



# VALIDATION REPORT

For the CDM Project Activity

## 9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India

In  
**INDIA**

Report No. 01 997 9105071023

Version No. 02, 2012-12-29

Designated Operational Entity (DOE)

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**I. Project description:**

Project title:	9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India	Report No.: 01 997 9105071023
Host Country:	India	Current revision No.: 02
Methodology:	AMS-I.D, "Grid connected renewable electricity generation" Version 17, valid from 2011-06-17	<input type="checkbox"/> Large Scale <input checked="" type="checkbox"/> Small Scale
Annual average emission reductions (estimate):		40,540 tCO <sub>2e</sub> /yr
GHG reducing measure/technology:	The project activity is installation of 9 MW Biomass power plant which produces electricity from the biomass available in the region and supply the generated electricity to Southern Grid of India. Thus, the technology eliminates use of fossil fuel for generation of electricity, uses biomass and helps in avoidance of CO <sub>2</sub> emissions.	

Party	Project Participants	Party considered a project participant	Contract party
India (Host)	M/s Raichur Bioenergies Private Limited	No	<input checked="" type="checkbox"/>

**II. Validation Team:**

Validation Team			Role									
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
Mr. R. Murali	India	1.2, 3.1	X		X							
Mr. R. Narendra Kumar	India	1.2, 3.1			X	X						
Mr. Ramachandra Nesari	India	1.1					X					
Mr. Ma. Paa. Puratchikkanal	India	1.2, 3.1, 6.1, 13.1/13.2, 15.1			X	X						
Ms. Indumathi	India	1.2								X		
Dr. Lixin Li	China	1.1, 1.2, 2.1., 2.1, 3.1, 4.5									X	

**Validation Phases:**
☒ Desk Review    ☒ Follow up interviews    ☒ Resolution of outstanding issues
**Validation Status:**
☐ Corrective Actions / Clarifications Requested    ☒ Full Approval and Submission for Registration    ☐ Rejected
**III. Validation Report:**

Final approval	Released	Distribution
<input checked="" type="checkbox"/>	By: Mr. Praveen Urs	<input type="checkbox"/> No distribution without permission from the Client or responsible organizational unit
Date: 2012-12-30		<input checked="" type="checkbox"/> Unrestricted distribution

## Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland (China) Ltd.), here after called TRC, is been assigned by “M/s Raichur Bioenergies Private Limited” to perform the validation of their project “9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India“. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the project design document, the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Standard (Version 03.0), Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.

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

### Validation methodology and process

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

- Publication of the PDD on the UNFCCC website (2012-07-25 - 2012-08-23)

<http://cdm.unfccc.int/Projects/Validation/DB/0UWFD5UMEIPD0CFMSJY3MK1MY4UVSV/view.html>

- Desk review of the PDD and the relevant documents

- On-site assessment (2012-11-30)

- Issuance of Validation Report

### Validation criteria

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,

- Modalities and procedures for CDM (Marrakech Accords)

- Subsequent decisions by the COP/MOP and CDM Executive Board

- Host country criteria

- Criteria given to provide for consistent project operations, monitoring and reporting.

The host part is India and the party fulfills the participation criteria and has approved and authorized the project and the project participant. The DNA from India confirms that the project assists in achieving sustainable development. Project activity approval have been obtained from DNA of India vide, 4/15/2012-CCC the Letter of Approval dated 2012-11-22.

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

The project results in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

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

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

The project involves installation of 9.0 MW biomass based power plant. The project operates in Rankin cycle route with fluidized bed boiler where the high pressure steam is produced in a 40 TPH biomass fired boiler is fed to the 9.0 MW turbo-generator set for power generation. The plant and machinery of the project consists of one number multi biomass residue fuel fired boiler, one number steam generator set, one set of steam turbine, power evacuation system and fuel handling system etc. The electricity voltage level generated by the turbo generator at 11 kV will be stepped up to the 110 kV suitable to interface with the grid electricity. Other plant equipment includes ash-handling system, power evacuation facilities, cooling tower, water treatment plant, compressed air plant, etc. Export of power to the grid has to be through 110 kV transmission line.

The project activity will also include all auxiliary installations and systems, including electrostatic precipitator (ESP), cooling water system and cooling tower, ash handling system, feed water system, raw water system and DM plant, electrical system and control and instrumentation. The project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

The total emission reductions from the project are estimated to be (283,788) t of CO<sub>2e</sub> over a 7 year crediting period, averaging (40,540) t of CO<sub>2e</sub> annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

The validation protocol describes a total of 29 findings which include:

11 Corrective Action Requests (CARs);

16 Clarification Requests (CLs);

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

TRC concludes that the CDM Project Activity “9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India” in India, as described in the PDD (version 02, 2012-12-26), meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board.

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

Mr. Murali Ramalingam  
Team Leader



TÜV Rheinland (India) Pvt Ltd  
Bangalore, 2012-12-30

Mr. Praveen Nagaraje Urs (DOE Manager)



TÜV Rheinland (China) Ltd.  
Beijing, 2012-12-30

**Abbreviations**

AMS	Approved Methodology Small scale
BAU	Business as usual
BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	CDM Validation and Verification Standard
CER	Certified Emission Reduction(s)
CH <sub>4</sub>	Methane
CL	Clarification request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2e</sub>	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated operational entity
DPR	Detailed Project Report
DIC	District Industries Center
ESP	Electro Static Precipitator
FAR	Forward Action Request
FBC	Fluidized bed combustion
GESCOM	Gulbarga Electricity Supply Company
GOI	Government of India
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
I	Interview
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
KERC	Karnataka Electricity Regulatory Commission
KPTCL	Karnataka Power Transmission Corporation Limited
KREDL	Karnataka Renewable Energy Development Limited
KSPCB	Karnataka State Pollution Control Board
kW	Kilo Watt
kWh	Kilo Watt Hours
L <sub>y</sub>	Leakage
LoA	Letter of Approval
MCR	Maximum Continuous Rating
MNRE	Ministry of New and Renewable Energy
MOEF	Ministry of Environment and Forests
MOC	Modalities of Communications
MW	Mega Watt
MWh	Mega Watt Hours
N <sub>2</sub> O	Nitrous oxide
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document

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PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
PPM	Parts Per Million
RBPL	Raichur Bioenergies Private Limited
ROE	Return on Equity
SFC	Specific Fuel Consumption
tCO <sub>2e</sub>	Tonnes of CO <sub>2</sub> equivalents
T	Tons
TPA	Tons per Annum
TPH	Tons Per Hour
TRC	TÜV Rheinland (China) Ltd.
UNFCCC	United Nations Framework Convention on Climate Change
GWP	Global Warming Potential

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Appendix A: Validation Protocol

Appendix B: Certificates of Competence

## 1. Introduction:

The organization “M/s Raichur Bioenergies Private Limited” has commissioned the DOE TÜV Rheinland (China) Ltd. to perform a validation of the CDM Project Activity “9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India” in India (hereafter called “the project”). This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures or the simplified modalities and procedures for small-scale CDM project activities (as applicable) and the subsequent decisions by the CDM Executive Board.

### 1.1 Objective:

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

### 1.2 Scope:

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Standard employed (latest version) a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs. The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

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

The scope of the validation is:

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



## 2. Methodology:

The validation consists of the following four phases:

### I A desk review of the project design documents

- Publication of PDD in UNFCCC for global stakeholder consultation;
- A review of data and information;
- Cross checking between information provided in PDD with all necessary means without limitations to the information provided by the project proponent;

### II On-site visit and follow-up interviews with project stakeholders

- Interviews with relevant stakeholders in host country with personnel's having knowledge with the project development via telephone, email or direct on-site visits;
- Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;

### III Reference to available information's relating to projects or technologies similar projects under validation and review based on the approved methodology being applied of the appropriateness of formulae and accuracy of calculations.

### IV The resolution of outstanding issues and the issuance of the final validation report and opinion

The following sections outline each step in more detail.

### 2.1 Desk Review of the Project Design Documentation:

The following table outlines the documentation reviewed during the validation:

Ref no.	Reference Document
/P01/	PDD titled "9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India", version 01, dated 2012-07-14
/P02/	PDD titled "9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India", version 02, dated 2012-12-26
/P03/	The Ministry of Environment & Forests, Government of India, has accorded approval of voluntary participation for the project "M/s Raichur Bioenergies Private Limited" and has confirmed that the project contributes to sustainable development in India as per their letter no. 4/15/2012-CCC dated 2012-11-22 addressed to Mr. R.P. Krishnamurthy, Managing Director of M/s Raichur Bioenergies Private Limited.
/P04/	1. Microsoft Excel spread sheets for ER calculation version 01 2. Microsoft Excel spread sheets for IRR analysis version 01
/P05/	1. Microsoft Excel spread sheets for ER calculation version 02 2. Microsoft Excel spread sheets for IRR analysis version 02
/P06/	Modalities of Communication dated 2012-12-24
/P07/	Undertaking letter for ODA and De-bundling Aspect dated 2012-12-24
/P08/	Detailed project report for 9MW Biomass based power generation project dated February 2012 by ImageX Technologies India Pvt Ltd, Bangalore. The same DPR is approved by Karnataka Renewable Energy Development Agency
/P09/	Technical Specification of the following equipment's based on KREDL Approved DPR, 1) Boiler 2) Steam Turbine 3) Other plant and Equipment's
/P10/	Project Allotment Order issued by the Government of Karnataka for establishing the 9MW Biomass Power Project as per Order No. EN 427 NCE 2011, Bangalore dated 2012-01-16 in the local language
/P11/	Approval from Karnataka Udyog Mitra for establishing the 9MW Biomass Power Project as per Letter No. KUM/SLSWCC/E-1(E-5)01-02/212/2011-12 dated 2012-03-13
/P12/	No Objection Certificate from Gram Panchayat, Yedlapur as per Letter No. Gra/Pam/Ya/2012-13 dated 2012-06-21 in local language
/P13/	Consent to Establish the Project from Karnataka State Pollution Control Board as per Letter

	No. KSPCB/SEO/Non-EIA/CFE/LR/2012-13/682 dated 2012-09-18
/P14/	Biomass Assessment Report for 9MW Biomass based power generation project by ImageX Technologies India Pvt. Ltd., Bangalore
/P15/	Approval of Biomass Assessment Report and Project Implementation Schedule by Karnataka Renewable Energy Development Limited as per Letter Bio & Cogen: MAN:F-52:2012-13/1734 dated 2012-06-26
/P16/	Loan Sanction Letter from Andhra Bank dated 2012-09-07
/P17/	Rice Husk Supply Agreement between M/s Raichur Bioenergies Private Limited and Sri Bangar Srinivas Agro Foods dated 2012-05-23
/P18/	Power Purchase Agreement between M/s Raichur Bioenergies Private Limited and Sri Bangar Srinivas Agro Foods dated 2012-05-23
/P19/	Project Land Details Form submitted to MoEF dated 2012-06-11
/P20/	<p>Stakeholder consultation report dated 2012-05-18, Conducted at Nrupathunga Hotel, Amoga Hall, Yedlapur, Raichur District, Karnataka between 4.00 P.M and 6:00pm in local language; The agenda of the meeting are listed below:</p> <ul style="list-style-type: none"> <li>✓ Overview of the Project</li> <li>✓ Overview of the CDM and the objectives of the stakeholder consultation;</li> <li>✓ Overview of the Project Implementation Structure;</li> <li>✓ Inviting comments from participants in the project activities;</li> <li>✓ Responses to the comments from the PP.</li> </ul> <ol style="list-style-type: none"> <li>1) Advertisement in the newspaper “Raichur Vani” regarding the CDM Stakeholder Consultation Meeting scheduled for 2012-05-18.</li> <li>2) Stakeholders Participation List dated 2012-05-18;</li> <li>3) Photographs of CDM Stakeholder Consultation Process dated 2012-05-18;</li> <li>4) Minutes of the CDM Stakeholder Consultation Process dated 2012-05-18.</li> </ol>
/P21/	<ol style="list-style-type: none"> <li>1. Email from NCDMA confirming the receipt of Prior Consideration of CDM Form dated 2012-04-24</li> <li>2. Email from UNFCCC confirming the receipt of Prior Consideration of CDM Form dated 2012-04-23</li> </ol>
/P22/	Letter of approval to CDM Consultant dated 2012-03-27
/P23/	Minutes of the certified copy of the Board Resolution approving implementation of the project as a CDM project activity dated 2012-03-17
/P24/	Land Purchase Permit Order issued by District Commissioner, Raichur as per Letter No. Kum/LND/2011-12/ dated 2011-12-12 in local language
/P25/	<p>Purchase of Land for the Project,</p> <ol style="list-style-type: none"> <li>1) Sale deed between Sri. K. Bhaskar Rao and M/s Raichur Bioenergies Private Limited dated 2012-03-28</li> <li>2) Sale deed between Sri. Kongaru Sai Babu and M/s Raichur Bioenergies Private Limited dated 2012-03-28</li> <li>3) Sale deed between Smt. V. Surya Prabhavathi and M/s Raichur Bioenergies Private Limited dated 2012-03-28</li> </ol>
/P26/	Project Land Conversion Order issued by District Commissioner, Raichur as per Letter No. So.Kum/ALN/2012-13/174/3433 dated 2012-12-04 in local language
/P27/	<p>CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, Dated 2012-02-06, Web link: <a href="http://www.cercind.gov.in/2012/regulation/RE_Tariff_Regulations_2012_SOR%206-2-2012.pdf">http://www.cercind.gov.in/2012/regulation/RE_Tariff_Regulations_2012_SOR%206-2-2012.pdf</a></p>
/P28/	<p>KERC (Determination of Tariff in respect of Renewable Sources of Energy) dated 2009-12-11</p> <p>Web link: <a href="http://www.kerc.org">www.kerc.org</a></p>
/P29/	<p>KERC New Order (Harnessing Captive Power Generation in the state) dated 2008-07-09;</p> <p>Web link: <a href="http://www.kerc.org">www.kerc.org</a></p>
/P30/	<p>Ministry of New and Renewable Energy (Scheme for promotion of Grid Interactive Power Generation Projects based on Renewable Energy Sources for 2006-07) as per F.No. 14/82004-SHP dated 2006-12-26</p> <p>Web link: <a href="http://www.mnre.gov.in">www.mnre.gov.in</a></p>
/P31/	Written communication is submitted by PP stating the authorization, specimen signatures and personal details.

/P32/	Company Registration certificate of M/s Raichur Bioenergies Private Limited
/P33/	HT tariff electricity bills of rice mills for determining CAGR rate of HT tariff for the period from 2003 to 2012.

**Background investigation and other referred documents/websites:**

Ref no.	Reference Document
/B01/	<ol style="list-style-type: none"> <li>1. CDM Validation and Verification Standard, Version 03.0</li> <li>2. CDM Project Standard, Version 2.1</li> <li>3. CDM Project cycle procedure, Version 03.1</li> </ol>
/B02/	Approved Baseline & Monitoring Methodology: AMS-I.D Version 17, “Grid Connected Renewable Electricity Generation”
/B03/	<ul style="list-style-type: none"> <li>• EB 63 Annex 19, “Tool to calculate the emission factor for an electricity system”, Version 02.2.1,</li> <li>• General Guidelines to SSC CDM methodologies”, Version 19</li> </ul>
/B04/	Glossary of CDM terms, version 07
/B05/	Websites referred: a) <a href="http://cdm.unfccc.int/">http://cdm.unfccc.int/</a> b) <a href="http://maps.google.co.in/">http://maps.google.co.in/</a>
/B06/	EIA Notification published in the Gazette of India, Ministry of Environment and Forests dated 2006-09-14 to confirm that no EIA is necessary Government of India, Ministry of Environment and Forests, <a href="http://envfor.nic.in/legis/eia/so1533.pdf">http://envfor.nic.in/legis/eia/so1533.pdf</a> <a href="http://moef.nic.in/downloads/rules-and-regulations/3067.pdf">http://moef.nic.in/downloads/rules-and-regulations/3067.pdf</a>
/B07/	<ol style="list-style-type: none"> <li>1. EB 68, Annex 27 – Guidelines on the Demonstration of Additionality of small-scale project activities – Version 09.0;</li> <li>2. EB 63, Annex 24 – Attachment A of Appendix B - Version 08;</li> <li>3. EB 62 Annex 13 – Guidance on the demonstration and Assessment of prior consideration of the CDM</li> <li>4. EB 62 Annex 5 - Guidelines on the Assessment of Investment Analysis</li> <li>5. EB 54, Annex 29 – Guidelines on the Registration Fee for proposed project activities under the CDM – Version 02;</li> <li>6. EB 52, Annex 60 - Guidelines for Assessing Compliance with the Calibration Frequency Requirements;</li> <li>7. EB 50, Annex 15 “Tool to determine the remaining lifetime of equipment”.</li> <li>8. EB 48, Annex 11 “Guidelines for the reporting and validation of plant load factors”</li> <li>9. EB 47, Annex 28 “Attachment C to Appendix B – Indicative Simplified Baseline and Monitoring Methodologies for Selected small-scale project activity categories – General guidance on leakage in biomass project activities” (Version 03);</li> <li>10. EB 45, Annex 59 “Procedures for Modalities of Communication between Project Participants and the Executive Board” (Version 01)</li> <li>11. EB 41, Annex 11 “To calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion” (Version 02)</li> <li>12. Guidelines on assessment of de-bundling for SSC project activities</li> </ol>
/B08/	<a href="http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm">http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm</a> (CO <sub>2</sub> Baseline Database for the Indian Power Sector User Guide Version 7.0, January 2012 - Government of India Ministry of Power (Central Electricity Authority))
/B09/	<a href="http://www.cea.nic.in/reports/regulation/meter_reg.pdf">http://www.cea.nic.in/reports/regulation/meter_reg.pdf</a> (Section 18.1 (b) Page 12 states all interface meters shall be tested at least once in five years)
/B10/	CDM pipeline ( <a href="http://www.cdmpipeline.org/">http://www.cdmpipeline.org/</a> )
/B11/	Exchange rate ( <a href="http://bluenext.fr/statistics/downloads.php">http://bluenext.fr/statistics/downloads.php</a> and <a href="http://www.xe.com/currencytables/?from=EUR&amp;date=2012-02-15">http://www.xe.com/currencytables/?from=EUR&amp;date=2012-02-15</a> )

/B12/	Income tax <a href="http://www.incometaxindiapr.gov.in/incometaxindiapr/contents/forms2010/pamphets/COMPANIES_2012_13.htm">http://www.incometaxindiapr.gov.in/incometaxindiapr/contents/forms2010/pamphets/COMPANIES_2012_13.htm</a> <a href="http://www.mukeshraj.com/service-tax.html">http://www.mukeshraj.com/service-tax.html</a>
/B13/	Depreciation-WDV <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-DirectTaxLaws">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 - Direct Tax Laws</a>
/B14/	SLM ( <a href="http://www.fastfacts.co.in/resources/DepCoAct.rtf">www.fastfacts.co.in/resources/DepCoAct.rtf</a> )
/B15/	<a href="http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/weorept.aspx?pr.x=79&amp;pr.y=12&amp;sy=2012&amp;ey=2016&amp;scsm=1&amp;ssd=1&amp;sort=country&amp;ds=.&amp;br=1&amp;c=534&amp;s=PCPI%2CPCPIPCH&amp;grp=0&amp;a=">http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/weorept.aspx?pr.x=79&amp;pr.y=12&amp;sy=2012&amp;ey=2016&amp;scsm=1&amp;ssd=1&amp;sort=country&amp;ds=.&amp;br=1&amp;c=534&amp;s=PCPI%2CPCPIPCH&amp;grp=0&amp;a=</a> (Inflation rate of India for the period from 2012 to 2016 provided by International Monetary Fund)
/B16/	SBI BPLR as on 2012-03-17 ( <a href="http://in.reuters.com/article/2012/05/28/india-plr-idINL4E8GS1UY20120528">http://in.reuters.com/article/2012/05/28/india-plr-idINL4E8GS1UY20120528</a> )
/B17/	State Bank of India (PLR rates) screen shot obtained from Web link: <a href="http://www.sbi.co.in/user.htm?action=viewsection@lang=0&amp;id=0,16">www.sbi.co.in/user.htm?action=viewsection@lang=0&amp;id=0,16</a>
/B18/	Ministry of New and Renewable Energy (Programme on Biomass Co-generation (non-bagasse) in Industry for implementation) as per F. No. 10/1/2011-U&I dated 2011-04-19 Web link: <a href="http://www.mnre.gov.in">www.mnre.gov.in</a> and <a href="http://www.mahaurja.com/PDF/BEPolicies/5.%20Biomass%20Co-generation%20(Non-bagasse)%20in%20Industry%202011-12.pdf">http://www.mahaurja.com/PDF/BEPolicies/5.%20Biomass%20Co-generation%20(Non-bagasse)%20in%20Industry%202011-12.pdf</a>
/B19/	Key Features of Budget 2012-13, Web link: <a href="http://indiabudget.nic.in">http://indiabudget.nic.in</a>
/B20/	Diesel Specifications Web link: <a href="http://www.iocl.com/Products/DieselSpecifications.pdf">http://www.iocl.com/Products/DieselSpecifications.pdf</a>
/B21/	2006 IPCC Guidelines for National Greenhouse Gas Inventories Web link: <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html">http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html</a>
/B22/	CERC (Order on forbearance and floor price for the REC Framework to be applicable from 01 April 2012 dated 2011-08-23; Web link: <a href="http://www.cercind.gov.in/">www.cercind.gov.in/</a>
/B23/	Membership and Processing Fees for participating in REC trading; Web link: <a href="http://www.powerexindia.com">www.powerexindia.com</a> ;
/B24/	EB 47, Annex 28 “Attachment C of Appendix B - General guidance on leakage in biomass project activities”
/B25/	EB 63, Annex 10, Methodological Tool for “Project and Leakage emissions from road transportation of freight
/B26/	Clarification on the monitoring requirements for Greenfield renewable biomass energy plants supplying power to a grid, <a href="http://cdm.unfccc.int/filestorage/P/1/X/P1XMR5C37OQEBKFZ6I20YA8JH4TDVS/Final%20response.pdf?t=UjN8bWZzOTIofDD5ioJbSjJ7jBIqBxHSj7ci">http://cdm.unfccc.int/filestorage/P/1/X/P1XMR5C37OQEBKFZ6I20YA8JH4TDVS/Final%20response.pdf?t=UjN8bWZzOTIofDD5ioJbSjJ7jBIqBxHSj7ci</a>
/B27/	Clarification on leakage due to use of imported biomass residues in AMS-I.D projects, <a href="http://cdm.unfccc.int/filestorage/q/w/ZA7QRHGYF2D16JVNKXP45ILMO0SB8C.pdf/Final%20response.pdf?t=Mnh8bWZzOTY1fDCGfyu6aeS1Hotc9zCINGOq">http://cdm.unfccc.int/filestorage/q/w/ZA7QRHGYF2D16JVNKXP45ILMO0SB8C.pdf/Final%20response.pdf?t=Mnh8bWZzOTY1fDCGfyu6aeS1Hotc9zCINGOq</a>
/B28/	<a href="http://cdm.unfccc.int/Reference/PDDs_Forms/Registration/reg_form19.pdf">http://cdm.unfccc.int/Reference/PDDs_Forms/Registration/reg_form19.pdf</a> Latest MOC form available in UNFCCC
/B29/	Clarifications on the consideration of National and/or Sectoral policies and circumstances in Baseline Scenarios-EB 22-Annex 3
/B30/	Information note on the implementation of E+/E- in the context of Projects on the agenda of the fifty-third meeting of the CDM executive board – EB 53-Annex 32

## 2.2. Follow-up Interviews with Project Stakeholders:

TÜV Rheinland validation team carried out an on-site visit dated (2012-11-30) and performed interviews with the project representatives and stakeholders. The site visit was conducted to validate the accuracy and completeness of the project description as specified under webhosted PDD.

