards. The value is therefore correct and appropriate for the project activity. |
| INR/Euro                            | 58.32  | INR/Euro | <a href="http://www.x-rates.com/cgi-bin/hlookup.cgi">http://www.x-rates.com/cgi-bin/hlookup.cgi</a>   | -         | <input checked="" type="checkbox"/> | The values have been considered from an online price exchange rate portal – X Rates for all types of currencies. The values provided are considered reasonable and appropriate.   |
| CER Price                           | 13.25  | Euro/CER | <a href="http://www.tfsgreen.com/pdf/secondary-cer/tfs-secondary-cer-weekly-update-08-mar-07.pdf">http://www.tfsgreen.com/pdf/secondary-cer/tfs-secondary-cer-weekly-update-08-mar-07.pdf</a> |           | <input checked="" type="checkbox"/> | The value has been considered from the CER rate portal. The values provided are considered reasonable and appropriate.  |

## ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

**Table A-4:** Assessment of Barrier Analysis (EB 55 Annex 1, §118)

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

## ANNEX 5: OUTCOME OF THE GSCP

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

(§§ 40-42, VVM Version 1.2)

| <input checked="" type="checkbox"/> | No comments were received during the global stakeholder consultation period  |              |         |                       |   |                                     |
|-------------------------------------|--|--------------|---------|-----------------------|---|-------------------------------------|
| <input type="checkbox"/>            | Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below: |              |         |                       |   |                                     |
| Comment No.:                        | Comment by:  | Inserted on: | Subject | Comment <sup>1)</sup> | Action taken by the validation team to take due account on the comment <sup>1)</sup>  | Conclusion (incl. CARs CLs or FARs) |
|                                     |  |              |         |                       | Further clarification has been / has not been requested from the entity providing the comment because the comment was / was not sufficiently substantiated due to ... |                                     |

<sup>1)</sup> In case clarifications have been requested by the validation team corresponding rows shall be added



## ANNEX 6: STATEMENTS OF COMPETENCE OF ALL INVOLVED PERSONNEL

**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TÜV NORD JI/CDM Certification Program

**Mr. Stefan Winter**

| SCHEME | STATUS   | VALID UNTIL |
|--------|--|-------------|
| CDM    | Senior Assessor (Validation, Verification)<br>Technical Reviewer | 2014-06-30  |
| VCS    | Senior Assessor (Validation, Verification)<br>Technical Reviewer | 2014-06-30  |

Authorization status for technical areas within sectoral scopes:

| CODE | TECHNICAL AREA              | TR SUBCATEGORIES  |
|------|-----------------------------|---|
| 1.1  | Thermal energy generation   |   |
| 1.2  | Renewable Energy            | 1.2.1 Hydro<br>1.2.2 Wind<br>1.2.3 Geothermal<br>1.2.4 Solar<br>1.2.5 Tidal |
| 2.2  | Heat distribution           |   |
| 3.1  | Energy demand               |   |
| 13.1 | Waste handling and disposal | 13.1.1 Waste<br>management<br>13.1.2 Waste water<br>management              |
| 13.2 | Animal waste management     |   |
| 15.2 | Animal waste management     |   |

163 – Rev. 2, Date: 2011-08-10

163\_S01-F003\_2011-08-10\_rev2 S01-F003 rev1 / 2011-08-02

**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TÜV NORD JI/CDM Certification Program

**Mr. Prasad Jakkaraju**

| SCHEME | STATUS        | VALID UNTIL |
|--------|---------------|-------------|
| CDM    | Lead Assessor | 2014-02-02  |
| VCS    | Lead Assessor | 2014-02-02  |

Authorization status for technical areas within sectoral scopes:

| CODE | TECHNICAL AREA           |
|------|--------------------------|
| 1.2  | Renewable Energies       |
| 2.1  | Electricity Distribution |

103 – Rev. 0, Date: 2011-03-25

103\_S01-F003\_2011-03-25\_rev0 S01-F003 rev0 / 2010-04-19



**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TÜV NORD JI/CDM Certification Program

**Ms. Manjari Chandra**

| SCHEME | STATUS                                      | VALID UNTIL |
|--------|---|-------------|
| CDM    | Lead Assessor<br>(Validation, Verification) | 2015-01-10  |
| VCS    | Lead Assessor                               | 2015-01-10  |

Authorization status for technical areas within sectoral scopes:

| CODE | TECHNICAL AREA     |
|------|--------------------|
| 1.2  | Renewable Energies |

092 – Rev. 2, Date: 2012-01-11



**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TÜV NORD JI/CDM Certification Program

**Mr. Ma Paa Puratchikkanal**

| SCHEME                          | STATUS          | VALID UNTIL |
|---------------------------------|-----------------|-------------|
| CDM<br>Validation, Verification | Senior Assessor | 2013-09-09  |
| VCS                             | Senior Assessor | 2013-09-09  |

Authorization status for technical areas within sectoral scopes:

| CODE | TECHNICAL AREA                                  |
|------|---|
| 1.2  | Energy generation from renewable energy sources |
| 3.1  | Energy demand                                   |
| 6.1  | Construction                                    |
| 13.1 | Waste handling and disposal                     |
| 15.1 | Agriculture                                     |

079 – Rev. 1, Date: 2011-07-05

079\_501-F003\_2011-07-05\_rev1

501-F003 rev0 / 2010-04-19

**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TÜV NORD JI/CDM Certification Program

**Mr. Vijay Kumar Machcha**

| SCHEME            | STATUS                                 | VALID UNTIL |
|-------------------|--|-------------|
| CDM               | Assessor<br>(Validation, Verification) | 2015-11-12  |
| VCS / ISO 14064-2 | Assessor                               | 2015-11-12  |

Authorization status for technical areas within sectoral scopes:

| CODE | TECHNICAL AREA              |
|------|-----------------------------|
| 1.2  | Renewable Energies          |
| 3.1  | Energy Demand               |
| 13.1 | Waste Handling and Disposal |

289 – Rev. 2, Date: 2012-11-13

298\_S01-VA060-F20\_2012-11-13\_rev2.doc

S01-VA060-F20 rev3 / 2012-10-25

**Statement of Competence**  
Appointment and authorization according to the procedures  
of the TÜV NORD JI/CDM Certification Program

**Mr. Ezhilarasu G.**

| SCHEME            | STATUS                                      | VALID UNTIL |
|-------------------|---|-------------|
| CDM               | Lead Assessor<br>(Validation, Verification) | 2015-11-18  |
| VCS / ISO 14064-2 | Lead Assessor                               | 2015-11-18  |

Authorization status for technical areas within sectoral scopes:

| CODE | TECHNICAL AREA              |
|------|-----------------------------|
| 1.2  | Renewable Energies          |
| 3.1  | Energy Demand               |
| 13.1 | Waste Handling and Disposal |

130 – Rev. 2, Date: 2012-11-19

130\_S01-VA060-F20\_2012-11-19\_rev2.doc

S01-VA060-F20 rev3 / 2012-10-25