During the site visit, the validation team reviewed the available project activity designs, feasibility studies, and documentation check and comparison analysis with equivalent projects as appropriate.

Prior to the interview salient points to be discussed were planned. Date of interview, interviewee and points discussed are given in the following table.

	Date	Name	Organization	Topic
/I-01/	2012-11-30	Mr. R. P. Krishnamurthy	Managing Director, RBPL	-PP's background -Investment decision
	2012-11-30	Mr. M.P. Sham Sunder	Director, RBPL	-Baseline identification -CDM consideration -Public funding -Additionality issues - Baseline Biomass Assessment - Rice Mill owners Association - Third Party Power selling - Discussion on Clearances
/I-02/	2012-11-30	Mr. D. Ranganna	Managing Director, TECSOL	-Project implementation -Expected time line for commissioning - Technical design -Monitoring plan -Equipment details -Monitoring provisions
/I-03/	2012-11-30	Mr. Srinath Anekal	Principal Consultant, Climate SD Services	-Project design -Baseline identification -ER calculation -Additionality issues -Monitoring plan -PDD Editorials - ER calculation

Validation Team considered the views obtained in these interviews while arriving at Validation Opinion.

### 2.3 Resolution of Outstanding Issues:

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

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

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

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



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

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

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

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

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

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

**Figure 1, Validation protocol tables**

## 2.4 Internal Quality Control:

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

## 2.5 Validation Team:

Before the assessment begins, members of the validation team are ensured to cover the technical area(s), Sectoral scope(s) and relevant host country experience including local language ability for evaluating the CDM project activity. The qualification of the team is as per the criteria's defined by the EB guidelines for qualification.

Validation Team			Type of Involvement						
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer
Mr. R. Murali	India	1.2, 3.1	X			X			
Mr. R. Narendra Kumar	India	1.2, 3.1		X	X			X	
Mr. Ramachandran Nesari	India	1.1					X		
Mr. Ma. Paa. Puratchikkanal	India	1.2, 3.1, 6.1, 13.1, 13.2, 15.1		X	X				
Ms. C. Indumathi	India	1.2							X
Dr. Lixin Li	China	1.1, 1.2, 2.1., 2.1, 3.1, 4.5					X		

## 3. Validation Findings:

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

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

### 3.1 Approval and Participation:

#### 3.1.1 Letter of Approval:

"M/s Raichur Bioenergies Private Limited" is the Project Participant for the "9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India" CDM project activity. The current CDM has received letter of approval reference number 4/15/2012-CCC dated 2012-11-22/P03/, soft copy has been received from the PP is verified. The name of the project proponent is consistent throughout the PDD, under A.4 and Appendix 1/P02/. The LoA/P03/ issued by the DNA of India, MoEF mentions the same name as the project participant and has the same project title. The title of the project presented to host country DNA is same as the title provided in the webhosted/P01/ and the current final version of PDD/P02/. The village, District and state in which the project has been located are shown as Yedlapur, Raichur and Karnataka, India. LoA is also cross verified from the original LoA submitted by the RBPL/P02./P03/.

The letter of approval mention about the voluntary participation by the RBPL and also mentions that India has ratified the Kyoto Protocol in August 2002 and the project complies with the host country sustainable development criteria. TRC reviewed the sustainable development defined by India<sup>1</sup>. Implementation of biomass power project will enhance the energy security of the country and leads to clean energy production which was interviewed and confirmed from the stakeholders during the site visit. The project overall creates many

<sup>1</sup> [http://envfor.nic.in/divisions/ccd/cdm\\_iac.html](http://envfor.nic.in/divisions/ccd/cdm_iac.html)

environmental and social benefits, and improved lifestyle in the project area. The host country has accorded approval to the project; the approval letter states that the project contributes to sustainable development. The sustainability such as environment, economic, social and technology is the main indicator defined by the Indian DNA. Thus the host party has confirmed the contribution of the project activity to the sustainability development

The project is the installation of biomass power project to produce electricity which is supplied to Southern grid of India/B08/. The main GHG gases considered under the project activity is CO<sub>2</sub> thus contributes to climate change mitigation efforts in a significant, continuous, real and lasting manner.

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

These LoA/P03/ are therefore regarded as valid and meeting the requirements.

Project participants	<i>M/s Raichur Bioenergies Private Limited</i>
Parties involved	<i>Government of India</i>
<b>APPROVAL</b>	
LoA received	<i>Yes</i>
Date of LoA	<i>2012-11-22</i>
Reference to document	<i>04/15/2012-CCC</i>
LoA received from	<i>M/s Raichur Bioenergies Private Limited</i>
Validation of authenticity	<i>The HCA submitted as a soft copy through e-mail has been cross verified with the original copy</i>
Validity of LoA	<i>Valid</i>
<b>PARTICIPATION</b>	
Party is party to Kyoto Protocol	<i>India ratified Kyoto protocol in August 2002</i>
Voluntary participation	<i>Yes</i>
Diversion of official development aid towards host country	<i>No, under taking letter has been submitted and verified by the DOE.</i>
Project contribution to SD	<i>Yes, the project meets sustainable criterion which has been mentioned in HCA and in line with the host country requirements.</i>

The validation team confirms that the information related to the letter of approval as mentioned in the above table is authentic. The validation team confirms that the information related to the letter of approval as mentioned in the above table is authentic and is in line with 38 to 52 of VVS (Version 03.0).

### 3.1.2 Modalities of Communications/P06/:

Requirement of MOC	Criteria fulfilled	Determination by the validation team
Is the focal point identified	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Mr. Rajolli Pallarla Krishnamurthy/I-01/, Managing Director of M/s Raichur Bioenergies Private Limited have been identified as the focal points. MOC/P06/ and HCA/P03/ have been verified for the same.</i>
Is the MOC signed by all project participant (including focal point identified entity/personal)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>M/s Raichur Bioenergies Private Limited is the only project participant and Mr. Rajolli Pallarla Krishnamurthy/I-01/ is the persons responsible for signing and further communication with EB/DNA.</i>
Is the written confirmation obtained by the PP's stating the authorization,	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>The validation team received a written confirmation from the PP/P31/. The</i>



specimen signatures and personal details, employment status are valid and accurate?		<i>employment status and personal details are verified during the interview. Thus the DOE confirms that the personal details, employment status are valid and accurate.</i>
Is MOC received by the validation team from the PP with whom DOE has the contractual relationship?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Yes, the MOC received by the DOE from M/s Raichur Bioenergies Private Limited with whom TRC has contracted for validation services.</i>

The validation team confirms that the applicable latest template ([http://cdm.unfccc.int/Reference/PDDs\\_Forms/Registration/reg\\_form19.pdf](http://cdm.unfccc.int/Reference/PDDs_Forms/Registration/reg_form19.pdf)) is been employed by the project participant for the MOC/B28/. The MOC is been received from the DOE's contractual project participant. All the personal who have duly signed the MOC are been confirmed from the written communication by the project proponent regarding their personal identity, specimen signatures and employment status.

### 3.2 Project Design Document:

Webhosted PDD and all version of the PDD have been presented in the prescribed format Clean Development Mechanism Project Design Document Form (F-CDM-SSC-PDD), Version 04.1, which is valid document ([http://cdm.unfccc.int/Reference/PDDs\\_Forms/PDDs/PDD\\_form07.pdf](http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/PDD_form07.pdf)). The template has not been altered and no modifications have been made to the font, format, headings and logo.

The PDD follows the contents provided under the "Guidelines for completing the Project Design Document Form For Small-Scale CDM Project Activities", Version 01.0, EB 66, Annex 09 ([http://cdm.unfccc.int/Reference/Guidclarif/pdd/PDD\\_guid07.pdf](http://cdm.unfccc.int/Reference/Guidclarif/pdd/PDD_guid07.pdf)), and the directions contained under Section B (Pages 5/17 to 17/17) of the above guidelines. Nevertheless CAR-03, CAR-05, CAR-06, CL-11 and CL-16 are raised and closed successfully.

### 3.3 Project Description:

The project uses state of art technology where fluidized bed combustion boiler is employed to burn the biomass to generate high-pressure and high-temperature steam, which in turn drives an condensing turbine coupled to the generator to produce power. The project consists of fluidized bed boiler of 40 TPH capacity with economizer, air pre-heater with electrostatic precipitator with boiler auxiliaries, a steam turbine with synchronous generator, power evacuation system and fuel handling system/P08/. The capacity of the turbo generator is 9.0 MW/P08/. The boiler would generate steam at 67 kg/cm<sup>2</sup> pressure and 480±5° C temperature.

The technology adopted by the project is on par with the current industrial practices and are deemed environmentally safe. Thus the description on technology given in the PDD is found to be complete and accurate. The electricity voltage level generated by the turbo generator at 11 kV will be stepped up to the 110 kV suitable to interface with the grid electricity.

The project activity will also include all auxiliary installations and systems, including electrostatic precipitator (ESP), cooling water system and cooling tower, ash handling system, feed water system, raw water system and DM plant, electrical system and control and instrumentation.

The technical key data are provided in table below,

#### Technical Specification of Boiler/P09/:

Description		Unit <sup>2</sup>
1	Type	Fluidized Bed Combustion Boiler
2	Nos. of Unit	1 Nos
3	Capacity	40 TPH
4	Main Steam Pressure	67 kg/cm <sup>2</sup>
5	Main Steam Temperature	480±5 °C
6	Feed Water Temperature to Economizer	130 °C
7	Guarantee Performance Fuel	100% husk

<sup>2</sup> Detailed Project Report dated February 2012

The project is not yet placed any purchase order for civil or electro-mechanical equipment's/I-01/,/I-02/. Hence as confirmed by the PP, the expected commission date shall be 15 months from the date of signing of EPC contract and expected EPC signing date shall be January 2013/I-01/. The same information is presented in the revised PDD. A FAR-01 is raised in this regard.

#### Technical Specification of Turbine/P10/:

No	Description	Specifications
1	Turbine Type	Condensing Type
2	Inlet Steam Parameters <ul style="list-style-type: none"> <li>Pressure (Kg/cm<sup>2</sup>)</li> <li>Temperature (°C)</li> <li>Flow (TPH)</li> </ul>	67 480 36
3	Generator Capacity , MW	9.0
4	The economic steam rate requires at percentage load (%)	80-100
5	Generation Voltage (V)	11kV+/- 10%

Nevertheless CL-11, CL-16 and CAR-06 is raised and closed successfully.

#### Project location/P08/,/B05/:

The project is located in Yedlapur Village, Yermarus Taluk, Raichur district, Karnataka, India. The geo-coordinates are mentioned below,

Taluku/P08/, /P25/	Latitude (N)/B05-2/	Longitude (E)/B05-2/
Yedlapur Village, Raichur district, Karnataka, India	16°21'58.03" 16°23	77°19'47.21" 77°19

The electricity generated by the project activity was supplied to the Gulbarga Electricity Supply Company Limited. The GESCOM grid is a part of the Southern grid of India as per CEA guidelines version 07/B08/. The plant is expected to commission on April 2014. The estimated net electricity supplied figure works out as 50.854GWh per operational year after auxiliary and transmission losses/P08/. The project will result emission reductions of 40,540 tCO<sub>2e</sub> per annum/P05-1/.

The project activity produces electricity from the biomass. Hence it eliminates the generation of carbon dioxide which was happening earlier due to the fossil fuel burning from thermal power plants sites. Therefore, the technology employed can be said to be environmentally safe. Nevertheless CAR-08 is raised and closed successfully.

#### Project duration and crediting time:

Project Start date /P25/	Expected project operational lifetime/P08/,/P27/,B07-7/	Crediting period
2012-03-28- Land finalization is considered as the start date of the project activity which is in line with Glossary of CDM terms	25 years as per the DPR However CERC order and EB 50, Annex 15 recommend life time of 20 years. The value considered for life time is 25 years.	7 years Renewable crediting period Crediting period start date: 2014-04-01 (Based on Expected Commissioning date of the project activity)

Nevertheless CAR-07 and CL-05 are raised and closed successfully.

#### De-bundled component of a large scale activity/P07/,/B07-12/:

As per “Guidelines on assessment of de-bundling for SSC project activities” the project activity is not a de-bundled component of larger project activity. There is no CDM registered project within 2 years with the same RBPL in the same project category and technology. Based on the interview with the project proponent and TECSOL/I-02/, checking all the facilities during the onsite visit and the surrounding area where outside the project physical boundary to ensure there were no other projects developed by the project owner as a CDM project. Hence the project is not a de-bundled component of large scale project activity. The project proponent has submitted an undertaking letter/P07/ for the stating that the project is not a de-bundled component of large scale project activity.

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

Subject	Webhosted PDD	Correction to webhosted PDD in the final PDD submission for registration with DOE assessment and reason of acceptance
PDD ( project title / participants involved/ project location /project technology etc)	<p>Project Title: 9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India</p> <p>Project participant: M/s Raichur Bioenergies Private Limited</p> <p>Technology: Biomass Power Generation</p> <p>Implementation: Not yet placed purchase order for Civil, Plant and Machinery</p> <p>Technical Details: Included.</p> <p>Version: 01</p> <p>Date: 2012-07-14</p> <p>Village Lat &amp; Lon: 16°23” N &amp; 77°19 “ E</p>	<p>Project Title: No change</p> <p>Project participant: No change</p> <p>Technology: No change</p> <p>Implementation: Not yet placed purchase order for Civil, Plant and Machinery</p> <p>Technical details: No change</p> <p>Version: 02</p> <p>Date: 2012-12-26</p> <p>Village Lat &amp; Lon: 16°21’58.03” N and 77°19’47.21” E</p> <p>16.21 N and 77.19 E</p>
Methodologies and tools applied ( scope and version numbers)	Methodology: AMS-I.D., Version 17 “Grid connected renewable electricity generation” valid from 2011-06-17	No changes in the methodology.
CER calculations (formula applied/ amount of emission reduction)	<p><i>AMS-I.D (Emission Reduction),</i></p> $ER_y = BE_y - PE_y - LE_y$ $BE_y = EG_{BL,y} \times EFCO_{2,grid,y}$ $EG_{BL,y} = (\text{Generation capacity in MW}) * (\text{PLF}\%)$ $* \text{Transmission loss} * \text{Auxiliary Consumption} *$ $(\text{Hours/year}) = 50,854 \text{ MWh/yr}$ $EFCO_{2,grid,y} = 0.84 \text{ tCO}_2\text{e/MWh}$ $BE_y = 42,631 \text{ tCO}_2\text{e/annum.}$ <p>PE<sub>y</sub> and LE<sub>y</sub> are zero as per the methodology</p>	<p>No changes in the formula applied for baseline emission reduction calculation.</p> <p>EG<sub>BL,y</sub> = No change</p> <p>EFCO<sub>2,grid,y</sub> = No change</p> <p>Project Emission calculation has been included:</p> <p>As per EB 41, Annex 11 “Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel consumption” Version 02, CO<sub>2</sub> emissions from fossil fuel combustion in process <i>j</i> are calculated based on the quantity of fuels combusted and the CO<sub>2</sub> emission coefficient of those fuels, as follows:</p> $PE_{FC,i,y} = \sum F_{C,i,j,y} \times COEF_{i,y}$

		<p>The CO<sub>2</sub> emission coefficient COEF<sub>i,y</sub> shall be calculated as per Option B described in the tool and shall be based on net calorific value and CO<sub>2</sub> emission factor of the fuel type i, as follows:</p> $COEF_{i,y} = NCV_{i,y} \times EFCO_{2,i,y}$ <p>BE<sub>y</sub> = 42,717 tCO<sub>2e</sub>/annum PE<sub>y</sub> = 1,032 LE<sub>y</sub> is zero as per the methodology since the PP has proved surplus availability of biomass in the project area within 50 km radius.</p>
<p>Additionality: (Benchmark / input values/analysis type/project start date/IRR or NPV values etc.)</p>	<p>As per Attachment A of Appendix B, Investment analysis has been argued in the webhosted PDD. <b>Benchmark:</b> 12.25%</p> <p><b>Input Values</b> Capacity: 9.0 MW Energy generation: First year 70%, Second year 75% and from third year onwards 80%</p> <p>Project cost: 530.00 INR million Interest rate: 13.00% Repayment: Not mentioned</p> <p>O&amp;M cost: 4% of capital cost Escalation O&amp;M: 5% Tariff rate: INR3.70/kWh Corporate tax rate: 32.445% Depreciation rate SLM: 5.28% Debt : Equity Ratio: 75:25 Loan Amount: 397.5 INR Million Equity Amount: 132.5 INR Million Life time: 35 years <b>Analysis type:</b> Investment Analysis</p> <p><b>Investment decision date:</b> Not mentioned</p> <p><b>Project Start Date:</b> 2012-10-01</p> <p><b>Post Tax Project IRR:</b> 8.51%</p> <p><b>Benchmark:</b> WACC – 12.25%</p>	<p>No changes to the additionality arguments. <b>Benchmark:</b> 13.80%</p> <p><b>Input Values</b> Capacity: 9.0 MW Energy generation: First year 70%, Second year 75% and from third year onwards 80% Project cost: 532.3 INR million Interest rate: 14.75% Repayment: 10 years with 6 months moratorium from the COD O&amp;M cost: 4% of capital cost Escalation O&amp;M: 5% Tariff rate: INR3.70/kWh Corporate tax rate: 32.445% Depreciation rate SLM: 5.28% Debt : Equity Ratio: 70:30 Loan Amount: 372.6 Million Equity Amount: 159.7 INR Million Life time: 25 years <b>Analysis type:</b> Investment Analysis</p> <p><b>Investment decision date:</b> 2012-03-17</p> <p><b>Project Start Date:</b> 2012-03-28</p> <p><b>Post Tax Project IRR:</b> 9.52%</p> <p><b>Benchmark:</b> 13.80% (Source of Inflation rate taken from RBI has been changed to IMF and there is a change in Debt : Equity ratio as per DPR which results in change in benchmark) However the updated guideline has been released in EB 68. Thus the PDD is also revised to include the latest “Guidelines on the demonstration of additionality of small-scale project activities, Previously known as Attachment A of Appendix B to simplified modalities and procedures of</p>

		small scale CDM project activities” Version 09, EB 68, Annex 27.
Monitoring (parameters / frequency )	$EG_{(Gross),y}$ , $EG_{(Auxiliary),y}$ , $EG_{(Import),y}$ , $EG_{(Export),y}$ , $EG_{BL,y}$ , $BF_{i,y}$ , $FC_y$ , $NCV_{i,y}$ , $NCV_{(Coal),y}$ are included in section B.7.2	$EG_{BL,y}$ , $BF_{i,y}$ , $FC_y$ , $NCV_{i,y}$ , $NCV_{(Coal),y}$ , $D_{f,m,q\ water}$ , $FR_{f,m}$ , $EF_{CO2}$ are included in section B.7.2.
Crediting period ( type / start date)	7 years renewable crediting period with the expected start date as 2014-01-01	7 years renewable crediting period with the expected start date as 2014-04-01

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

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

It is concluded that the Validation Team has reviewed the project in line with the VVS (version 03.0) and all the evidence, corrections, justifications and updating done on the final PDD with respect to CARs /CLs raised are accepted and closed by the Validation Team, issuing the positive validation opinion for project registration. FAR-01 and FAR-02 are raised.

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

### 3.4 Baseline and Monitoring Methodology:

#### 3.4.1 Applicability of the selected methodology to the project activity

Approved baseline and monitoring methodology AMS-I.D “Grid connected renewable electricity generation” (version 17)/B02/ has been applied for the proposed project activity. At the time of GSP of the PDD (version 01, valid from 2012-07-14 and methodology (AMS-I.D “Grid connected renewable electricity generation”) version 17 applied was the latest one.

The validation team determined the applicability of methodology AMS I.D (version 17) as follows:

Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The project activity is a greenfield biomass power project of 9.0 MW capacity and has been checked from the government order, DPR/P08/ and Statutory clearance/P10/,/P11/,/P12/,/P13/. Furthermore, the electricity generated by the project activity will be supplied through GESCO transmission line to the identified customers through a third party wheeling and Power Purchase Agreement signed between the RBPL and consumer which explicitly mention that the generated electricity from the project activity will be supplied to the third party/P18/. Hence the applicability condition is met.
Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies is included in Table 2.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Project supplies electricity to the Southern grid of India to the identified customers through power purchase agreement with third party/P18/. AMS-I.D. is applicable as per Table 2 of methodology AMS I.D. Version 17, EB 61, and the project qualifies for using the methodology. It has also been noted by the validation team



Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
		that since the project activity does not displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit hence methodology AMS-I.F. is not applicable for the present case.
This methodology is applicable to project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition; <sup>3</sup> (c) Involve a retrofit <sup>4</sup> of (an) existing plant(s); or (d) Involve a replacement <sup>5</sup> of (an) existing plant(s).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Bullet no (a) of the paragraph 2 of the applied methodology is applicable for the present case as project activity install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity/I-01/,/I-02/ i.e., a Greenfield plant, the same has been checked from the document review and from the onsite visit/I-03/. Hence the project applicability is met.
Hydro power plants with reservoirs <sup>6</sup> that satisfy at least one of the following conditions are eligible to apply this methodology: <ul style="list-style-type: none"> <li>The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</li> <li>The project activity is implemented in an existing reservoir,<sup>7</sup> where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>;</li> <li>The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>.</li> </ul>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The present CDM project activity is not a Hydro power plant; hence this paragraph is not applicable for the subject project case.
If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit),	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The project activity is 9.0 MW Biomass power plant and it does not involve any non-

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

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

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

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

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

Applicability criteria of the methodology (AMS I.D), Version 17	Criteria fulfilled	Determination by the validation team
the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.		renewable component and verified from the documents.
Combined heat and power (co-generation) systems are not eligible under this category.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The project activity is a 9.0 MW biomass power plant which produce power which is supplied to third party. Hence the project is not a co-generation project; hence paragraph is not applicable for the project
In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct <sup>8</sup> from the existing units.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The project activity is a Greenfield project being implemented at a site where no biomass power plant exists and this is not a capacity addition project and verified from documents. Hence this paragraph is not applicable to the project. Furthermore, the capacity of the Greenfield project is below 15 MW and falls under small scale project activity.
In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As stated above the project is a green field project and hence this paragraph is not applicable. The capacity of the Greenfield project is below 15 MW and falls under small scale project activity.

The assessment of the project's compliance with the applicability criteria of the methodology AMS-I.D (version 17)/B02/ as documented in the PDD Section B and Appendix 3/P02/, which are evaluated in detail under the validation protocol in Appendix A to this report based from the webhosted PDD.

The project is a biomass power generation project; hence project will result in emissions due to transportation of biomass and usage of non-fossil fuel such as coal usage for power generation in case of emergencies/P02/. There is no leakage emission considered under this project activity, since RBPL has appointed an independent third party agency to conduct biomass assessment study in the project area which was later approved by KREDL and hence RBPL proved that there is excess of biomass (Rice Husk) is available for power generation within 50 km radius from the project site for power generation. Hence all the requirements of AMS-I.D, version 17 are met successfully.

### 3.4.2 Project Boundary:

According to methodology AMS-I.D. (version 17)/B02/, the PDD identifies project boundary as "project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to". The project boundary encompasses the physical, geographical site of the renewable generation source. The project boundary would include the biomass storage procurement and area, boiler, steam turbine, generator and all power plants connected physically to the Southern Grid. No other source other than the above mentioned will impact the project boundary. The project boundary has been verified to be in accordance with the methodology.

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

Emissions	GHGs involved	Description
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<sup>8</sup> Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered "physically distinct".

<b>Baseline emissions</b>	CO <sub>2</sub>	Major emission source, which is emitted from the electricity generation by fossil fuel-fired power plants connected to the Southern grid/B08/.
<b>Project emissions</b>	CO <sub>2</sub>	Project emission is because of transportation of biomass from the fuel source to the project site and usage of coal in boiler is considered under project emissions/B07-11/./B25/.
<b>Leakage/B24/</b>	CO <sub>2</sub>	As per the applied methodology AMS-I.D, version 17, RBPL has proved the surplus availability/P15/ of biomass in the project area for power generation. Hence leakage emissions are neglected and in line with Attachment C to Appendix B.

In summary, the project boundary was correctly identified in accordance with the methodology AMS-I.D (version 17). All greenhouse gas emissions occurring within the proposed project activity boundary as a result of the implementation of the proposed CDM project activity have been appropriately addressed in the PDD. The identified project boundary and selected sources of emissions are justified for the project activity. The validation of the project activity did not reveal other greenhouse gas emissions occurring within the proposed CDM project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 1% of the overall expected average annual emission reduction, with respect to the methodology applied. Nevertheless CAR-04 is raised and closed successfully.

### 3.4.3 Baseline Identification:

As per the applied methodology AMS I.D (version 17), paragraph 10 “Baseline is calculated as the product of electrical energy baseline  $EG_{BL,y}$  (Quantity of Net Electricity supplied to the grid by the project during the year y) expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor in accordance with § 10,11, 12 of AMS I.D version 17 ”.

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

- a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the ‘Tool to calculate the Emission Factor for an electricity system’.
- OR
- b) The weighted average emissions (in t CO<sub>2e</sub>/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

PP has opted option “a)” and adopts the ex-ante calculation of emission factor of the grid. The combined margin emission factor has been calculated to be 0.84 tCO<sub>2e</sub> / MWh for Southern grid of India. This has been calculated using the source from the Central Electricity Authority CO<sub>2</sub> Baseline Database/B08/. Central electricity Authority (CEA) (under Ministry of Power, Government of India) have worked out baseline emission factor for various grids in India and made them publicly available. The DNA of the host party (India) has also given a reference link of the CEA on their official website. The data from CO<sub>2</sub> Baseline Database for the Indian Power Sector User Guide - Version 7.0/B08/ is the most recent data at the time of submission of F-CDM-SSC-PDD for validation (Cp p5 of tool to calculate emission factor of an electricity system, version 02.2.1/B03/). Validation team has checked the calculation of the combined margin grid emission factor and confirmed that the applied value of the emission factor follows the tool. And the values of OM and BM incorporated in the PDD are taken from publically available database i.e. by CEA (Govt of India) /B08/.

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

Step 1 - In line with the requirements specified in the tool, the PP has used a regional grid definition as applicable for large countries like India having layered electricity dispatch systems. The Indian power system is



divided in two grids, the Northern, Eastern, Western and North- Eastern (NEWNE) Grid and Southern Grid. The project activity is connected to Southern Grid of India.

Step 2 - of the tool gives an option to include off-grid power plants in the project electricity system. CEA in its database for the Indian Power Sector User Guide - Version 07.0/B08/ has considered only grid power plants for the analysis.

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

Step 4 - The PP has considered the national published data (CEA database, version 07) for simple OM (This is in conformation with the § a, section B.6.1 of Specific guidelines for completing F-CDM-SSC-PDD, version 01.0. The simple OM emission factor calculated by the CEA is the generation weighted average CO<sub>2</sub> emissions per unit net electricity generation (tCO<sub>2</sub>/MWh) of all generating power plants serving the system, not including low-cost/must power plants (Cp page 6, User Guide – CO<sub>2</sub> Baseline Database, version 07 for the Indian power sector).

The value of simple operating margin for each year and the data for the calculation of EF grid, simple OM,<sub>y</sub> is published by the CEA and is publically available. However, validation team has cross checked the published value of simple OM from the data available in CEA, version 07 and found that PP has rightly calculated the generation weighted average value and this is in line with the tool and arrived at the following summary:

#### Southern grid:

Year	OM emission factor (tCO <sub>2</sub> /MWh)	Net Generation including imports(GWh)
2010-11	0.9419	145,076
2009-10	0.9415	135,773
2008-09	0.9729	127,797

#### $EF_{OM,y}=0.95 \text{ tCO}_2/\text{MWh}$

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

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

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

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

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

Step 6 - The PP has considered the national published data (CEA database, version 07) for BM (This is in conformation with the § 2, section B.6.1 of Specific guidelines for completing F-CDM-SSC-PDD, version 1.0).

The CEA database provides a BM value as **0.73 tCO<sub>2</sub>e/MWh** for the Southern grid. As part of validation of Step 6 of the tool, the Validation team has checked the BM for the year 2010-11 and found the same correct and in line with the tool.

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

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

According to the tool on selecting alternative weights, the default weights applicable for Biomass projects are  $w_{\text{OM}} = 0.50$  and  $w_{\text{BM}} = 0.50$  for the first and subsequent crediting period have been applied. The combined margin emission factor has been calculated as

$$EF_{\text{CM,y}} = EFCO_2, \text{grid,y} = \mathbf{0.84 \text{ tCO}_2\text{e/MWh.}}$$

(The official published data for simple OM and BM is considered for calculation of CM). The CM for the crediting period is fixed ex-ante. Hence the validation team confirms that the PP has correctly calculated the combined margin grid emission factor and is in line with the tool to calculate emission factor, version 02.2.1.

The validation team confirms that the proposed project activity meets the above requirement. Therefore, the baseline scenario as prescribed in the AMS.I.D (version 17) is applicable to the proposed project activity. The validation took cognizance of § Section L (6) of VVS (version 03.0).

The approved baseline methodology applicable to the project explicit criteria implicit criteria (e.g. available scenarios, applicability of formulas for BEy/PEy/LEy calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per §10, 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
PDD includes all assumptions and data used by project participants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details. The PDD includes all the assumptions and data used by the Project participants.
All the references and documents used are relevant for establishing the baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details. The baseline scenario is taken as per the methodology.
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details. All the reference and documents used are correctly quoted and conservatively interpreted in the PDD.
All relevant policies / regulations considered are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
The baseline scenario selection is appropriate and determined according to the methodology	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.
The approved methodology used is applicable to the identified baseline scenario	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	As per § 11, 12 of the AMS-I.D. /Version 17, the simplified baseline is prescribed. Please refer Section 3.4.1 for details.

The approved baseline methodology/B02/ has been correctly applied to identify a realistic and credible baseline scenario, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed CDM project activity.

All the assumption and data used by the project participants are listed in the PDD/P02/ and/or supporting documents. All documentation relevant for establishing the baseline scenario are correctly quoted and interpreted in the PDD. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable. Relevant national and/or Sectoral policies and circumstances are considered and listed in the PDD.

### 3.4.4 GHG Emission Reductions:

The Emission reduction calculations are transparently described and all the assumptions used for the estimation of baseline and project emissions are appropriate. All the calculations and formulas used for the estimation of baseline and emission reductions are in line with the methodology AMS-I.D version 17 and the methodological tool “Tool to calculate the emission factor for an electricity system” version 2.2.1/B03/.

#### Baseline Emissions:

According to the PDD baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor for the project grid which is in line with the paragraph 11 of the methodology. Formula used for the estimation of baseline emissions is as below

$$BE_y = EG_{BL,y} * EF_{CO_2,grid,y}$$

Where

Parameters	Description	Source and appropriateness of parameters
BE <sub>y</sub>	Baseline Emissions in year y (t CO <sub>2</sub> )	As per paragraph 11 of AMS-I.D version 17/B02/
EG <sub>BL,y</sub>	Quantity of Net Electricity supplied to the grid by the project during the year y	Monthly B-FORM issued by DISOM. The value shall be cross verified with invoice receipts.
EF <sub>CO<sub>2</sub>,grid,y</sub>	Combined Margin Emission Factor of the Southern Electricity Grid	As per the tool to calculate emission factor for an electricity system. CO <sub>2</sub> baseline database for Indian power sector user guide, version 07/B08/. The value has been calculated as 0.84 t CO <sub>2</sub> /MWh. The value is fixed ex-ante for the first crediting period.

Nevertheless CAR-11 is raised and closed successfully.

#### Project emissions:

As per § 20 of AMS I.D. version 17 for most renewable energy project activities project emission is zero and the project activity does not have any project emissions under normal operating conditions since electricity is generated using biomass which is renewable source of energy. However, the project also has a provision for firing coal in the FBC boiler in case of emergencies. Small quantities may be used as a startup fuel or during emergency purposes which shall be monitored as per the monitoring plan of the PDD/P02/. The quantity of coal usage shall be monitored and accounted for as project emissions calculated. The emission factor and NCV of coal (Anthracite coal) has been considered as upper bound values of IPCC default values and will be monitored during crediting period in case of any revision to IPCC default values. Since the project activity is a Biomass power project PP has considered project emissions due to transportation of biomass is also considered as project emission in the project. The emission due to transportation is calculated based on the return trip road distance

between origin and destination of freight transportation activity  $f$  in monitoring period (km), Total mass of freight transported in freight transportation activity  $f$  in monitoring period  $m$  (t), default CO<sub>2</sub> emission factor for freight transportation activity  $f$  (g CO<sub>2</sub> / t km). The PP has fixed all freight transportation activities shall be conducted using Heavy Vehicles which is more conservative and as per the tool and the applicable emission factor value is 129 g CO<sub>2</sub> / t km during the first crediting period. The estimated project emission in the project activity is 1,032 tCO<sub>2</sub>/yr. Though the project emission is less than 10% of total emission reduction, the PP has accounted project emission as a conservative approach. All the input values taken for calculation of project emission due to transportation of biomass, coal usage are conservative and acceptable. The following formula used to calculate project emission are verified from the tools,

$$PE_{TR,m} = \sum D_{f,m} * FR_{f,m} * EF_{CO_2,f} * 10^{-6}$$

Where:

$PE_{TR,m}$  = Project emissions from road transportation of freight monitoring period  $m$  (t CO<sub>2</sub>)

$D_{f,m}$  = Return trip road distance between origin and destination of freight transportation activity  $f$  in monitoring period (km);

$FR_{f,m}$  = Total mass of freight transported in freight transportation activity  $f$  in monitoring period  $m$  (t)

$EF_{CO_2,f}$  = Default CO<sub>2</sub> emission factor for freight transportation activity  $f$  (g CO<sub>2</sub> / t km)

$f$  = freight transportation activities conducted during the monitoring period  $m$

As per EB 41, Annex 11 “Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel consumption” Version 02, CO<sub>2</sub> emissions from fossil fuel combustion in process  $j$  are calculated based on the quantity of fuels combusted and the CO<sub>2</sub> emission coefficient of those fuels, as follows:

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

Where:

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

$FC_{i,j,y}$  = is the quantity of fuel type  $i$  combusted in process  $j$  during the year  $y$  (mass or volume unit/yr);

$COEF_{i,y}$  = is the CO<sub>2</sub> emission coefficient of fuel type  $i$  in year  $y$  (tCO<sub>2</sub>/mass or volume unit);

$i$  = Are the fuel types combusted in process  $j$  during the year  $y$

The CO<sub>2</sub> emission coefficient  $COEF_{i,y}$  calculated as per Option B described in the tool and the same is based on net calorific value and CO<sub>2</sub> emission factor of the fuel type  $i$ , as follows:

$$COEF_{i,y} = NCV_{i,y} * EFCO_{2,i,y}$$

Where:

$COEF_{i,y}$  = Is the CO<sub>2</sub> emission coefficient of fuel type  $i$  in year  $y$  (tCO<sub>2</sub>/mass or volume unit)

$NCV_{i,y}$  = Is the weighted average net calorific value of the fuel type  $i$  in year  $y$  (GJ/mass or volume unit)

$EFCO_{2,i,y}$  = Is the weighted average CO<sub>2</sub> emission factor of fuel type  $i$  in year  $y$  (tCO<sub>2</sub>/GJ)

$i$  = Are the fuel types combusted in process  $j$  during the year  $y$

As discussed during the site visit, the PP does not intend to use coal for energy generation, the PP does not have a system for measurement of carbon % or NCV of coal. Hence, IPCC default emission factors at the upper limit of uncertainty at a 95% confidence interval as provided in Table 1.4 of Chapter 1 of Vol. 2 (energy) and NCV form as provided in Table 1.2 of Chapter 1 of Vol. 2 (energy) of the 2006 IPCC guidelines on National GHG Inventories has been applied to calculate the project emissions. The approach followed by the PP is verified and found to be valid. However, as discussed the PP does not foresee any fossil fuel usage for power generation during the first crediting period. As per the clarification from UNFCCC/B26/,B27/, the above said project emissions need not be considered for small scale CDM project activity, however as a conservative approach, the PP has included necessary information in the PDD to calculate project emissions. The DOE verified all the assumptions and calculate.

Nevertheless CAR-09 is raised and closed successfully.

## Leakage:

Leakage emissions due to competing use of biomass has been considered in the calculation of emission reduction in line with the EB 47, Annex 11/B-07-11/ "Attachment C of Appendix B - General guidance on leakage in biomass project activities". For ex-ante estimation of leakage, the surplus availability of biomass types used has been assessed for the radius of 50 km in the Biomass Assessment report prepared by Imagex Technologies India Pvt Ltd/P14/,/P15/ for RBPL in Raichur district. As per the report the surplus availability over consumption within 50 km radius of the project site is more than 70% with Rice husk as fuel. As it can be evidenced for rice husk purchase agreement, RBPL has entered in to an agreement with 69 rice mills producers in the region which is within 50 km radius with a total rice husk availability quantity as 300,000 tons of rice husk per annum. Considering the usage of 80,000 tons of rice husk usage for power generation by RBPL based with 1.1 kg/kWh specific fuel consumptions, the total consumption by power plant constitutes about less than 30% of the total rice husk generation in the project area. On a whole, the surplus biomass availability is more than 70% which was supported by the Biomass Assessment Report/P14/,/P15/. As it has been verified that the more than 25% of surplus biomass is available for the project activity within the radius of 50 km, leakage is not applicable for the first crediting period as per "General guidance on leakage in biomass project activities". Thus, DOE confirms that the validation of biomass surplus availability for the fixed crediting period is in line with the requirements in the VVS version 03.0.

Nevertheless CAR-10 is raised and closed successfully.

### Emission Reductions:/P05-1/

Thus,

$ER_y = BE_y - PE_y$  - Leakage has been calculated.

The data not to be monitored are valid and correct. The values to be monitored for the ER calculation are plausible and explained further in section 5.2.7 of this report.

The estimated average annual ER is 40,540 tCO<sub>2</sub>e/annum.

In summary, the calculation of emission reductions was correctly demonstrated by the PP according to the methodology AMS-I.D (version 17)/B02/ and its tool "Tool to calculate emission factor for an electricity system" version 2.2.1. The table below summaries validation team's determination of emission reduction:

All assumptions made for estimating GHG are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All the assumptions made for estimating GHG are listed in the PDD. Please refer section B.6 of the final PDD/P02/. For detailed assessment of all the assumptions, please refer above Baseline emission, project emission and leakage in section 3.4.4.
All data used by project participants are listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All the data required by AMS-I.D, version 17 are listed in the PDD/P02/. Please refer section B.6 of the final PDD. For detailed assessment of each value listed in the PDD, please refer above Baseline emission, project emission and leakage in section 3.4.4.
Their references and sources are also listed in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All the references are correctly referred in the PDD. The major references are from "CO <sub>2</sub> baseline database for Indian power sector user guide, version 07" and "Tool to calculate emission factor for an electricity system"/B03/. Assumptions made for estimating GHG are listed in the PDD. Please refer section B.6 of the final PDD/P02/. For detailed assessment and validity of the reference and sources, please refer above Baseline emission, project emission and leakage in section 3.4.4.
Formulas, parameters, values are complete, accurate, transparent and conservative	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All the formulas, parameters, values are complete, accurate, transparent and conservative/P05-1/. Please refer section B.6 of the final PDD. For detailed



		assessment please refer above Baseline emission, project emission and leakage in section 3.4.4.
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All the references and documents are correctly quoted and conservatively interpreted in the PDD. Please refer section B.6 of the final PDD/P02/. For detailed assessment please refer above Baseline emission, project emission and leakage in section 3.4.4.
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Methodology has been correctly referred and quoted in the PDD. Please refer section B.6 of the final PDD. For detailed assessment please refer above Baseline emission, project emission and leakage in section 3.4.4.
All the emissions of baseline emissions can be replicated using information provided in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes, all the emissions of the baseline can be replicated using the information provided in the PDD. Please refer section B.6 of the final PDD. For detailed assessment please refer above Baseline emission, project emission and leakage in section 3.4.4.

Based on the calculations and results presented in the sections above the implementation of the project activity will result in an average ex-ante estimation of emission reduction conservatively calculated to be 40,540 tCO<sub>2</sub>e per year for the selected crediting period/P05-1/. All values used in the PDD are considered reasonable and conservative in the context of the proposed CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the PDD.

### 3.5 Additionality:

The project is small scale in size i.e. below 15 MW in line with the requirement of “General Guidelines to SSC CDM methodologies”, Version 19/B03/, and Clean development project standard version 03/B01-1/, the additionality of the project activity has been demonstrated using Annex 27 of EB 68, “Guidelines on the demonstration of additionality of small-scale project activities”, Version 09.0/B07-1/. As all requirements specified vide § 28 of the simplified modalities and procedures are complied with by the project activity, this approach has been assessed to be appropriate for the additionality assessment for this project activity. Nevertheless CL-02 is raised and closed successfully.

#### 3.5.1 CDM consideration:

The project developer had stated the start date of the project activity as 2012-03-28/P25/ and has submitted a copy of the Land purchase document for the project activity, as evidence. The project developers have not undertaken any construction or any real action on the implementation of the project activity till the finalization of the validation report. Since the real action of the project activity had begun on 2012-03-28/P25/, as per Glossary of CDM terms (version 07), this date has been treated as the start date of the project activity. Since the real action of the project activity had begun after 2008-08-02, the project activity falls under the category of new project activity as per VVS section L (9).

The PDD was web-hosted for public comments on 2012-07-25, i.e., after the start date of the project activity but within six months. Since the start date of the project activity was after 2008-08-02 and the PDD was web-hosted after the start date, as per paragraph 2 of Annex 13, EB 62/B07-3/, project participant is required to inform the Host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status and such notification must be made within six months from the project activity start date.

Accordingly Project developers had informed the host country DNA and UNFCCC about the commencement of project activity and their intention to seek CDM status within six months (2012-04-23/P21/). Copies of

correspondence with UNFCCC have been submitted to validation team. Besides, validation team also checked the UNFCCC website<sup>9</sup> (as required vide paragraph 107 of VVS) and satisfied itself that the project developer had informed UNFCCC within the stipulated 6 months period.

Timeline	Milestone	Determination by the validation team
2012-03-17	Investment decision date /P23/	Serious CDM consideration
2012-03-28	Land Purchased for the project activity/P25/	Copy of Land deed
2012-04-23	Intimation to UNFCCC & The National CDM Authority (Designated National Authority (DNA) of India/P21/	Serious CDM Consideration

It is TÜV Rheinland validation team opinion that the proposed CDM project activity complies with the requirements of the guidance on prior consideration of CDM (VVS section L (9)). Nevertheless CAR-04 and CL-13 are raised and closed successfully.

### 3.5.2 Alternatives:

The project is a renewable biomass based power generation project which applied the small scale methodology of AMS-I.D Version 17. The methodology states that,

*“If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources”.*

Paragraph 113 of VVS states that PDD is required to identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required. Since the approved methodology AMS-I.D used by the project activity prescribes the baseline scenario, no further analysis of alternatives is required for the project activity.

Validation Team, therefore, concludes that the PDD and the validation report conforms to the guidance given by EB vide paragraph 113 of VVS 3.0. TÜV Rheinland validation team considers the selected baseline is credible and complete.

### 3.5.3 Investment analysis:

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

According to the guideline,

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

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

<sup>9</sup> <http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html>

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

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

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

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

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

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

### 3.5.3.1 Choice of approach:

Project developer had demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required investment [Paragraph 119 (c) of VVS (3.0) /B01-1/]. For demonstrating the financial unattractiveness of the project activity, project developer had chosen investment barrier and to demonstrate the investment barrier had selected benchmark analysis. Since in this instant case, as subsequent section would reveal, baseline is outside the direct control of the project developer (grid connected power and third party sale via southern grid) and hence, the choice of the project developer is restricted to “invest or not to invest”, the benchmark approach is most suited as per the latest version of Guidance 16 of Annex 05 of EB 62/B07-4/.

In the above background, as subsequent paragraphs would reveal, Validation Team concludes that the additionality justification given by the project developer is in accordance with the requirements derived from the approved CDM methodology and the methodological tools referred therein as well as the guidance given by EB vide paragraphs 117-122 of VVS (3.0).

### Benchmark selection:

As noted in the PDD, an investment analysis is carried out through applying benchmark analysis method, which is mainly based on the comparison between project IRR and the benchmark estimated from weighted average costs of capital (WACC). The project participant has applied WACC as the benchmark, which is considered appropriate according to the “Guidelines on the Assessment of Investment Analysis” (Version 05) EB62/B07-4/. The Biomass power project can be developed by any entity other than the PP, the benchmark (WACC) is calculated based on the publically available data. Benchmark (WACC) calculation sheet is presented along with IRR spread sheet is submitted to DOE. The validation of WACC calculation is tabulated as below:

Description	Value	Validation opinion
Cost of equity (Real)/B07-4/	11.75% (Section IV)	The cost of equity in real terms is taken from the default value provided for Group 1 projects in India in the version



	of EB 62, Annex 05)	<p>5 of Guidelines on the Assessment of Investment Analysis (published on 2011-07-15) which was available at the time of investment decision. The project scope is 'Scope 01' and hence this falls under group-1 provided in the investment guidance. So considering the considering cost of equity value (11.75%) provided for the Group-1 project for India is correct and appropriate.</p> <p>Since cost of equity (real) taken is the UNFCCC default value and also the value was available at the time of investment decision, the value considered for the project is appropriate.</p>
Inflation forecast/B15/	6.02%	<p>Since the investment analysis is carried out in nominal terms, the real term value has been converted to nominal terms by adding inflation rate. In preamble of RBI survey report, it is mentioned that the '<i>results of survey represent the views of respondent forecasters and in no way reflect the views or forecasts of the Reserve Bank of India</i>'. Hence RBI rate has not been considered and is not in line with para 7 of Appendix of EB 62, Annex 5. Hence the average forecasted inflation rate for India published by the International Monetary Fund (IMF)/B15/ in the World Economic Outlook Database, September 2011 for the next five years after the start of the project activity has considered for the calculation of cost of equity. The post-tax cost of equity is converted to pre-tax cost of equity. From the above, it is justified that the IMF inflation value for the next 5 years forecast is conservatively estimated and used for benchmark calculation. All the values used for the calculation of cost of equity are verified and found to be valid and correct. Hence the cost of equity calculated in nominal terms is correct and appropriate.</p>
Cost of equity (nominal)/P05-2/	18.48%	<p>The nominal value of the cost of equity is calculated based on the cost of equity (in real term) and the inflation forecast for the next 5 years as follows:</p> $\text{Cost of Equity}_{\text{nominal rate}} = ((1 + \text{Cost of Equity}_{\text{Real rate}}) \times (1 + \text{Inflation Rate}) - 1)$ <p>The equation used to calculate the cost of equity in nominal term is correct, which is confirmed through verifying the equation given in the Book: Corporate Finance-Theory and practice. Hence the cost of equity calculated in nominal terms is correct and appropriate.</p>
Debt equity ratio/P08/,/P28/	70:30	<p>The debt equity ratio is based on the DPR/P08/ which was available at the time of investment decision and the same was cross verified with KERC order dated 2009-12-11/P28/. Normally, the infrastructure projects are given loan between 60 to 80% of the project cost in India. Hence the debt equity ratio considered is acceptable.</p>
Cost of debt	14.75%	<p>The cost of debt is based on the lending rate of state bank of India w.e.f 2011-08-13 and applicable till the date of investment decision (2012-03-17)/P23/,/B16/,/B17/. Since, the State Bank of India (SBI) is a major commercial bank in India, the value considered is appropriate for this project activity.</p>
Tax rate	20.00%	<p>In accordance with the Guidelines on Assessment on Investment Analysis, as the project activity can be developed by any entity other than the project participant, the tax rate used for computation of benchmark should also</p>

		<p>be applicable to any investor investing in power projects in India. Hence a Minimum Alternative Tax rate of 20.00% (applicable tax rate) for calculation of WACC has been used in line with the following provision of Indian Income Tax Act.</p> <p>The tax rate considered is the Minimum Alternate tax rate applicable to the year 2011-12/B12/ which was available at the time of investment decision. RBPL is new company investing first time in a renewable energy project and paying MAT from the commercial operation till 10<sup>th</sup> year due to carry forward losses as per the financial analysis spread analysis/P05-2/. Hence considering the debt repayment component for period of 10 years from the COD and RBPL paying MAT, the MAT value considered for calculation of post-tax cost of debt is found to be valid and correct and in line with the local accounting principle. This is confirmed through interview with PP and review of IRR spread sheet. Hence considering MAT for the WACC calculation in this project activity is more appropriate.</p>
Weighted Average Capital Cost (WACC)-Post tax/P05-2/	13.80%	<p>The WACC is calculated based on the following equation</p> $\text{WACC} = \{D/(D+E)\} * \text{Cost of Debt } (1-\text{Tax}) + \{E/(D+E)\} * \text{Cost of Equity}$ $\text{WACC} = (70 \times 14.75) * (1-20.00\%) + (30 \times 17.78)$ <p>Post Tax WACC = 13.80%</p> <p>The benchmark calculation sheet is verified and found that the equations are correctly applied and the WACC/P05-2/ is calculated in correct and transparent manner.</p> <p>Hence the Weighted average Capital Cost calculated as benchmark for this project activity is correct.</p>

The benchmark (WACC) for the project activity is estimated as 13.80%/P05-2/. The source data for the calculation of benchmark is reviewed, and the calculation of WACC is checked and confirmed to be correct. The parameters applied in the WACC calculation was the latest available information before the investment decision. Therefore, the validation team considers that the calculated WACC is traceable and reasonable to be considered as the suitable benchmark of the project IRR for the investment analysis. Nevertheless CAR-02 is raised and closed successfully.

#### Input parameters:

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

The source for various input parameters used in the financial indicator calculations and their assessment by referring to § 122(a),(b) and (c) of VVS version 3.0 are discussed below in subsequent paragraphs, which also reveals that the input parameters considered in the financial indicator calculations conform to guidance 6 of Annex 05, EB 62 are conservative. Nevertheless CAR-01 and CL-01 are raised and closed successfully.

#### Project Cost/P08/:

Project cost comprises of capital cost and running costs. Capital cost includes machinery, land and civil cost. Running costs includes Operation & maintenance cost and administrative costs. Nevertheless CL-15 is raised and closed successfully.

#### Financing pattern:

The project is funded by partly by debt and partly by equity. The debt: equity ratio has been considered as 70:30 from the KREDL approved DPR which is further cross verified from KERC order dated 2009-12-11 which are

available at the time of decision making. The profitability estimates of the project, which forms the basis for IRR calculation is based on installed capacity/P08/,P10/,P11/,P12/, PLF/P08/,P28/, power tariff/P08/,P18/, O&M cost/P08/,P27/, fuel cost/P08/,P17/, depreciation and taxation/B12/,B13/,B16/ etc.

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

Parameter:	Installed Capacity
Value applied for the IRR calculation:	9.0 MW
Source of the value:	KREDL Approved DPR/P08/, Statutory Clearances/P12/,P10/,P11/, KSPCB clearance/P13/, Extract of minutes of board meeting/P23/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The capacity of the power plant is decided during the board of directors meeting held on 2012-03-17. The same can be cross verified from the Government allotment order for generation of 9.0MW power from biomass residue. The state pollution control board clearance (i.e., Consent for establishment mention the capacity of the project as 9.0 MW). Hence the value considered is valid and appropriate.

Parameter:	Project cost
Value applied for the IRR calculation:	532.3 INR Million
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	There is an increase in project cost of 2.3 INR Million from the webhosted PDD because of change in Interest rate which was available at the time of decision making and standard in the market/B16/,B17/.
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The project cost includes cost of land, site development, civil works, structural works, transmission lines, plant & equipment, contingencies, IDC and margin for working capital. Project cost estimate is based on the Detailed Project Report (DPR)/P08/ prepared by ImageX Technologies India Pvt. Ltd., an independent and reputed third party consultancy firm in the host country and the same is approved by KREDL a Government body in the state of Karnataka which approves all kind of renewable energy projects. The DPR was prepared in February 2012 and the investment decision was taken on

	<p>2012-03-17/P23/. As the gap between the preparation of the DPR and the investment decision was less than 1 months, validation team concludes that it is unlikely in the context of the underlying project activity that the input values would have materially changed (conformity to paragraph 120, 121, 122 of VVS ver. 03.0). The specific project cost works out to INR 59.1 mn/MW. Validation team has compared the project cost of the recently registered project in Karnataka which can be comparable (i.e., Project start date was September 2010, UNFCCC no: 2895) have assumed project cost of 53.3 mn/MW which is 10% less than the project cost considered by RBPL. In addition the project cost of Sinewave Power (UNFCCC no: 4063, decision taken in May 2009) in Maharashtra had considered a cost of Rs.58.5 mn/MW has been compared because there is no much information available to compare the project cost from the registered CDM project in Karnataka. Moreover the Government agency, KREDL has approved the project cost and the bank has issued the loan sanction letter based on the project cost and highlighted the seriousness of CDM in their letter to RBPL. The PP has done a sensitivity analysis on project cost by reducing 10% from the cost considered during investment decision. Hence the cost considered by RBPL is valid and correct.</p>
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Parameter:	Plant Load Factor
Value applied for the IRR calculation:	First year : 70% Second Year: 75% Third Year: 80%
Source of the value:	KREDL Approved DPR and KERC order 2009-12-11
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	Plant load factor is based on the KREDL approved DPR/P08/, which has been prepared by a third party engineering consultancy company. The value considered is compared against KERC order for first and second year of operation/P28/ and CERC Orders/P27/ which recommends a maximum PLF of 80%. In the above background, validation team considers the PLF of 80% as correct and appropriate for the project activity. Moreover, the PLF assumed also conforms to Annex 11, EB 48.

Parameter:	Tariff and escalation and Renewable Energy Certificate (REC)
Value applied for the IRR calculation:	3.70 INR/kWh @5% escalation per year and 1.43 INR/kWh from Renewable Energy Certificate

Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	<p>RBPL plans to sell the power to nearby rice mills at the rate of INR 3.70/kWh with an annual escalation of 5%. It was evidenced from the stakeholder consultation report/P20/, the local stakeholder especially rice mill owners are seriously affected by increase in the tariff and demanded the project proponent to supply the generated power from the biomass power plant at a price less than the tariff price (i.e., Less 0.50 INR/kWh/P20/). Thus the board has decided to sell the power at a rate of 3.70 INR/kWh with annual escalation of 5% at the time of investment decision which was later agreed with the third party power purchasers though a power purchases agreement/P18/. The validation team also concludes its opinion that the REC mechanism is clearly an E- policy as it encourages less emission intensive technology over emission-intensive technology and the mechanism was launched much after 2001-11-11 and hence the effect of such mechanism should not be considered while demonstrating additionality of the project activity which is in line with the EB guideline EB 53 annex 32. In addition to the above reference DOE has also referred the clarification received from EB on 2011-12-22 in reference to a clarification requested by Emergent Ventures (India) Limited on the application of E- policies for the baseline and additionality assessment and another EB/B29/./B30/ clarification received on 2012-02-10, reference 2011-047-DOE by DOE/BVQI clarified the PP to adopt a tariff fixed by the project owner and ignore any other gains that may not occur as a result of the risk. Hence this is appropriate for the investment analysis. However PP to be on conservative in doing the financials, RBPL considering the floor price of REC after the transaction charges at the rate of 1.43 INR/kWh for the investment analysis. The REC price is fixed for the life time is more conservative based on analysis conducted by third-party agencies on the REC prices. In addition any revenue above REC will be shared with the rice mills which can be evidenced from power purchase agreement. Based on the study of REC prices trend, it was evidenced that there REC is reduced in the region of 15.38% to 17.38% since the first REC prices were published in 2010. The 2010 publication and 2011 publication/B22/./B23/ (REC prices for band 2012-17) are also verified. Based on the analysis it is expected that the REC revenue will reduce by 25% in coming years. Since the REC is a recent introduction in the market these are the only analysis that are publicly available to evaluate the trends, the DOE accept the fixed floor price of REC for the project activity. The following web link has been referred for the same, <a href="http://www.resolve.in/perspectives-and-insights/rec-price-band-revised/">http://www.resolve.in/perspectives-and-insights/rec-price-band-revised/</a> which considers a 25% reduction in REC prices for making</p>

	the necessary analysis. During validation stage the actual power purchase agreement is verified for the same and there is no change in the value considered at the time of investment decision. Hence the approach followed by the PP is valid, accurate and more conservative. The PP has done sensitivity analysis with increase in tariff of 10% and proved the project is additional.
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Parameter:	Fuel cost and Escalation rate
Value applied for the IRR calculation:	2500 INR/Tons @ 5% escalation per year
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) (cross checking and comparison as applicable)	The DPR approved by KREDL/P08/ is the basis for fuel cost and escalation in fuel cost. RBPL plans to utilize 100% rice husk in the FBC boiler/I-01/ to produce power generation. Since the power generated by the project activity is supplied to nearby rice mills and all the rice mill owners are facing major problem in disposing the rice husk, the PP has entered an agreement/P17/ with the local rice mill owners association to procure the rice husk at a price of INR 2500/Tons with an annual escalation of 5%. Nearly 69 rice mill company has entered in to an agreement with RBPL. The value considered based on DPR and the actual values agreed up on in the agreement are same. The value is further cross verified with CERC order/P27/ on biomass fuel price which suggested a fuel price of INR 2283/Tons for the project area. The fuel cost considered in the project activity is 10% higher than the fuel cost suggested by CERC. Thus the same is considered under sensitivity analysis and found the project to be additional. The escalation rate is same both in CERC and DPR and actual agreement. Hence the fuel price and escalation rate are found to be correct and valid.

Parameter:	Debt : Equity Ratio
Value applied for the IRR calculation:	70:30
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value mentioned in the webhosted PDD mention the ratio as 75:25. However during validation stage the same value is corrected as per the assumptions from DPR.



Validity of input value at the time of investment decision making:	The source document considered is available at the time of investment decision making
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The debt equity ratio is based on the DPR/P08/ supported by KERC/P28/ order which were available at the time of investment decision. Normally, the infrastructure projects are given loan between 60 to 80% of the project cost in India. Hence the debt equity ratio considered is acceptable.

Parameter:	O&M Cost and Escalation rate
Value applied for the IRR calculation:	4% of the total project cost (INR 236.5 mn/MW) with annual escalation of 5% per annum
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The O&M expense and its escalation are based on the DPR which is available at the time of investment decision. CERC specifies O&M cost INR 214.1 mn/MW with the escalation of 5.72% p.a @ 2010-2011. This shall work out to INR 267.4 Lakh/MW for 2014-15 when RBPL project is expected to be commissioned. The rates considered are conservative as it works out to as follows INR 236.5 Lakh/MW for the first year and 5% escalation thereof for the proposed project. Thus the O&M costs and escalation rate are conservative in nature. Hence the O&M expense considered for the project activity is conservative and acceptable.

Parameter:	Term Loan and Term loan Interest Rate
Value applied for the IRR calculation:	372.6 INR Million @14.75%
Source of the value:	KREDL Approved DPR/P08/ and SBI PLR/B16/ at the time of decision making.
Consistency of the value:	The Value considered in the webhosted PDD is 397.5 INR Million with 13.00% as interest rate. However during validation the value considered for debt: Equity ratio and interest rate has been revised to reflect the values standard in the market as per the Guideline. Hence the revised values are in with the DPR values and SBI LR available at the time of decision making. The same has been corrected in the final version of IRR and PDD.
Validity of input value at the time of investment decision making:	Yes

Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The loan amount is based on DPR/P08/ and conformed by loan sanction letter from Andhra Pradesh bank/P16/. Project developer has submitted a copy of the loan sanction letter, which the validation team has verified and found correct. Normally, the infrastructure projects are given loan between 60 to 80% of the project cost and in exceptional cases a higher percentage is also considered by banks depending on the credit rating and collateral offered. Since in this case the loan amount is evidenced by sanction letter and is well within the norms, validation team concludes that the loan amount is valid and appropriate. Validation team checked the bank sanction letter, KERC order dated 2009-12-11 and found the value to be correct. Hence, the input value is correct and appropriate.
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Parameter:	Loan Repayment and Moratorium
Value applied for the IRR calculation:	10 Years and 6 month moratorium
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	Loan repayment is based on DPR/P08/ value which is further cross verified with loan sanction letter which mention 10 year loan repayment and 12 months moratorium period. The minor difference in moratorium will not have an impact on project IRR calculation. Validation team checked the sanction letter/P16/ and found the assumption to be correct. Hence, the value is correct and appropriate.

Parameter:	Auxiliary consumption, Transmission and Wheeling charges
Value applied for the IRR calculation:	9% Auxiliary, 2% Transmission losses, 5% wheeling charges
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	Auxiliary consumption is based on DPR. Besides, CERC orders have also recommended 10% for auxiliary consumption. The auxiliary consumption considered by the projects so far registered range from 10 to 12% (While



	<p>project with registration No. 2941, 2119, 2129 and 2895 have considered 12%, 3173 has considered 10% and 3232 has considered 11%). In the above background, 9% auxiliary consumption is considered appropriate and more conservative.</p> <p>Transmission Losses of 2% is checked from the DPR which is approved by KREDL/P08/ and the same DPR is submitted to bank for availing loan. Since the DPR was available at the time of decision making, the losses considered is deemed acceptable.</p> <p>Since the project is a third party sale of electricity, the PP has to pay wheeling charge at 5% from the generated electricity. The same is sourced from DPR/P08/ and KERC order/P29/. Hence all the above assumptions are found to be valid, accurate and more conservatively estimated.</p>
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Parameter:	Technical Life time
Value applied for the IRR calculation:	25 years
Source of the value:	KREDL DPR/P08/ and EB 50, Annex 15/B07-7/
Consistency of the value:	The Value considered in the webhosted PDD is 35 years. However during validation the value considered is not matching with the values mentioned in the DPR. Hence in line with the DPR values the same has been corrected in the final version of IRR and PDD.
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The third party DPR/P08/ mention the life time as 25 years. Moreover, the operational life considered is much higher than the life time mentioned in EB 50, Annex 15/B07-7/. Therefore, the DOE accepts the same and is in conformity with paragraph II (a) of Annex 15, EB 50. Hence, the operating life of the project considered is correct and appropriate. The salvage value/P05-2/ calculation at the end of the life time for building, plant and machinery, civil back has been added back to the cash flow. Hence the approach followed by the PP is more conservative.

Parameter:	Tax Rate
Value applied for the IRR calculation:	Corporate Tax – 32.445% Minimum Alternate Tax – 20.00 Service tax-10.3% For the financial year (2011-2012)
Source of the value:	KREDL Approved DPR/P08/ and Indian Tax Regulations/B12/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration

Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	<p>The corporate tax payable is calculation based on the base corporate tax, Surcharge &amp; educational cess given in the Union budget analysis for the year 2011-12 which was available at the time of investment decision. The calculation based on the following values</p> <p>Base corporate tax- 30%</p> <p>Surcharge – 5% of corporate tax</p> <p>Educational Cess- 3% of corporate tax.</p> <p>The corporate tax value considered is correct and applicable to the project activity. All the tax values are verified from the following websites,</p> <p><a href="http://www.incometaxindiapr.gov.in/incometaxindiapr/content/s/forms2010/pamphlets/COMPANIES_2012_13.htm">http://www.incometaxindiapr.gov.in/incometaxindiapr/content/s/forms2010/pamphlets/COMPANIES_2012_13.htm</a> and <a href="http://www.mukeshraj.com/service-tax.html">http://www.mukeshraj.com/service-tax.html</a></p> <p>Tax shield is not applicable for this project since RBPL is new company which has been verified from the company incorporation certificate and the last year balance sheet.</p> <p>All the tax calculation is in line with local accounting standards.</p>

Parameter:	Depreciation Rate (Based on WDV method for tax calculation)
Value applied for the IRR calculation:	Land: 0% Civil works: 10% P&M: 80%
Source of the value:	KREDL Approved DPR/P08/ and IT/B13/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	<p>As per Income Tax Rules, Appendix I <a href="http://law.incometaxindia.gov.in/TaxmannDit/DispCitation/ShowCit.aspx?fn=http://law.incometaxindia.gov.in/DitTaxmann/IncomeTaxRules/Rules2005/APPENDIXI_new.htm">http://law.incometaxindia.gov.in/TaxmannDit/DispCitation/ShowCit.aspx?fn=http://law.incometaxindia.gov.in/DitTaxmann/IncomeTaxRules/Rules2005/APPENDIXI_new.htm</a> . This is as per the local income tax law and the same was cross-verified and found to be correct.</p>

Parameter:	Depreciation Rate (Based on SLM method for P&L statement)
Value applied for the IRR calculation:	Land: 0% Civil works: 3.34% P&M: 5.28%
Source of the value:	KREDL Approved DPR/P08/ and IT/B14/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration

Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The book depreciation considered is based on the companies' act in the SLM method. Validation team checked book depreciation provided in the companies (Companies Act Schedule XIV ( <a href="http://www.fastfacts.co.in/resources/DepCoAct.rtf">www.fastfacts.co.in/resources/DepCoAct.rtf</a> ) act and found it to be correct. Hence, the input parameter is valid, correct and appropriate.

Parameter:	Administrative expense and Escalation rate
Value applied for the IRR calculation:	INR 2.5 mn for the project activity for the first year and the escalation rate of 10% per annum
Source of the value:	KREDL Approved DPR/p08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	The details of workers employed for the project activity is verified from the DPR. Total of 57 people will be recruited to operate the biomass power plant with a backup support of 5 people at the corporate office totaling to 62 people. Considering salary of INR 40,000 on an average per employee per year (i.e., Approx. 725 \$ per year) is more conservative with an annual 10%. Considering the risk and work involved in operation of biomass boiler and power plant, the total number of employees and the wages considered are found to be valid and correct.

Parameter:	Specific Fuel Consumption
Value applied for the IRR calculation:	1.1 kg/kWh
Source of the value:	KREDL Approved DPR/P08/
Consistency of the value:	Value is consistent both in webhosted PDD/P01/ and Final version of PDD/P02/ submitted for registration
Validity of input value at the time of investment decision making:	Yes
Justification by the validation team according to §120, 121 of VVS version (02.0) ( cross checking and comparison as applicable)	<p>The basic parameter of 3000 k Cal of energy is required to produce one unit (one kWh) is taken as bench mark for calculation fuel requirement.</p> <ul style="list-style-type: none"> <li>Average heat recovery from Rice Husk as fuel is 3200 k Cal/kg</li> <li>Energy requirements for one unit of electric energy</li> </ul>

	<p>3000 k Cal/kg</p> <ul style="list-style-type: none"> <li>Fuel requirement / unit of electric energy 3000/3200 =0.9 kg</li> <li>Add handling &amp; other losses @ 20% to 0.9kg +0.18 =Approx. 1.1 kg</li> <li>Total fuel requirement/unit of electric energy 1.1 kg/kWh.</li> </ul> <p>This value is further cross verified with CERC order/p27/ which recommends the specific fuel consumption rate as 1.1 kCal/kWh. Thus the value considered in the assumption calculation is found to be valid and correct.</p>
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Nevertheless CL-03, CL-04, CL-06, CL-07, CL-08, CL-09, CL-10 are raised and closed successfully.

### Financial calculation and conclusion:

The block of assets has been computed for depreciation purpose as per the accepted accounting principles and ruling given. Tax liability has been calculated as per the income tax rules and the rulings given.

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

The result of the analysis is as follows,

Project location and capacity	Project IRR	Benchmark
Raichur and 9.0 MW	9.52%	13.80%

The financial analysis is in accordance with “Guidelines on the assessment of investment analysis” version 05. All input parameters used in the IRR calculation were valid at the time of investment decision making. The validation team confirms that the post-tax project IRR without any CDM revenue works out to be 9.52% which is below benchmark of 13.80% respectively. It is clearly demonstrated that the proposed project activity without CER revenues is financially unattractive. The validation took cognizance of § 119 of VVS (version 03.0).

### 3.5.3.2 Sensitivity analysis:

According to the “Guidelines on the assessment of investment analysis” (version 05), only variables including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets. The validation team thus confirms that the following parameters meet the requirement and these parameters have been subjected to variations in the range of +10% and -10% in the PDD. As per the detailed explanation provided under the source of the input parameters used in the financial indicator calculation for tariff and REC, it is verified that REC is an E- policy and as per the survey conducted by third party it is expected that the floor price is expected to reduce from the price considered in the investment analysis, the same is not considered by the PP in sensitivity analysis which is accepted by the DOE.

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

Parameter	9.0 MW Biomass Power Project in Raichur by RBPL (Benchmark WACC=13.80)			
Input Values	-10%	0%	10%	Breaching Value
Project Cost	11.38	9.52	7.92	Project cost reduction of more than 20%

O&M	10.03	9.52	8.99	O&M cost reduction of more than 70%
Electricity Tariff	2.26	9.52	14.63	Tariff increase of more than 09%
PLF	7.55	9.52	11.58	PLF increase of more than 21%
Fuel Price	14.10	9.52	3.66	Fuel cost reduction of more than 09%

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

Input value	Variation	Validation team's opinion
PLF	If the PLF increases by 20 % for 9.0 MW the IRR of the projects reaches the benchmark.	The PLF has been reported as per the DPR approved by KREDL/P08/ and recommendation provided by KERC/P28/ and CERC/P27/ in its latest tariff order. Hence a PLF fluctuation of more than 10% is unlikely to happen.
O&M Cost	If the O&M cost decreases by 70% the projects reaches the benchmark.	It is observed that O&M cost is not a critical factor at all in as much as only 70% reduction in O&M cost would render the project non-additional. Such reduction in O&M cost, when the country is experiencing inflation at 6.02% as per IMF/B15/ is impossible. Moreover, the O&M cost is also confirmed from CERC tariff order/P27/, therefore, represents firm cost and as such the question of any reduction in the cost is hypothetical.
Project Cost	If the project cost decreases by 20% the IRR of the projects reaches the benchmark.	The DPR is prepared based on the values available at the time of decision making and latest (i.e., FY 2011-2012). Hence considering the inflation rate of the country and increase in material cost, it is evident that decrease in project cost of 20% is unlikely scenario.
Tariff Rate	If the tariff rate increases by 09% the IRR of the projects reaches the benchmark.	Tariff is already fixed with the third party sellers/P18/ with a cost of INR 3.70 @ 5% escalation. So there is no question of increase in the tariff cost which is hypothetical. Any increase in tariff will have a problem with the operation of the biomass power plant since during the local stakeholder consultation/P20/, the PP has committed to sell the power at a lower price and entered in to an agreement with the rice mill owners for supplying power through southern grid. Hence any increase in tariff will result in difficulty of selling power to the local rice mills. Hence tariff committed to the rice mills during the validation stage through power purchase agreement is deemed valid and fixed for the life time of the project.
Fuel Cost	If the fuel cost increases by 12% the IRR of the projects reaches the benchmark.	Fuel purchase price is fixed with the rice mill owners at a rate of INR 2500/Tons with an annual escalation of 5% per annum. Hence the fuel price is fixed for the life time of the project there is no question of increase in the fuel price increase cost which is hypothetical.

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

### 3.5.4 Barrier analysis

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

### 3.5.5 Common practice analysis

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

### 3.5.6 Conclusion of assessment of Additionality

The CDM was seriously considered by the RBPL. The evidences were transparently reviewed by the validation team and considered to be effective. Investment analysis and sensitivity analysis clearly demonstrates that the proposed project activity is financially unattractive. Therefore, the proposed project activity is not business-as-usual, i.e. the proposed project activity is additional.

## 3.6 Monitoring

The monitoring plan is described in Section B.7 of the PDD/P02/ based on the approved monitoring methodology AMS I.D/Version 17 titled “Grid connected renewable electricity generation” and is correctly applied to the CDM project activity. This methodology stipulates that monitoring shall consist of monitoring of Quantity of Net Electricity supplied to the grid by the project during the year  $y$ .

All the monitoring parameters have been included in the PDD as per the methodology requirements. The selection of parameters not to be monitored is verified to be in line with the methodology. The significant parameters to be monitored are

1. Net calorific value of coal in year  $y$
2. Quantity of fossil fuel consumed in the project activity in year  $y$
3. Net Calorific value of Rice Husk
4. Quantity of biomass consumed in the project activity in year  $y$
5. Quantity of Net Electricity supplied to the grid by the project during the year  $y$ .
6. Percentage of moisture in biomass residue (wet basis)
7. Return trip road distance between the origin and destination of freight transportation activity  $f$  in monitoring period  $m$
8. Total mass of freight transported in freight transportation activity  $f$  in monitoring period  $m$

The description of monitoring of parameters listed in the PDD is verified to be in line with the methodology AMS-I.D and the plan is acceptable to be a feasible one. As the project is yet to be commissioned, the verification team can check the backup procedures and monitoring procedures of the project activity as mentioned in the DPR.

The project monitoring plan is in compliance with the monitoring methodology AMS-I.D (version 17). It is DOE’s opinion that the project participant is able to implement the monitoring plan. This confirms the requirement of § 132 of VVS version 03.0. Nevertheless CAR-11 and CL-12 are raised and closed successfully.

### 3.6.1 Parameters determined ex-ante

The project adopts the ex-ante calculation of emission factor of the grid. The OM and BM are calculated as fixed factors for the first renewable crediting period by choosing data vintage based on ex-ante data published by CEA/B08/.



The parameters for determining the GHG emissions reductions have been clearly demonstrated in section B.6.2. of the PDD. The combined margin emission factor has been calculated to be 0.84 tCO<sub>2</sub> / MWh for Southern grid.

In addition to that, the Specific Fuel Consumption of Rick Husk utilized in the project activity and Default CO<sub>2</sub> emission factor for freight transportation activity are fixed ex-ante. The same is verified by the DOE and found to be appropriate.

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

The validation team confirms that all relevant parameters have been sufficiently considered and the values of the parameters are real, measureable and conservative.

Nevertheless CL-14 is raised and closed successfully.

### 3.6.2 Parameters monitored ex-post

During the crediting period following parameters will be monitored by the PP as required by the according to the approved methodology AMS-I.D version 17, the following parameters will be monitored:

Sl. No.	Parameters	Description
1	<b>EG</b> <sub>BL,y</sub>	Quantity of Net Electricity supplied to the grid by the project during the year y <b>Description:</b> The net electricity generated by the power plant is measured at the grid interconnection point by subtracting total gross electricity generation (i.e., Export) minus total import of electricity for auxiliary consumptions (i.e., Import). The project plan to install state of art digital tri-vector which can monitor both export and import values with an accuracy class of 0.2s. The PP has planned to monitor this parameter on continuous basis and record the same monthly in the form of B-FORM which is signed by the state utility and PP. The values can be further cross verified from the invoice copy raised by RBPL to the state utility. The meters will be calibrated once in a year. This parameter is used for the calculation of baseline emissions.
2	<b>BF</b> <sub>L,y</sub>	Quantity of biomass residue 'i' received in the project activity each year <b>Description:</b> The biomass quantity shall be monitored based on the Opening Stock + Receipts – Closing Stock. Using weigh bridge, the quantity of biomass will be weighed and the total usage in the project activity is calculated. Monitoring of data is on daily basis and aggregated monthly in plant records and later converted to electronic format for verification purpose. The value is not used for any emission reduction calculation. However, the parameter is just to verify the energy balance calculation. The calibration of weighbridge will be as per the manufacturer specification. The DOE verified the explanation provided in the PDD and found to be appropriate.
3	<b>FC</b> <sub>y</sub>	Quantity of coal used in the project activity each year <b>Description:</b> The coal usage shall be monitored based on the Opening Stock + Receipts – Closing Stock. Using weigh bridge, the quantity of coal will be weighed and the total usage in the project activity is calculated. The value is used for project emission calculation. Monitoring of data is on daily basis and aggregated monthly in plant records and later converted to electronic format for verification purpose. The calibration of weighbridge will be as per the manufacturer specification. The DOE verified the explanation provided in the PDD and found to be appropriate.
4	<b>NCV</b> <sub>i,y</sub>	Net Calorific Value of Rice Husk used in project plant for power generation <b>Description:</b> Net Calorific Value of biomass will be determined in third-party

		laboratories according to relevant national / international standards. The fuel analysis tests will be carried out quarterly by taking at least three samples for each measurement during the first year of the crediting period. The average value shall be used for the rest of the crediting period. The data will be monitored for all the biomass residues used in the project activity scenario. However, the data is not utilized in the determination of emission reductions. The DOE verified the explanation provided in the PDD and found to be appropriate.
5	$NCV_{(Coal),y}$	Net Calorific Value of coal used in the project power plant <b>Description:</b> Net Calorific Value of coal will be determined in third-party laboratories according to relevant national / international standards. The fuel analysis tests will be carried out for each coal delivery by taking at least one sample for each measurement. The data will be monitored for all the coal used in the project activity scenario. And, the data shall be utilized ex-post to determine project emissions.
6	$D_{f,m}$	Return-trip road distance between origin of rice husk biomass and the project site during the monitoring period <b>Description:</b> Based on the ODOMETER reading, the distance between the project power plant and rice mills supplying rice husk to the project activity will be determined once during the monitoring period. In case of shift in rice mills during the monitoring period the same will be recorded in the project site and accordingly the distance will be calculated. The data will be monitored to determine the project emissions.
7	$q_{water}$	Percentage of moisture in biomass residue (wet basis) <b>Description:</b> Measured monthly through in-house laboratory tests and averaged out to get annual average. The data will be monitored to determine the operational consistency. The value is not applied in any emission reduction calculation.
8	$FR_{f,m}$	Quantity of biomass residue ‘i’ received in the project activity each year <b>Description:</b> Please see description provided in point 2. The same is applicable for this monitoring parameter; however the values derived will be used for project emission calculation.
9	$EF_{CO_2}$	Default CO <sub>2</sub> emission factor for coal <b>Description:</b> As suggested in EB 41, Annex 11 “Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel consumption” Version 02. The parameter is monitored ex-post to ensure that the most recent version of the data source will be utilized for the monitoring period to estimate the project emissions resulting from use of coal for operating the project.

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

Nevertheless CAR-09 is raised and closed successfully.

### 3.6.3 Management system and quality assurance

Steps undertaken to assess the monitoring plan,

The overall responsibility for project management & monitoring holds with the Managing Director of the RBPL to whom the Technical Director has to report the overall responsibility of compliance of CDM and monitoring plan. Plant Manager of the project power plant is responsible for internal audits, QA/QC procedures, Collection,

recording and storage of data, ensuring compliance with CDM monitoring plan will report to Technical director. Project engineer takes care of calibration requirements, responsible for completeness and reliable of data, monitoring measurements and preparation of report. Shift operator is responsible for proper monitoring of parameters and consolidating electricity generation, export and import meter readings and fuel consumption, plant shut down time and reporting to the Project engineer on a shift basis. Project Manager is responsible for checking and reviewing the accuracy of various monitored parameters and submitting a summary on project operation and electricity generation to the Technical director on daily basis. Managing Director also examines the internal audit reports prepared by Technical director and will in particular take note of any deviations in data over the norms and monitor that the corrective actions have resulted in adherence to standards.

Compliance of the monitoring plan with the approved methodology,

#### **Monitoring procedure/P02/:**

The electricity generated will be monitored (on a continuous basis) at the project site by the energy meters installed at the site by the DISCOM. Energy meter installed measures both export & import of energy from the grid. Net electricity supplied to the grid is calculated by deducting the import of electricity from the export data. The data will be recorded by the personnel from the electricity board on a monthly basis from main meter at the site. Based on the recorded data, meter readings (in the form of monthly statement-B Form) will be issued by DISCOM to the RBPL. Emission reductions will be calculated based on the net quantity of electricity reported in the monthly statement provided by RBPL. Validation team also verified the monitoring mechanism explained during the onsite visit conducted on 2012-11-30 and confirms the monitoring plan will be in line with the methodology AMS-I.D version 17 hence the DOE reviewed the monitoring parameters mentioned in the PDD are possible and able to measure the as specified in the PDD.

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

- Monitoring parameters: the monitoring parameter of the project includes quantity of net electricity supplied to the southern grid in year y (Total export – Total import) by the project activity as described in section B.7.1 of the PDD.
- Quantity of biomass (Rice husk) or residue and coal used in the project activity using weigh bridge at the entry to the project site.
- No of trucks load carrying biomass and other fuel for power generation
- Net Calorific value of Coal and Biomass determined by a third party agency
- Operational and management structure: management structure is illustrated for the CDM project monitoring;
- Monitoring Equipment and Relative Location: metering equipment to monitor export and import of electricity (to calculate Quantity of net electricity supplied to the grid in year y by the project activity)

Quality Control and Data Archive: arrangement of meter calibration; archiving of the data collected during monitoring; and collection of monitored data and report preparation.

The Project is operated and managed by RBPL. RBPL will have a designated shift operator on site; will be responsible for monitoring the electricity exported from the project activity, measurement of quantity of fuel used for power generation. Energy generation such as Export and import of electricity is measured by calibrated energy meters with accuracy class of 0.2s. The net electricity supplied to the grid is calculated as difference of export and import electricity which is recorded in the monthly Joint Meter Readings in the form of B-FORMS. The approach adopted by the PP is conservative and hence accepted.

Quantity of net electricity supplied to the grid in year y is monitored as per the requirement of § 22 bullet (5) of the monitoring methodology /B02/ applied for the project activity and hence confirms compliance of § 132(a) of VVS version 3.0.

The above calculations would be carried out solely by distribution licensee/ and only the final values of electricity export, import, and net export from the power plant would be reported in B-FORM.

#### **Implementation of the plan**

According to document review in the PDD and on-site interviews with the representatives of the PP /I-01/, /I-02/, /I-03/ it is confirmed that detailed monitoring procedures, monitoring structure, management team, monitoring items and functions are clearly demonstrated in the PDD which will enable subsequent verification of the project's emission reductions in line with the applied methodology. The validation team confirms that as per § 24 of EB 23, the specific uncertainty levels, methods and associated accuracy level of measurement instruments and calibration procedures used for various parameters and variables are identified in the PDD /P01-III/, along with detailed quality assurance and quality control procedures. The accuracy class of 0.2s and the method and frequency of calibration of the electricity meters confirm to the national standards as well PPA. All the monitored data will be archived until 2 years after the crediting period to facilitate cross-checking during the crediting period.

Hence the validation team considers that the PP is capable to implement the monitoring plan and hence confirms compliance of § 132(b) of VVS version 3.0 /B01/.

### **3.7 Sustainable Development/P03/:**

The host party's DNA, Ministry of Environment and Forests of India has confirmed the contribution of the project to the sustainable development in India by issuing the LoA of the project in 2012-11-22. It is stated in the LoA that the "9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India" which was checked by the validation team to be valid. The validity of the LoA from India has been assessed by the validation team in the section 3.1.1.

The project activity is in compliance with all current applicable legislations. The project activity leads to generation of solid and gaseous effluents which will be treated safely as per the local environmental regulation which has to be visited by the Environmental officer every year to check the operation condition of the power plant and get their consent to operate certificate renewed every year. The generation of electricity from biomass will partly displace fossil fuel based electricity generation of grid and there are only benefits derived out of the project and no adverse effects are envisaged. Moreover, the location of the project activity is in remote and economically backward region and hence largely contributes to the social wellbeing of the region.

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

### **3.8 Environmental Impacts/B06/:**

The project activity is expected to have positive impacts and no significant adverse environmental impact due to project activity is foreseen since the proposed project is a renewable energy (Biomass-Rice husk) project with minor project emissions from the transportation of biomass from rice mills to project site. In case if the project proponent uses coal as the alternate fuel during emergencies, the same will be accounted in project emissions. There is no mandatory legal requirement for carrying out EIA for Biomass power projects with less than 10 MW, which was verified by means of EIA notification dated 2006-09-14, of MoEF. However, the validation team has verified all the clearances like statutory clearances; pollution control board clearance and Power Purchase Agreements for supplying power to the third party rice mill association. The validation team confirms that all the clearances obtained are in accordance with the procedures required by the host party. To confirm the impact associated with the project proponent, the validation team has physically inspected during the on-site visit and also through conducting the relevant stakeholders. It is validation team's opinion that the project activity does not cause the adverse environmental impacts and there are no regulations or requirement by the host country to conduct the EIA for the project activity. The same is confirmed from the (<http://envfor.nic.in/legis/eia/so1533.pdf>).

### **3.9 Local Stakeholder Consultation/P20/:**

A Local Stakeholders meeting was carried out by the project proponent on 2012-05-18 at Nrupathunga Hotel, Amoga Hall Yedlapur Village, Raichur District, Karnataka. The LSC was conducted prior to the publication of PDD on the UNFCCC website for GSC process. The validation team noted that all the relevant stakeholders

were identified are in line with the definition of stakeholders as per latest version of CDM Glossary of terms. The public announcement appeared in the Daily newspaper of Raichur Vani on 2012-04-27. Additionally, the PP intimated Government officials of the state government, KREDL, KPTCL, KSPCB about the meeting. The PP has utilized appropriate media to invite these stakeholders such as newspapers, invitation letters, public notice etc to invite them prior to 20 days of LSC meeting. The LSC meeting started with an introductory note by Mr. R.P.Krishnamurthy, Managing Director then continued by Mr. Srinath speech on climate change and CDM benefits to the local community. Stakeholders were directly asked to comment on the project through in an open meeting conducted on 2012-05-18. A summary of the comments received and a note on how due account was taken of the concerns raised in the above public consultation are included in section E of the PDD. This also states that appropriate immediate responses were provided to local stakeholders. The comments are related to infrastructure development such as roads, environmental issues from the project, disposal and procurement of rice husk, employment opportunities, electricity tariff and quality. From the background of the stakeholders, it was reasonably believed that the general attitude of the local residents, who were likely to be affected by the project, was positive towards the project and same has been verified from the onsite visit interviews with the local stakeholders. Validation team reviewed all relevant information of local stakeholder consultation meeting and confirms that the LSC meeting meets to the requirement of § 139 of VVS, version 03.0. The validation team confirms that the process for conducting the local stakeholders meeting is adequate and credible.

During the onsite visit/I-01/,I-02/,I-03/, representatives from the local community were interviewed. In general, the interviewees showed adequate understanding of the nature of the project and felt that there would be no adverse impacts on the environment arising from the project activity. The interviewees also considered that the local economy would be benefitted from the project activity. The validation team confirms that the process for conducting the local stakeholders meeting is adequate and credible.

### **3.10 Comments by Parties, Stakeholders and NGOs**

The PDD version 01 of “2012-07-14” was made publicly available on (<http://cdm.unfccc.int/Projects/Validation/DB/0UWFD5UMEIPD0CFMSJY3MK1MY4UVSV/view.html>) from “2012-07-25 - 2012-08-23” in order to invite comments from public stakeholders. No public comments have been received during that period.

## Appendix A

### CDM Validation Protocol

9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India

Report No. 01 997 9105071023



**Table 1: Validation requirements**

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

Checklist question	Ref.	MoV <sup>10</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>1. Approval(VVS Section 7.6, 7.7, 7.8 &amp; 7.9)</b>					
<p>1.8 Have Letters of Approval have been provided from all involved Parties?</p> <p><i>If yes, indicate: when and by which Party the LoA has been issued, with a clear reference to the LoA itself and any supporting documentation; whether the LoA was provided to the DOE by the project participants or directly by the DNA; the means of validation employed to assess the authenticity of the document; and by a clear statement, that the DOE considers the LoA to be valid.</i></p>	/unfccc/ /P01/ /P03/	DR,I	<p>The National Clean Development Authority, Ministry of Environment and Forests (MoEF), Government of India, is the DNA. The PP has to submit a letter of approval issued by MoEF.</p> <p>The letter of approval for the project “9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India” was provided by the PP. This was subsequently verified by visit to the website<sup>11</sup>.</p> <p>Letter of approval bearing number 4/15/2012-CCC dated 2012-11-22 from Ministry of Environment and Forests, DNA, Government of India, the Host country has been submitted and verified.</p>	OK	OK
<p>1.2 Are all Parties, who issued the LoA, Parties to the Kyoto Protocol and are this, stated in the LoA?</p>	/unfccc/ /P01/ /P03/	DR,I	<p>The letter confirms that India ratified the Kyoto Protocol on 2002-08-26.</p> <p><i>Host country approval for the project from the National Clean Development Authority, Ministry of Environment and Forests (MoEF), Government of India, has not been submitted for verification.</i></p> <p>Letter of approval bearing number 4/15/2012-CCC dated 2012-11-22 from Ministry of Environment and Forests, DNA, Government of India, the Host country has been submitted and verified that India has ratified Kyoto protocol.</p>	OK	OK

<sup>10</sup> MoV = Means of Validation, DR = Document Review, I = Interview, www = internet search.<sup>11</sup> <http://cdmindia.nic.in/#>

1.3 Is every LoA from the Parties involved issued by an organization listed as Designated National Authority (DNA) on the UNFCCC web site? <i>Indicate the official name of the DNA and contact person name.</i>	/unfccc/ /P01/	DR,I	The approval is issued by the Ministry of Environment & Forests ( <a href="http://cdm.unfccc.int/DNA/view.html?CID=101">http://cdm.unfccc.int/DNA/view.html?CID=101</a> ) listed in the UNFCCC website as the DNA in India. The issuance was confirmed by visiting the website of the National CDM Authority, MoEF, Government of India.	OK	OK
1.4 Is the participation in the CDM project activity voluntary and is this stated in all LoAs? <i>Indicate the source of proof.</i>	/unfccc/ /P01/ /P03/	DR,I	The proposed project activity is renewable energy project activity and it is a voluntary initiation by the project proponent (RBPL).	OK	OK
1.5 Is the LoA unconditional with respect to 1.2 to 1.4?	/unfccc/ /P01/ /P03/	DR,I	The Letter of Approval from the host party is submitted and is unconditional w.r.t 1.2 to 1.4	OK	OK
1.6 Is the title of the CDM project activity as given in the PDD identical with the title given in all LoAs and Modalities of Communication? <i>Provide Yes/No answer, and include details into Tables 2, 3 and 4 accordingly.</i>	/unfccc/ /P01/ /P03/ /P06/	DR,I	Yes, the title of the project in PDD, LoA and MOC are consistent with each other.	OK	OK
1.7 If any of provided LoAs contains additional specification of the CDM project activity (PDD version number, validation report version number, amount of ER, etc.) are those specifications valid and consistent with other documents?	/unfccc/ /P01/ /P03/	DR,I	No, the LoA doesn't provide additional information as requested in checklist.	OK	OK
1.8 Does the project activity involve any public funding from Annex I Parties? If yes, has Annex I Party provided a written confirmation that the use of such funding does not lead to the diversion of the official development assistance.	/unfccc/ /P01/ /I-01/	DR,I	No the project does not involve any public funding.	OK	OK
1.9 Is the MOC provided in line with the latest template available from the UNFCCC	/unfccc/ /P01/ /P06/	DR,I	Yes, the MOC provided in line with the latest template available from the UNFCCC as per VVS requirements.	OK	OK

1.10 Is MOC correctly filled and signed by authorized signatories identifying the focal point?	/unfccc/ /P01/ /P06/	DR,I	Yes, the MOC correctly filled and signed by authorized signatories identifying the focal point (Mr. R. P. Krishnamurthy). The LoA is issued to Mr. R. P. Krishnamurthy, Managing Director of RBPL.	OK	OK
1.11 Is the written confirmation obtained by the PP's stating the authorization, specimen signatures and personal details are valid and accurate?	/unfccc/ /P01/ /P31/	DR,I	Yes written communication is submitted by PP stating the authorization, specimen signatures and personal details.	OK	OK
<b>2. Participation (VVS Section 7.6, 7.7 &amp; 7.8)</b>					
2.1 Are the Parties and project participants (PP) listed in the section A.4 of the PDD correctly and is this information consistent with the contact details provided in Annex 1 of the PDD?	/P01/	DR	Yes, PP listed in the section A.4 of the PDD is M/s Raichur Bioenergies Private Limited which is correct and consistent with the contact details provided in the Annex 1 of the PDD.	OK	OK
2.2 Has every Party involved approved the participation of each corresponding PP, either by means of a LoA or by a separate written document? <i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i>	/unfccc/ /P01/ /P03/	DR,I	The proposed project is a unilateral one, with India as host party. The Letter of Approval from the host party is verified for the same.	OK	OK
2.3 Do all participating Parties fulfil the participation requirements as follows: a) Party has ratified the Kyoto Protocol b) Party has designated a Designated National Authority c) The assigned amount has been determined	/unfccc/ /P01/ /P03/	DR,I	PP has mentioned India as the host party participating in the project activity which is found to be correct. Party has ratified as the host party under the Kyoto protocol which is verified through UNFCCC website. Party has designated National CDM Authority, Ministry of environments and Forests (MoEF) as the Designated National Authority for providing the Host country approval for the CDM project activities.  Letter of Approval from the DNA is verified for the same and found to be valid.	OK	OK

<p>2.4 Do the letters of approval meet the following requirements?</p> <p>a) LoA confirms that Party has ratified the Kyoto Protocol</p> <p>b) LoA confirms that participation is voluntary</p> <p>c) The LoA confirms that the project contributes to the sustainable development of the host country?</p> <p>d) The LoA refers to the precise project activity title in the PDD</p> <p><i>In case of doubt regarding the authenticity of the letter of approval, describe how it was verified that the letter of approval is authentic</i></p>	/unfccc/ /P01/ /P03/	DR,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 “9MW Biomass Power Project at Yedlapur Village in Raichur District, Karnataka, India” and has confirmed that the project contributes to sustainable development in India as per their letter no. 4/15/2012-CCC dated 2012-11-22 addressed to the Managing Director, M/s Raichur Bioenergies Private Limited.</li> <li>The letter was submitted by the PP to TÜVR 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> <li>The LoA refers precise title of the project activity.</li> </ul>	OK	OK
<b>3. Project Design Document (VVS Section 7.10)</b>					
<p>3.1 Is the PDD presented for validation based on the latest template available at the UNFCCC website?</p> <p><i>Indicate Yes / No answer and describe all inconsistencies in the Tables 2, 3 and 4 accordingly.</i></p>	/P01/ /unfccc/	DR,I	The PDD applied template F-CDM-SSC-PDD - Project Design Document form for Small-Scale CDM project activities, Version 04.1 which is the latest template available at the UNFCCC	OK	OK
<p>3.2 Has the PDD been established in accordance with the CDM requirements for completing PDDs issued by the CDM EB?</p>	/P01/ /unfccc/	DR	Yes, the PDD has been established in accordance with Guidelines for completing the simplified Project Design document (CDM-SSC-PDD) and the form for proposed new Small Scale Methodologies (CDM-SSC-NM) EB 66, Annex 09, Version 01, which is	<del>CAR-05</del> <del>CAR-06</del> <del>CL-16</del>	OK

			the latest guidelines available in the UNFCCC. Nevertheless, CAR-05, CAR-06, CL-16 are raised.		
<b>4. Project Description (VVS Section 7.11)</b>					
<p>4.1 Does the PDD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?</p> <p>4.1b) Is the description (incl. any process flow-charts, Spread sheets etc.) complete, coherent and consistent with the provisions of the monitoring plan?</p> <p>4.1c) Is the project's location clearly defined?</p>	/P01/ /unfccc/	DR	The PDD contains the description of nature of the project activity and technical details of implementation. The description is complete, coherent and consistent with the provision of monitoring plan. Nevertheless CAR-03, CAR-05, CAR-06 and CAR-08 are raised.	<del>CAR-03</del> <del>CAR-05</del> <del>CAR-06</del> <del>CAR-08</del>	OK
<p>4.2 In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals?</p> <p><i>Provide Yes/No answer and indicate the documents which have been reviewed in relation to the issue.</i></p>	/P01/	DR	Yes, the project is green field project activity and the project design is described sufficiently by means of specification of the major equipment's and schematic diagram of the power plant with plant layout diagram in the PDD.	OK	OK
<p>4.3 Does the project activity reflects current good practices, uses state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country?</p> <p><i>Provide the description of how validation has been carried out and what comparisons have been made.</i></p>	/P01/	DR,I, www	By verifying the equipment specification and the technology mentioned in the PDD it is confirmed that the project activity uses current good technologies in India. Nevertheless CL-06.a is raised.	<del>CL-06.a</del>	OK
<p>4.4 In cases where the project activity involves the alteration of an existing installation or process, does the PDD provide a clear description of the differences between the project and the pre-project scenario?</p> <p><i>Please, provide Yes/Now answer and update Tables 2, 3 and 4 accordingly, if there is anything unclear in the provided description.</i></p>	/P01/	DR, I	No, the project is a Greenfield project activity. Hence it does not involve any alteration of an existing installation.	OK	OK

<p>4.5 What type is the project? If small scale – whether is it Type I or type II or type III?  Type I – is maximum output capacity is equal or less then 15MW  Type II – is maximum output equal or less then 60GWh/year  Type III – is maximum output exceeds 60GWh/year</p> <p>i) Project in existing facility or utilizing existing equipment(s)  ii) Project is either a large scale project or a non-bundled small scale project with emission reductions exceeding 15 000 tCO<sub>2</sub>e per year. In this case, a site visit must be performed.  iii) Project is a bundled small scale project, with each project in the bundle with emission reductions not exceeding 15,000 tCO<sub>2</sub>e per year. In such case the number of physical site visits may be based on sampling, if the sampling size is appropriately justified through statistical analysis.  iv) The project is an individual small scale project activity with emission reductions not exceeding 15 000 tCO<sub>2</sub>e per year. In this case, DOE may not conduct a physical site visit as appropriate.  v) Greenfield project</p> <p>For small scale biomass, biofuel and biogas project activity – the maximal limit is 15MW (e) and 45MWth thermal output.  For small scale solar energy projects with exceptional of parabolic and trough type collectors – rest all shall have maximum output eligibility limit in terms of aperture area is 64000m<sup>2</sup>.</p>	/P01/ /I-01/ /I-02/	DR, I	<p>The project is greenfield small scale project activity and falls under Type I. A physical site visit is conducted. By means of document review the technical design and implementation &amp; monitoring plan are checked.</p> <p>The biomass power plants installed capacity will be 9 MW which is within the small scale limit of 15 MW.</p>	OK	OK
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<p>4.6 How was the design of the project assessed?</p> <p>i) Physical site inspection</p> <p>ii) Reviewing available designs and feasibility studies</p> <p><i>If a physical site inspection is not undertaken, justify why no site visit was undertaken:</i></p>	/P01/	DR, I	<p>Since the project didn't place any purchase order either for civil or plant and machineries at the time of validation stage, the DOE is not able to verify the actual technical specification going to be installed at the project site. However it was confirmed by the PP that all the technical parameters mentioned in the PDD will remain same. Nevertheless FAR-01 is raised.</p>	FAR-01	OK
<p>4.7 Does the project qualify as a small scale CDM project activity as defined in paragraph 6(c) of decision 17/CP.7 on the modalities and procedures for the CDM?</p>	/P01/	DR, I	<p>The project is a Small scale project activity, Type I (Renewable Energy Projects):</p> <p>This is the grid connected biomass power plant with installed capacity of 9.0 MW, less than 15 MW which is the qualifying limit for the type I Small scale project activities. Hence this condition is justified.</p>	OK	OK
<p>4.8 In case of small scale project – is the project a bundle project activity? In this case the bundle output shall not exceed the small scale project activity limit</p> <p>Refer « general principles for bundling»</p>	/P01/ /P07/ /B10/	DR, I	<p>The project is not a bundled project activity. The PP has submitted an under taking letter for the same and the DOE cross verified the same in CDM pipeline.</p>	OK	OK
<p>4.9 Is the small scale project activity a de-bundled component of a larger project activity in accordance with the rules defined in appendix C of the simplified modalities and procedures for small-scale CDM project activities?</p> <p>Refer «guidelines on assessment of de-bundling for SSC project activities»</p> <p><i>A proposed small-scale project activity shall be deemed to be a de-bundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:</i></p> <p><i>(a) With the same project participants;</i></p>	/P01/ /P07/ /B10/	DR, I	<p>No, the proposed project activity is not a de-bundled component of a large scale project activity. PP has defined the same in section A.6 of the PDD and confirmed the de-bundling conditions as described in paragraph 2 of Appendix C of simplified modalities and procedures.</p> <p>DOE team has also cross verified the occurrence of de-bundling by checking with the NCDMA and UNFCCC website and found no CDM projects are in pipeline with the same project proponent within the 2km</p>	OK	OK

(b) In the same project category and technology/measure; and (c) Registered within the previous 2 years; and (d) Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.			radius of the project location.		
<b>5. Baseline and Monitoring methodology(VVS Section 7.12)</b>					
<b>5.1 General requirements (VVS Section 7.12.1)</b>					
5.1.1 Is the methodology used in the project activity approved by the CDM EB and is the selected version still valid? <i>If during the course of validation the originally applied version of the methodology expires, a CAR shall be raised in Table 3 of the validation protocol. Any new requirements of the revised version of the methodology not yet validated in Table 2 of the validation protocol shall be validated in Table 3 as part of the assessment of the CAR raised.</i>	/unfccc/ /P01/ /B02/	DR www	PP has applied the approved small scale methodology AMS I.D “Grid connected Renewable Energy generation” version 17 which is valid while submitting to the validation. No updated version is available at the time of validation. DOE has confirmed this through UNFCCC website.	OK	OK
<b>5.2 Applicability of the selected methodology (VVS Section 7.12.2)</b>					
5.2.1 Does the project activity qualify under the criteria for small-scale CDM project activities set out in § 6 (c) of decision 17/CP.7 and Annex II of the Modalities and Procedures for the CDM? <i>Please provide Yes/No response and description of how this was validated.</i> <i>In case of calculated emission reductions varying over time, SSC-applicability limits must be met for every single year in any of the max. 3 subsequent crediting periods.</i> 5.2.1a) If the project applies a small-scale methodology, does the project also comply with the general guidelines to SSC CDM methodologies, which provides guidelines on equipment capacity, equipment performance/lifetime, baseline identification for type-II/III Greenfield project	/P01/	DR,I	Please refer checklist 4.7 above	OK	OK

activities, sampling and other monitoring-related issues? In case of replacement of existing equipment's – « tool to determine the remaining lifetime of equipment» shall be referred. This can be disregarded for household devices/appliances.					
5.2.1.1 If yes, does the PDD extensively demonstrates and confirms that the small-scale project activity is not a de-bundled component of a larger project? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures taken and data found during the procedure. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>	/P01/ /unfccc/	DR,I	Yes, Occurrence of de-bundling has been sufficiently demonstrated in section A.6 of the PDD.  DOE team has also cross verified the occurrence of de-bundling by checking with the NCDMA and UNFCCC website and found no CDM projects are in pipeline with the same project proponent within 2 km radius of the project site	OK	OK
5.2.2 Are all applicability conditions of the selected baseline and monitoring methodology and all tools involved satisfied by the project activity? <i>Please indicate Yes/No answer. In case of positive conclusion provide details of the validation measures. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>	/P01/ /B02/	DR,I	The eligibility criteria mentioned under Section B.2 of PDD are in line with the AMS I.D version 17.	OK	OK
5.2.3 Is the selection of the applied baseline and monitoring methodology justified?	/P01/ /B02/	DR,I	Yes, selection of the applied baseline and monitoring methodology justified	OK	OK
5.2.4 Is the selected methodology correctly quoted in all related documents?	/P01/ /B02/	DR	Yes, the selected methodologies are correctly quoted in all related documents.	OK	OK
5.2.5 Does the PDD sufficiently describe all the GHG emission sources or sinks occurring as a result of project activity, which have not been accounted for under the selected methodology and are expected to contribute more than 1% of the overall expected average annual emission reductions? <i>Provide Yes/No answer. Indicate the sources or sinks of</i>	/P01/ /B2/	DR	As per the PDD proposed project activity displaces the electricity from the grid there by reduces the CO <sub>2</sub> emissions otherwise been released from the fossil fuel based grid connected power plants. The project emission from transportation is considered and found that the emissions are more than 1% which is not addressed by the	<del>CAR-09</del>	OK

<i>GHG, which were proved to be negligible. Otherwise amend the Tables 2, 3 and 4 accordingly.</i>			methodology. This is in compliance with the selected baseline methodology AMS I.D. No other GHG emission sources or sinks occurring as a result of project activity. PDD sufficiently described and accounted the baseline CO <sub>2</sub> emission reductions occurred due to the project activity in section B.4. Nevertheless CAR-09 is raised.		
<b>5.3 Project boundary (VVS Section 7.12.5)</b>					
5.3.1 Does the PDD correctly describe the project boundary? Are they clearly defined and in accordance with the methodology? <i>Provide Yes/No answer. And amend the Tables 2, 3 and 4, if needed.</i>	/P01/ /B02/	DR	Subject to closure of the below CAR-04, PDD-Section B.3: Please clarify why the biomass source is not included in the project boundary.	<del>CAR-04</del>	OK
5.3.2 Does the PDD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?	/P01/ /B02/	DR	Subject to closure of CAR-04	<del>CAR-04</del>	OK
5.3.3 In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, is the choice explained and justified by PPs?	/P01/ /B02/	DR	Yes, the choice of source of gas is to be included in the project boundary has been sufficiently justified in section B.3 of the PDD.	OK	OK
5.3.4 Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute with more than 1% of the estimated emission reductions of the project?	/P01/ /B02/	DR	Yes such emission sources are expected in the proposed project activity that deviates the project from the applicability of the methodology. Hence project emission because of transportation of biomass and usage of coal is monitored for conservative emission reduction calculation.	OK	OK
<b>5.4 Baseline identification (VVS Section 7.12.6)</b>					
5.4.1 Has the procedure contained in the selected methodology to identify the most reasonable baseline scenario been applied correctly and documented in the PDD?	/P01/ /B02/	DR	The baseline for the project activity has been provided by the methodology AMS I.D, version 17. As per the chosen methodology baseline scenario is the equivalent amount of electricity would have otherwise been	OK	OK

			generated from the grid connected power plants. PP has applied the same baseline to the proposed project activity which is plausible and reasonable in the host country.		
5.4.1.1 Is the identified baseline scenario plausible?	/P01/ /B02/	DR	The baseline scenario is prescribed by methodology which is most plausible for the project.	OK	OK
5.4.1.2 Are all assumptions stated in a transparent and conservative manner?	/P01/ /B02/	DR	Not applicable as the applied methodology AMS.D version 17 has prescribed the baseline scenario for the project activity. Nevertheless CAR-06-3 and CL-16 are raised.	<del>CAR-06-3</del> <del>CL-16</del>	OK
5.4.2 Does the selected methodology require the use of tools and does PDD reflects that correctly?	/P01/ /B02/	DR	Yes, the selected AMS I.D version 17 requires the use of Tool to calculate the emission factor for an electricity system (version 02.2.1) for baseline identification and the PDD reflected the above tool correctly. Nevertheless CAR-05 is raised.	<del>CAR-05</del>	OK
5.4.2.1 Were all the tools applied correctly?	/P01/ /B02/	DR	Yes, the Tool to calculate the emission factor for an electricity system (version 02.2.1) was applied correctly for baseline identification. Nevertheless CAR-05 is raised.	<del>CAR-05</del>	OK
5.4.3 In case the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, have all scenarios been considered and have no reasonable alternative scenario been excluded?	/P01/ /B02/	DR	Not applicable as the applied methodology AMS I.D version 17 has clearly prescribed the baseline scenario.	OK	OK
5.4.3.1 Has the choice of the baseline scenario been done using conservative assumptions?	/P01/ /B02/	DR	Not applicable as the applied methodology AMS I.D version 17 has clearly prescribed the baseline scenario.	OK	OK

5.4.4 Is the identified baseline scenario reasonable according to the assumptions, calculations and rationales used in the PDD and other reference sources?	/P01/ /B02/	DR	Not applicable as the applied methodology AMS I.D version 17 has clearly prescribed the baseline scenario.	OK	OK
5.4.6 Does the PDD describe how the national and Sectoral policies, macro-economic trends and political aspirations relevant to the baseline scenario have been identified and considered in the PDD? Refer CDM PS para 45	/P01/ /B02/	DR	Not applicable as the applied methodology AMS I.D version 17 has clearly prescribed the baseline scenario.	OK	OK
5.4.7 Does the PDD provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the project activity?	/P01/ /B02/	DR	In the project case baseline is the electricity grid which is hypothetical situation. Hence this condition is not applicable for the project case.	OK	OK
<b>5.5 Algorithm and/or formulae used to determine emission reductions (VVS Section 7.12.7)</b>					
5.5.1 Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner to calculate emission reductions from the project activity? 5.5.1b) Are correct units applied and consistency between parameter dimensions and parameter value ensured? <i>See also Question 4.1.b) with respect to consistency of parameter values between calculation spread sheets and PDD.</i>	/P01/ /B2/ /P04/	DR	Yes, PP has documented all the emission reduction calculation correctly in the PDD. All the units applied for the parameters are found consistent in all the reference documents presented for the validation. Nevertheless CL-14, CAR-09, CAR-10 are raised.	<del>CL-14</del> <del>CAR-09</del> <del>CAR-10</del>	OK
5.5.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?	/P01/ /B02/ /P04/	DR	PP has applied the correct equations for the emission reduction calculations as specified in the selected baseline methodology. $BE_y = EG_{BL,Y} * EF_{CO_2, grid,y}$ Nevertheless CAR-09 is raised.	<del>CAR-09</del>	OK



5.5.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed CDM project activity and conservative?	/P01/ /B02/ /P04/	DR	Yes, PP has chosen the ex-ante option for the build and operating margin emission factors used in the estimation of emission reductions. These parameters have been determined and fixed for the crediting period. PP has used the Emission factor Tool version 2.2.1 and CEA database version 07 for the calculation of these parameters. Nevertheless CL-14 is raised.	<del>CL-14</del>	OK
5.5.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters reasonable?	/P01/ /B02/ /P04/	DR	The only parameter that will be monitored and will be available only after validation is that the Net electricity generated by project activity ( $EG_{BL,y}$ ). For the purpose of ex-ante emission reduction calculation, the $EG_{BL,y}$ value is taken as 50,854 MWh/year. This value is calculated based on the 80% PLF value which is based on the DPR prepared by third party. The CERC order also considers 80% PLF for the biomass power project. Hence the value considered is reasonable and is in line with the EB 48, annex 11. All other parameters are assumed based on the DPR and biomass assessment report. Nevertheless CAR-11 is raised.	<del>CAR-11</del>	OK
5.5.5 Have the major risks and uncertainties, which can influence the emission reduction estimates, been identified and addressed in the PDD?	/P01/ /B02/ /P04/	DR	Not all the major risk and uncertainties which can influence the emission reduction have been identified and addressed in PDD. However CAR-09, CAR-10 are raised.	<del>CAR-09</del> <del>CAR-10</del>	OK
5.5.6 Are the calculations documented according to the approved methodology and in a complete and transparent manner in calculating the project emissions? Have conservative assumptions been used when calculating the project emissions?	/P01/ /B02/ /P04/	DR	Project emission calculations are not transparently presented in the PDD. CAR-09 and CL-14 are raised.	<del>CAR-09</del> <del>CL-14</del>	OK

5.5.7 Are uncertainties in the project emission estimates properly addressed?	/P01/ /B02/ /P04/	DR	Subject to closure of CAR-09 and CL-14.	<del>CAR-09</del> <del>CL-14</del>	OK
5.5.8 Does any of the parameters require the use of sampling? If yes – how the sampling is been carried out Refer «standard for sampling and surveys for CDM project activities and programme of activities»	/P01/	DR	Not applicable as no parameter requires sampling approach to monitor	OK	OK
<b>5.6 Leakage</b>					
5.6.1 Has the leakage been identified and calculated according to the approved methodology?	/P01/ /B02/	DR	The project will employ new equipment's and it will not be transferred from any other project activity. The same is confirmed through the interview with the PP. Hence Leakage due to transfer of equipment is zero The leakage emission due to competing use of biomass needs to be considered if the surplus biomass availability in the region is less than 25%. Though the biomass availability study report is reviewed during the site visit, the surplus biomass availability in the region is not justified in the section B.6 of the PDD. Hence CAR-10 is raised	<del>CAR-10</del>	OK
5.6.2 Have the leakage been addressed in complete, conservative and substantiated manner? Note: for small scale project activity – the leakage should be considered within the non-annex 1 parties.	/P01/ /B2/ /P6/	DR	Subject to closure of CAR-10	<del>CAR-10</del>	OK
5.6.3 Are uncertainties in the leakage emission estimates properly addressed?	/P01/ /B2/ /P6/	DR	Subject to closure of CAR-10	<del>CAR-10</del>	OK
<b>6. Methodology-related issues for afforestation or reforestation CDM project activities</b>					
Add specific A/R requirements – if applicable!			Not applicable for this CDM project activity	O.K.	O.K.
<b>7. Additionality (VVS Section 7.12.8)</b>					

7 a) What approach/tool does the project use to assess additionality? Is this in line with the methodology? In case of small-scale CDM project activities, is Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities applied considering also the “Non-binding best practice examples to demonstrate additionality for SSC project activities” with any applicable additionality tools.  For micro scale projects « guidelines for demonstrating additionality of micro scale project activities» shall be referred.	/P01/ /unfccc/	DR	The financial barrier is selected to prove the additionality of the project activity. The benchmark analysis is selected as a financial analysis method to prove the financial additionality of the project activity. PP has referred Attachment A to Appendix B and applied considering also the “Non-binding best practice examples to demonstrate additionality for SSC project activities”. Nevertheless CAR-05 is raised.	<del>CAR-05</del>	OK
7 b) Have the regulatory requirements correctly been taken into account to evaluate the project activity and the alternatives? Is sufficient evidence provided to support the relevance of the arguments made?	/P01/ /B02/	DR	Not applicable as the project is SSC project and the baseline is provided in the methodology itself.	OK	OK
7 c) What is the project additionality mainly based on (Investment analysis or barrier analysis)?	/P01/ /P04/	DR	The financial barrier is selected to prove the additionality of the project activity. The financial barrier is justified through investment analysis route.	OK	OK
<b>7.1 Prior consideration of the CDM (VVS Section 7.12.9)</b>					
7.1.1 Is there documented evidence provided by the project participants on how and when the decision to proceed with the project activity was taken?	/P01/	I	No documented evidence provided to trace the investment decision. Hence CAR-07 and CL-13 is raised.	<del>CAR-07</del> <del>CL-13</del>	OK
7.1.2 Is the starting date of the project activity, reported in the PDD, in accordance with the “Glossary of CDM terms” and CDM PS section 7.3 and VVS (§112)?  <i>Note: Confirm the starting date indicated in C.1. is consistent within the PDD, in particular with respect to the project implementation history.</i>	/P01/	DR	As per interview with the PP, real of action of the project is not yet started. But the start date of the project is given as 2012-10-01 without any explanation about the evidence. Hence the start date of the project is not in accordance with the “Glossary of CDM terms” and CDM PS section C and VVS §112. Hence CAR-07 and CL-13 are raised.	<del>CAR-07</del> <del>CL-13</del>	OK

<p>7.1.3 Is the date stated in the provided evidence consistent with other available real action evidence (e.g. dates of construction, purchase orders for equipment)?</p> <p><i>Note: In case where the project is not started but the project PDD is already webhosted – the expected start date can be considered.</i></p>	/P01/	DR	Subject to closure of CAR-07 and CL-13.	<del>CAR-07</del> <del>CL-13</del>	OK
<p>7.1.4 If the project was not published and the starting date is on or after 2nd August 2008, was it possible to receive from UNFCCC secretariat and DNA a written confirmation that PPs previously informed the above entities on commencement of the project activity and of their intention to seek CDM status?</p> <p><i>Note: in case where PP has only informed DNA or UNFCCC, check if the project start date was under the first version of the “prior consideration of the CDM guidelines”</i></p>	/P01/	DR	Subject to closure of CAR-07 and CL-13.	<del>CAR-07</del> <del>CL-13</del>	OK
<p>7.1.5 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were previously aware of CDM?</p>	/P01/	DR	This is not applicable since the project start date is after 2 <sup>nd</sup> August 2008.	OK	OK
<p>7.1.6 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that CDM benefits have been a decisive factor in the decision to proceed with the project activity?</p>	/P01/	DR	This is not applicable since the project start date is after 2 <sup>nd</sup> August 2008.	OK	OK
<p>7.1.7 Does the individual or body that took the decision to proceed with the project activity have/had the authority to do so?</p>	/P01/	I	Subject to closure of CAR-07 and CL-13.	<del>CAR-07</del> <del>CL-13</del>	OK

7.1.8 For the project activities with a starting date before 2nd August 2008 and before the actual publication, was there enough evidence presented to prove that PPs were taking continuing and real actions to secure CDM status for the project in parallel with its implementation?	/P01/	DR	This is not applicable since the project start date is after 2 <sup>nd</sup> August 2008.	OK	OK
7.1.7 In case there is a significant gap between the start date of the project activity and the commencement of validation, how was it possible for the project participant to commit funds to the project in advance of receiving a positive validation opinion?	/P01/	DR	This is not applicable since the project start date is after 2 <sup>nd</sup> August 2008.	OK	OK
7.1.8 How has the starting date of the project activity been determined? What are the dates of the first contracts for the project activity? When was the first construction activity?	/P01/	DR	Subject to closure of CAR-07 and CL-13.	<del>CAR-07</del> <del>CL-13</del>	OK
7.1.9 Is the stated expected operational lifetime of the project activity reasonable?	/P01/	DR	PP has stated that the expected operational lifetime of the plant is 35 years. However Evidence for the life time has not submitted. Hence CL-05 is raised	<del>CL-05</del>	OK
7.1.10 Is the crediting period start date, the type (renewable/fixed) and the length of the crediting period clearly defined and reasonable? <i>Note: the start date of crediting period shall be in dd/mm/yyyy format only. And shall not use any qualification to the start date such as «expected»</i>	/P01/	DR	PP has selected renewable crediting period of Seven years which is reasonable considering the life time of biomass power plant.	OK	OK
<b>7.2 Identification of alternatives(VVS Section 7.12.10)</b>					
7.2.1 Does the PDD identify and list credible alternatives to the CDM project activity in order to determine the most realistic baseline scenario, unless selected approved methodology prescribes/identifies the baseline scenario and no further analysis is required?	/P01/	DR	Not applicable as it is SSC project	OK	OK

7.2.2 Does the list of alternatives include as one of the options that the project activity is undertaken without being registered as a CDM project activity?	/P01/	DR	Not applicable as it is SSC project	OK	OK
7.2.3 Does the list contain all realistic/credible alternatives that the DOE, on the basis of its local and Sectoral knowledge, considers to be viable means of supplying the outputs or services that are to be supplied by the project activity? <i>Note: All alternatives listed in the selected methodology should be included, as well as those not covered by the methodology.</i>	/P01/	DR	Not applicable as it is SSC project	OK	OK
7.2.4 Is the exclusion of the alternatives for legal reasons justified? <i>Note: Some alternatives might be illegal, according to the local regulations, but still widely practiced due to lack of enforcement. It should be verified.</i>	/P01/	DR	Not applicable as it is SSC project	OK	OK
<b>7.3 Investment Analysis(VVS Section 7.12.11)</b>					
7.3.1 Are all sources of revenues (including savings) have been considered in the PDD and all calculations? Refer «guidelines on the assessment of investment analysis»	/P01/ /P04/	DR	As per the webhosted PDD and DOE assessment, the revenue from electricity selling is the only standard revenue for the project activity. No other revenue will be generated by the project activity. CDM revenue has been considered at the time of decision making for making the project financially more viable.	OK	OK
7.3.2 Is the type of investment analysis selected correctly in the PDD? Is the choice of benchmark analysis, investment comparison or simple cost analysis correct?	/P01/ /P04/	DR	Benchmark analysis has been considered for the demonstration of additionality. But the choice of benchmark analysis is not justified for this project activity in the PDD. Hence CL-02 is raised.	<del>CL-02</del>	OK
7.3.3 Is the selected financial indicator chosen and applied correctly? Is it on equity/project basis? Before/after tax? Is the financial indicator in correspondence with the benchmark?	/P01/ /P04/	DR	Post-tax project IRR has been selected as a financial indicator which is applied correctly. The post-tax project IRR has been compared with the local commercial lending rate which	<del>CAR-02</del> <del>CL-09</del>	OK



			is appropriate for the financial indicator selected. However the source for the benchmark and applicability of the same at the time of investment decision is not provided. Hence CAR-02 and CL-09 is raised		
<p>7.3.4 Is the guidance on IRR calculation and assessment correctly applied?</p> <p><i>Note: Means of validation should be recorded. All input parameters need to be assessed and if possible compared with the input parameters applied by similar project activities. Special procedure (ICP-5-8-CDMJIG2) applies for validation of input data derived from FSR/PDR or other governmentally approved project-specific study. A similar approach should also be taken for other project types.</i></p> <p><i>In case the validation team is not able to cross-check information with other similar projects activities for one or several of the input parameters, due to limited number of registered CDM projects being available, the team is required to determine and describe other information sources that are used by the validation team to make an assessment of the reasonableness of the respective input parameter.</i></p>	/P01/ /P04/	DR	Subject to closure of CL-03, CL-04, CL-07 and CL-08	<del>CL-03</del> <del>CL-04</del> <del>CL-07</del> <del>CL-08</del>	OK
7.3.5 In case project participants use values from Feasibility Study Reports (FSR) is it possible to verify that the period between the FSR date and investment decision was reasonably short and FSR values did not change materially?	/P01/ /P04/	DR	The project proponent use financial input values form Detailed project report based on that the board decision happened. Nevertheless CAR-01 and CL-01 are raised.	<del>CAR-01</del> <del>CL-01</del>	OK
7.3.6 Are all the values consistent between FSR and PDD and are inconsistencies properly justified?	/P01/ /P04/	DR	Not able to cross verify since the DPR is not submitted. CL-06 is raised.	<del>CL-06</del>	OK
7.3.7 Were all the values from FSR applicable and valid at the time of the investment decision?	/P01/ /P04/	DR	Please refer section 7.3.5 above.	OK	OK

7.3.8 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants or some verifiable circumstances that have led to a change in the benchmark?	/P01/ /P04/	DR	Not applicable as internal benchmark is not used	OK	OK
7.3.9 Is the Investment Analysis prepared in compliance with the latest version of the “Guidance on the Assessment of Investment Analysis” as provided by the CDM EB?	/P01/ /P04/	DR	Yes, investment analysis is prepared based on the latest “Guidance on the Assessment of Investment Analysis”	OK	OK
7.3.10 Do the project include all the data sources used (input & output / loss & profit) and list all the projects that have been used for cross-checking in accordance with VVS paragraph 123. Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the host country? Has salvage value been taken into account? Is working capital returned in the last year of operation? How are the PLF of the project assessed? How are output price assessed? How are O&M cost assessed?	/P01/ /P04/	DR	Subject to closure of CL-03, CL-04, CL-07 and CL-08	<del>CL-03</del> <del>CL-04</del> <del>CL-07</del> <del>CL-08</del>	OK
7.3.11 Sensitivity analysis: Have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified? Has possible correlation between the parameters been considered? Is the range of variations (10% in default) is reasonable in the project context? Have the key parameters been vary to reach or cross the benchmark and have the likelihood of this to happen been justified?	/P01/ /P04/	DR	Yes, the parameters contributing to more than 20% of revenue/costs during the operation or implementation have been identified. (i.e., Project Cost, PLF, Tariff, O&M Expenses & Fuel Rate) The default range of $\pm 10\%$ is considered for the sensitivity analysis which is reasonable in the project context. Also the likelihood of the parameters to reach the benchmark is not justified. Nevertheless CL-10 is raised.	<del>CL-10</del>	OK

<b>7.4 Barrier analysis(VVS Section 7.12.12)</b>					
7.4.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis? Refer «guidelines for objective demonstration and assessment of barriers»	/P01/	DR	Not applicable as the project activity does not select barrier analysis to prove additionality	OK	OK
7.4.2 Do the listed barriers exist and is their existence substantiated? <i>Note:</i> <i>(a) by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics and/or</i> <i>(b) by interviews with relevant individuals: including members of industry associations, government officials or local experts if necessary?</i>	/P01/	DR	Not applicable as the project activity does not select barrier analysis to prove additionality	OK	OK
7.4.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?	/P01/	DR	Not applicable as the project activity does not select barrier analysis to prove additionality	OK	OK
<b>7.5 Common practice analysis(VVS Section 7.12.13)</b>					
7.5.1 If the PPs claim in the PDD that CDM project activity is the “first of its kind”, is it justified? Refer «guideline on additionality of first-of-its-kind activities» and «guideline on common practice»	/P01/	DR	Not applicable as the project activity is a SSC project	OK	OK
7.5.2 Are the geographical boundaries of the project activity identified correctly?	/P01/	DR	Not applicable as the project activity is a SSC project	OK	OK
7.5.3 Does the PDD provide an explanation why this region was selected and deemed more appropriate and is this explanation traceable and reliable?	/P01/	DR	Not applicable as the project activity is a SSC project	OK	OK
7.5.4 Are there similar operational project activities, other than CDM activities, “widely observed and	/P01/	DR	Not applicable as the project activity is a SSC project	OK	OK

commonly carried out” in the defined region? <i>Note: Use official sources and local and industry expertise.</i>					
7.5.5 In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?	/P01/	DR	Not applicable as the project activity is a SSC project	OK	OK
<b>8. Monitoring plan (VVS Section 7.12.14)</b>					
8.1 Are all parameters required by the selected approved methodology or tool identified and listed in the PDD? <i>Note: not all methodologies indicate monitoring parameters in tabular form or by reference to the variables used in formulae; Nonetheless, all parameters indicated in the methodology and applicable to the project must be listed in the PDD, omissions due to non-applicability be justified.</i>	/P01/ /B02/	DR	Subject to closure of CL-11, CL-12, CAR-09 and CAR-10.	<del>CAR-09</del> <del>CAR-10</del> <del>CL-11</del> <del>CL-12</del>	OK
8.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate?  Does the monitoring plan record data in the original form as generated, providing QA/QC procedures to be used on the measurement method? <i>Note 1: if the measurement unit is different from the unit to be applied in the methodology, describe the actual measurement and any according conversion method to match the unit used in the methodology. Example: liquid fuels may be monitored as weight or volume. If measured as volume, the measurement method and equipment including the according unit</i>	/P01/ /B02/	DR	Subject to closure of CL-11, CL-12, CAR-09 and CAR-10.	<del>CAR-09</del> <del>CAR-10</del> <del>CL-11</del> <del>CL-12</del>	OK

<i>(e.g., liter) shall be described in B.7.1, as well as the conversion into weight units as needed. Note 2: Data on invoices / delivery slips may be used for QA/QC purposes, but do not constitute an actual means of monitoring and thus cannot be applied as a source of data.</i>					
8.3	Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools? See the NOTE in section 3.6.1 above!	/P01/ /B02/	DR	Subject to closure of CAR-09 and CL-13	<del>CAR-09</del> <del>CL-13</del> OK
8.4	Is the measurement equipment for each parameter described and deemed appropriate?  Are the locations of all measurement equipment clearly identified and consistently described, incl. process flow-charts contained in the PDD?	/P01/ /B02/	DR	The net energy generated by the project activity is measured through energy meter and the biomass consumption in the project activity is measured through the weight bridge which is deemed to be appropriate measurement equipment for the respective monitoring parameter. The NCV of biomass will be monitored in the laboratory which is also deemed to be appropriate method for monitoring of NCV.	OK OK
8.5	Is the measurement accuracy addressed and deemed appropriate?	/P01/ /B02/	DR	Yes, measurement accuracy addressed and deemed appropriate.	OK OK
8.6	Are procedures in place on how to deal with erroneous measurements and are the corrective actions identified?	/P01/ /B02/	DR	The procedures on how to deal with the erroneous measurement and the corrective actions is explained in the PDD.	OK OK
8.7	Is the frequency of measurement identified and deemed appropriate?	/P01/ /B02/	DR	Yes, frequency of measurement identified and deemed appropriate	OK OK
8.8	Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/P01/ /B02/	DR	Subject to closure of CL-11, CL-12, CAR-09 and CAR-10.	<del>CAR-09</del> <del>CAR-10</del> <del>CL-11</del> <del>CL-12</del> OK
8.9	Are the sampling, measurement methods and procedures defined?	/P01/ /B02/	DR	Not applicable as no parameter is monitored through sampling	OK OK

8.10 Are procedures identified for maintenance of monitoring equipment and installations?	/P01/ /B02/	DR	Yes, the procedures for maintenance of monitoring equipment and installations. The same is explained in Section B.7.3 of PDD	OK	OK
8.11 Are the equipment calibration intervals identified and justified? Is the calibration conducted by accredited person or institution? <i>Note: in case where applied methodology(s) or board guidelines does not specify the frequency. National or local or manufacturer or international standard may apply but conservativeness shall be considered.</i>	/P01/ /B02/	DR	Yes, the calibration frequency of energy meter is mentioned as once in a years in the PDD which is in accordance with the UNFCCC guidance which requires minimum calibration frequency of once in three years	OK	OK
8.12 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/P01/ /B02/	DR	Yes, procedures for record handling is explained in the section B.7.3 of PDD	OK	OK
8.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?	/P01/ /B02/	DR	All the monitoring arrangement described in the monitoring plan seems to be feasible within the project design. In particular, the net electricity monitoring is not only for the purpose of CDM but also for the purpose of electricity billing to the state utility and hence it is feasible. Nevertheless FAR-02 is raised.	FAR-02	OK
8.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?	/P01/ /B02/	DR	Subject to closure of CAR-09	<del>CAR-09</del>	OK
8.15 Do the PPs make provisions for personnel training needs?	/P01/ /B02/	DR	Yes, the PDD provides provision for personnel training needs for monitoring.	OK	OK
8.16 Is the authority and responsibility of overall project management clearly described?	/P01/ /B02/	DR	Yes, the monitoring management and role & responsibilities of personnel are explained in the PDD	OK	OK



8.17 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/P01/ /B02/	DR	The emergency preparedness procedures are not explained in the PDD.	OK	OK
8.18 Are procedures identified for review of reported results/data?	/P01/ /B02/	DR	Yes, the procedures identified the review of reported data is explained in the PDD	OK	OK
8.19 Does responsibilities and institutional arrangements for data collection and archiving in place? Is the data archiving period for this project activity stated in the PDD and appropriate? <i>Note: All archived monitoring data, required for verification and issuance, should be kept for at least two years after the end of the crediting period or the last issuance of CER.</i>	/P01/ /B02/	DR	Yes, responsibilities and institutional arrangements for data collections and archiving are in place. Yes as per the PDD the data will be archived till 2 years after completion of crediting period which is in line with the UNFCCC requirements	OK	OK
8.20 Is the monitoring parameters for all project emissions captured?	/P01/ /B02/	DR	Not captured. CAR-09 is raised.	<del>CAR-09</del>	OK
8.21 Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/P01/ /B02/	DR	Yes, the Monitored Data to be kept for a minimum of two years after the end of the crediting period or the last issuance whichever is later.	OK	OK
8.22 Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/P01/ /B02/	DR	Yes, the data management and quality assurance and quality control procedures are sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified	OK	OK
8.33 Is operational and management structure in place to implement the monitoring plan?	/P01/ /B02/	DR	Yes, the operational and management structure is in place to implement the monitoring plan	OK	OK
<b>8.2 Monitoring of the leakage</b>					
8.2.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/P01/ /B02/	DR	Yes, the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage. Nevertheless CAR-10 is raised.	<del>CAR-10</del>	OK

8.2.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner? <i>Note: local knowledge and sectoral expertise shall also be considered.</i>	/P01/ /B02/	DR	Please see section 8.2.1	<del>CAR-10</del>	OK
8.2.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?	/P01/ /B02/	DR	Please see section 8.2.1	<del>CAR-10</del>	OK
<b>9. Sustainable development(VVS Section 7.5)</b>					
9.1 Does the LoA from the Host country DNA contain the confirmation that the proposed CDM project activity contributes to the sustainable development of the host Party?	/P01/	DR	LOA from the host country is submitted. The proposed project contributes to sustainable development.	OK	OK
9.2 If PDD indicates any additional environmental benefits of the project, other than GHG emission reductions, were those benefits properly substantiated?	/P01/	DR	Yes, it has been described in the PDD	OK	OK
<b>10. Stakeholders' consultation and comments (VVS Section 7.5 &amp; 7.14)</b>					
10.1 Were the stakeholders identified in appropriate and complete manner?	/P01/ /P20/	I,DR	Yes, all the relevant stakeholders are identified in appropriate and complete manner	OK	OK
10.2 Are the identified stakeholders plausible?	/P01/ /P20/	I,DR	Yes, all the stakeholders identified are plausible	OK	OK
12.3 Does PDD describe the means being used to invite local stakeholder's comments?	/P01/ /P20/	I,DR	The stakeholders are invited through formal invitation letter, newspaper advertisement and public notice. The same is described in the Section E.1 of PDD	OK	OK
12.4 Were those means appropriate?	/P01/ /P20/	I,DR	The stakeholders are invited through formal invitation letter, newspaper advertisement and public notice. The inviting means is appropriate. The copy of those above documents are verified and found to be OK.	OK	OK
12.5 Was the project presented to the stakeholders in unbiased manner?	/P01/ /P20/	I,DR	Yes, the project presented to the stakeholders in unbiased manner, the same is conformed through the minutes of stakeholders meeting	OK	OK

			and also interview with the stakeholders during site visit.		
12.6 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/P01/ /P20/	I,DR	No, no national regulation/laws require conducting stakeholders meeting for small scale biomass power project.	OK	OK
12.7 Is a summary of the stakeholder comments provided in the PDD?	/P01/ /P20/	I,DR	Yes, summary of stakeholders comments are provided in the PDD	OK	OK
12.8 Has due account of any stakeholder comments been taken by PPs and reflected in the PDD?	/P01/ /P20/	I	Due account is not required as no negative comments received from any stakeholders	OK	OK
<b>11. Environmental impacts (VVS Section 7.13)</b>					
11.1 Is the documentation supplied by the PPs regarding environmental impacts relevant and accurately reflected in the PDD?	/P01/	I, www	EIA is not requirement of host country for the 9.0 MW biomass energy projects. The same is confirmed form the latest amendment to the EIA notification provided by MOEF <a href="http://moef.nic.in/downloads/rules-and-regulations/3067.pdf">http://moef.nic.in/downloads/rules-and-regulations/3067.pdf</a>	OK	OK
11.2 Is an environmental impact assessment (EIA) required for the CDM project activity? <i>Note: determine by using a review of relevant legislation and local expertise.</i>	/P01/	I, www	Same as above	OK	OK
In case an EIA is required, has the EIA has been approved by local authorities and is the outcome accurately reflected in the PDD?	/P01/	I, www	Not applicable	OK	OK
11.4 Does the PDD include a brief description of the environmental effects of the project, including transboundary?	/P01/	I, www	Not applicable	OK	OK
11.5 Are those effects properly addressed in the design of the project activity?	/P01/	I, www	Not applicable	OK	OK
11.6 Does the project comply with environmental legislation in the host country?	/P01/	I, www	Yes, the project complies with all the environmental regulations in India	OK	OK

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

Validation / Verification Standard

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

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The CDM requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

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

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

No.	CAR/CL		Observation (CAR/CL)	Reference	Summary of project owner response	Validation team conclusion
1.	CAR	01	Date of investment decision and Evidence are not revealed to the DOE.	7.3.5	<b>PP Response#1:</b> Upon DPR finalization, the PP passed a Board Resolution on 17.03.2012 to implement the project as a CDM project activity. Hence, the investment decision date is taken as 17/03/2012. The certified minutes of the Board Resolution has been provided to the DOE along with the revised PDD.	<b>DOE Assessment#1:/P05-2/,/P23/,/P08/,/P02/</b> The DPR prepared by Imagex Technologies India Pvt Ltd dated February 2012 is the basis for decision making by the board of directors of RBPL. The decision was held on 2012-03-17. The board decision and DPR copy submitted by the PP is verified and found to be valid. CAR-01 is closed successfully.
2.	CAR	02	For calculation of WACC, PP has considered the inflation rate @5.4% based on the survey report of RBI. But this is not the rate of inflation forecast	7.3.3	<b>PP Response#1:</b> The inflation rate is now taken as 6.02%, which is the average of next 5 year's inflation rate for India as forecasted by IMF. Pl. Refer to the	<b>DOE Assessment#1:/P05-2/,/P02/,/B15/</b> Inflation rate used for calculating the benchmark is mentioned in version 01 of

			by RBI. This is not in line with para 7 of Appendix A to Annex 5, EB62. Please clarify.		<p>following link for details:</p> <p><a href="http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/weorept.aspx?pr.x=79&amp;pr.y=12&amp;sy=2012&amp;ey=2016&amp;scsm=1&amp;ssd=1&amp;sort=countr y&amp;ds=.&amp;br=1&amp;c=534&amp;s=PCPI%2CPCPIPCH&amp;grp=0&amp;a=">http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/weorept.aspx?pr.x=79&amp;pr.y=12&amp;sy=2012&amp;ey=2016&amp;scsm=1&amp;ssd=1&amp;sort=countr y&amp;ds=.&amp;br=1&amp;c=534&amp;s=PCPI%2CPCPIPCH&amp;grp=0&amp;a=</a></p>	<p>the IRR is forecast inflation rate of Reserve Bank of India (the central bank of host country). But in preamble of the survey report, it is mentioned that the <i>'results of survey represent the views of respondent forecasters and in no way reflect the views or forecasts of the Reserve Bank of India'</i>. The inflation rate is not in line with the para 7 of Appendix of EB 62, Annexure 5. Thus the inflation rate has been revised to the average forecasted inflation rate for India published by the International Monetary Fund (IMF) in the World Economic Outlook Database, September 2011 for the next five years after the start of the project activity to comply with Appendix Para 8 of EB 62, Annex 5. Hence the average value of 6.02% is considered to be appropriate and valid. CAR-02 is closed successfully.</p>
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3.	CAR	03	Section A.4 of the PDD is not filled as per the Guideline.	3.2	<b>PP Response#1:</b> The Section A.4 is completed as per the guidelines in the attached revised PDD.	<b>DOE Assessment#1:/P02/</b> The host party name and the project proponent name are filled in line with the guidelines for completing SSC PDD. The same is verified and found to be OK. CAR-03 is closed successfully.
4.	CAR	04	Explanation provided under the project boundary diagram is not in line with the methodology.	5.3.1 5.3.2	<b>PP Response#1:</b> The explanation and the project boundary have been modified in the revised PDD to meet the requirements of the methodology.	<b>DOE Assessment#1:/P02/</b> The project boundary diagram is revised to include biomass source from rice mill. The same is in line with the requirements of AMS-I.D, version 17. CAR-04 is closed successfully.
5.	CAR	05	All the Guidelines in the PDD shall be updated to the latest available versions.	3.2 5.4.2 5.4.2.1	<b>PP Response#1:</b> All the guidelines in the PDD have been updated to the latest available guidelines.	<b>DOE Assessment#1:/P02/,/B07/</b> Attachment A of Appendix B has been updated to "Guideline for Small Scale CDM project additionality". In addition, to compute project emissions, PP has referred "Tool to calculate project or leakage CO2 emissions from fossil fuel consumption" Version 02 and "Project and leakage emissions from road transportation of freight"



						Version 01.0.0 in the revised PDD. The same is verified and found to be OK. CAR-05 is closed successfully.
6.	CAR	06	<p>Under Section A.2, the following information's are missing,</p> <ol style="list-style-type: none"> <li>1) Actual purpose of the electricity generation is not clear.</li> <li>2) Scope of the project is not mentioned in page number 1</li> <li>3) Emission reduction value is not consistent in page 1 and not conservatively estimated.</li> </ol>	3.2 5.4.1.2	<p><b>PP Response#1:</b></p> <ol style="list-style-type: none"> <li>1. In the revised PDD (Version 2); the clarity on the actual purpose of electricity generation has been provided.</li> <li>2. The scope of the project has been mentioned in the revised PDD (Ver. 3)</li> <li>3. The emission reductions have been modified as per the suggestions and the conservative values have been utilized. The ER values are consistent throughout the PDD in the revised PDD (Ver. 3)</li> </ol>	<p><b>DOE Assessment#1:/P02/</b></p> <ol style="list-style-type: none"> <li>1) Section A.2 of the revised PDD is verified for the actual purpose of electricity generation from the project activity. It is found to be appropriate and correct.</li> <li>2) The scope of the project is correctly referred in the revised PDD. It is verified and found to be OK.</li> <li>3) Emission reduction values are corrected to include project emission Calculations and estimated conservatively. The ER values mentioned in the revised PDD are now consistent with the ER spread sheet. It is verified and found to be OK.</li> </ol> <p>CAR-06 is closed</p>

						successfully.
7.	CAR	07	The start date mentioned in the webhosted PDD is not supported by any evidence. Explanation is required on selection of start date in line with Glossary of CDM terms.	7.1.1 to 7.1.4 7.1.7	<b>PP Response#1:</b> The revised PDD (Ver 2) provides the explanation on the selection of the start date and reflects the requirements of the Glossary of CDM terms. The evidence viz., Sale Deed between parties has been provided.	<b>DOE</b> <b>Assessment#1:/P02/,/P25/</b> The first expenditure towards the implementation of the project activity is the purchase of land for the project activity. Thus based on the CAR, RBPL has revised the start date from 2012-10-01 to 2012-03-28 as per the land purchase which was verified from the land deed documents. Since the start date has been revised, the DOE has rechecked the serious consideration of CDM as per the guideline and found that the project proponent has informed to UNFCCC and Host country DNA with in Six month from the start date and the PDD has been published for global stake holder consultation with in six months from the start date of the project activity. Based on the review of all the above said documentary evidence, CAR-07 is closed successfully.

8.	CAR	08	Latitude and Longitude shall be transparently mentioned both in decimals and Degree, minutes and Seconds.	3.2	<b>PP Response#1:</b> The Latitude and Longitude has been transparently mentioned in both in decimals and Degree, Minutes and Seconds.	<b>DOE</b> <b>Assessment#1:/P02/,/B05-2/</b> The latitude is mentioned in both the format. CAR-08 is closed successfully.
9.	CAR	09	Project emission calculation is in complete and not transparent. In addition, The PP is requested to justify the value of $EFCO_{2,coal,y}$ (CO <sub>2</sub> emission factor of the Coal) as per “Tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion” version 2, EB41, Annex 11. In doing so, please clarify the type of coal it is used in the project activity.	5.2.5 5.5.2 5.5.5 5.5.6 5.5.7 8.1 8.20 8.3 8.14	<b>PP Response#1:</b> The project emission calculations in the revised ER calculations (Ver 2) are complete and transparent. The revised ER values are also presented in the revised PDD (Ver 2). We have considered the use of Anthracite coal and accordingly mentioned the EF CO <sub>2</sub> as per IPCC guidelines	<b>DOE</b> <b>Assessment#1:/P02/,/P05-1/</b> The revised PDD includes detailed information of project emission from transportation of biomass and project emission from coal usage. The PP has followed relevant tools and procedures to calculate the project emission. Based on the calculation the total project emission because of the project activity is 1,032 tCO <sub>2e</sub> per annum. All the formula, assumptions, calculations are verified in the emission reduction spread sheet. Thus the project emissions are deducted from emission reduction while calculating emission reduction. In addition for ex-ante calculation, emission factor from anthracite coal is considered. The approach

						followed by the PP is more conservative. Hence CAR-09 is closed successfully.
10.	CAR	10	Detailed leakage emission calculation and justification of surplus biomass availability is not transparently presented in the PDD.	5.5.5 5.6.1 5.6.2 5.6.3 8.1 8.2.1 To 8.2.3	<b>PP Response#1:</b> The justification of surplus biomass availability has been transparently presented in the revised PDD Version 3.	<b>DOE</b> <b>Assessment#1:/P02/,/P05-2/,/B24/,/B25/</b> The revised PDD mentions detailed justification on elimination of leakage emissions as per Attachment C of Appendix B. The biomass survey report is verified for the consistency of values and surplus availability of biomass within 50 km radius in the project area. Thus the leakage emissions neglected by the PP is justified in the revised PDD. CAR-10 is closed successfully.
11.	CAR	11	Net electricity values mentioned in the PDD is not consistent in all the sections.	5.5.4	<b>PP Response#1:</b> The net electricity values have been checked and are consistent in all the sections of the revised PDD (version 2)	<b>DOE</b> <b>Assessment#1:/P02/,/P05-1/</b> The net electricity value of 50,854 MWh is now mentioned consistently in the revised PDD. The same is verified and found to be OK. CAR-11 is closed successfully.

12.	CL	01	DPR is given as the source / basis for assumptions for IRR workings. Whether the assumptions as given DPR were valid at the time of investment decision? Please clarify.	7.3.5	<b>PP Response#1:</b> The investment decision date is 17.03.2012 which is the date the Board passed a resolution to implement the project as a CDM project activity. Hence, the assumptions given in the DPR were available to the PP at the time of investment decision. Also, the DPR was approved by KREDL, the state nodal agency, and has been submitted to the DOE for reference.	<b>DOE Assessment#1:/P08/,/P05-2/,/P23/</b> The assumptions for financial analysis are considered based on the DPR prepared by a third party dated February 2012. Thus the same was available at the time of decision making (March 2012). Moreover the DPR was approved by a government agency named KREDL in the state of Karnataka. Thus CL-01 is closed successfully.
13.	CL	02	As per guidance 13 of Guidelines on the assessment of Investment Analysis (EB62, Annex5, ver 5.0), the benchmark should be based on the parameters that are standard in the market. But Cost of debt for WACC is considered @13% being the rate applicable to the loan taken by PP. Please clarify.	7.3.2	<b>PP Response#1:</b> As per KERC Tariff order of Dec, 2009, the interest rate shall be linked to the existing PLR (Prime Lending Rate) of SBI at the time of consideration. Accordingly, we have now assumed interest rate of 14.75% p.a. corresponding to the PLR of SBI in March, 2012 (decision making time) as against 13% p.a. assumed in our earlier projections. Proof of SBI PLR in March, 2012 is enclosed along with this response and the revised PDD.	<b>DOE Assessment#1:/B07-4/,/P05-2/,/B15/,/B16/</b> The screenshot provided on SBI PLR has been verified. BPLR verified from the following article <a href="http://in.reuters.com/article/2012/05/28/india-plr-idINL4E8GS1UY20120528">http://in.reuters.com/article/2012/05/28/india-plr-idINL4E8GS1UY20120528</a> dated 2012-05-28 (after investment decision) shows that no change in BPLR since the last change on 2011-08-13. Thus the same has been considered in the revised IRR spread sheet.

						Because of the change in BPLR value, the benchmark, IDC and Debt:Equity ratio has slightly changed due to the impact on interest rate. Since the value applied is approved in DPR and available at the time of decision making, the DOE accept the correction done by the PP which is found to be correct and in line with the EB 62, Annex 05. Even with 13% interest rate the IRR is below the benchmark. CL-02 is closed successfully.
14.	CL	03	Is the PP having any existing business earning taxable profits at the time of investment decision. Whether tax is being paid at MAT rates? Please clarify.	7.3.4 7.3.10	<b>PP Response#1:</b> This is the first project activity being taken up by M/s Raichur Bioenergies Private Limited, the PP for the project activity. However, the Directors of RBPL have experience in managing other business ventures.	<b>DOE Assessment#1:/P32/,/I-01/</b> As evidenced from the site visit interview and checking company registration certificate, RBPL is a new company planned to invest in power sector. There is no existing business for RBPL. Hence the company is paying MAT and the same has been verified from the financial analysis spread sheet. CL-03 is closed successfully.
15.	CL	04	Source for tariff and increment in tariff is given as PPA with consumers. Was	7.3.4 7.3.10	<b>PP Response#1:</b> No. PPA was entered in to	<b>DOE Assessment#1:/P18/,/P33/</b>



			PPA entered into at the time of Investment decision? But in Section A.1, it is mentioned that the power generated will be sold to Grid. Please clarify. Please provide evidence for tariff and increment.		<p>subsequently after the CDM stakeholder consultation was held on 18 May 2012. At the meeting, an agreement was reached with the rice mill owners regarding both the rice husk prices and the tariff for the electricity to be supplied to the rice mill owners.</p> <p>It was agreed to in consultation with rice mill owners to charge a tariff of Rs.3.70/unit in the 1<sup>st</sup> year with an escalation of 5% p.a. A sample copy of PPA with one of the consumers is enclosed herewith.</p> <p>The tariff escalation agreed to by consumers was based on the increases in ESCOM tariff in the last 10 years in which the Cumulative Annual Growth Rate (CAGR) is slightly above 5%. The summary of tariff of rice mills (HT - 2 (a) consumers) i.e. end consumers in the last 10 years is enclosed along with electricity bill copies.</p> <p>Section A.1 is now modified suitably.</p>	<p>The explanation provided by the PP is verified against the documentary evidence. The actual PPA signed between RBPL and third party is verified for the actual tariff and escalation. The escalation in tariff is determined based on the historical trend in increase of HT tariff which can be verified from the historical bills of rice mills. The CAGR value worked out to be 5%. Hence the escalation rate is justified by the PP.</p> <p>Section A.1 is now revised to include the correct explanation about supply of power to third party.</p> <p>Thus CL-04 is closed successfully.</p>
16.	CL	05	1. When the operational life of the project is 35 years as per section C.1.2 of PDD, why the period of only 20 years is considered for assessment? This is not in line with Guidance 3 of “Guidelines on the assessment of Investment Analysis”	7.1.9	<p><b>PP Response#1:</b></p> <p>1.The operational life of 35 years mentioned in the PDD was a typographical error. The operational life of the project is now taken as 25 years based on Statement of Objects and Reasons</p>	<p><b>DOE Assessment#1:/P08/,/B07-7/,/P27/</b></p> <p>1) The project life time is revised to 25 years as per the assumptions in DPR. The life time considered</p>

			<p>(EB62, Annex 5, Ver.05). Please clarify.</p> <p>2. The life of the project given in section C.1 of PDD is 35 years. The assessment period is 20 years. There is no salvage value considered in as an inflow for IRR workings. This is not in line with Guidance 3 and guidance 4 of “Guidelines on the assessment of investment analysis” (EB62, Annex5, Ver.05) which require the fair value of project activity assets at the end of the assessment period shall be included as a cash inflow. Please clarify.</p>		<p>on CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009, (Section 7.5 on page 6). The regulations recommend 20 years lifetime. However, since the PP shall utilize only rice husk for operating the project activity, the operational life is taken as 25 years. Hence, the financial projections are accordingly drawn now for 25 years and presented in the revised PDD.</p> <p>2. Salvage value is considered now in IRR workings enclosed.</p>	<p>for the project is more than the life time recommended by CERC and EB 50, Annex 15. Hence the DOE concludes that the life time of the project activity is reasonable.</p> <p>2) Salvage value is considered at the end of the life time of the project activity. The calculations are verified and found to be conservatively estimated.</p> <p>CL-05 is closed successfully.</p>
17.	CL	06	<p>Evidence / documents required</p> <p>(a) Detailed project report</p>	<p>4.3 7.3.6</p>	<p><b>PP Response#1:</b> The following documents are provided with the revised PDD; a. DPR;</p>	<p><b>DOE Assessment#1:/P08/,/P18/,/P33/,/B16/,/B11/</b> All the evidences requested</p>

			(b) Tariff and increment in tariff. (c) Admin charges and escalation thereof. (d) Interest rates for term loans. (e) Please provide the screen shots of the web pages in which the CER price and exchange rate appear.		b.Sample Power Purchase Agreement; c. DPR; d.SBI PLR chart for March 2012; e.Details of CER prices as on March 2012.	are submitted to the DOE. All the evidences are verified by the DOE and the assumptions referred are based on the documentary evidence available at the time of investment decision. CL-06 is closed successfully.
18.	CL	07	1. What is the basis for capital subsidy? Evidence required.  2. What is the basis for debt equity ratio? What was the debt equity ratio used in DPR?	7.3.4 7.3.10	<b>PP Response#1:</b> 1. Capital subsidy circular from MNES dated 01.07.2007 enclosed.  2. KERC tariff order 2009 is the basis. In the DPR also, a debt-equity ratio of 70:30 is used.	<b>DOE Assessment#1:/B18/./P28/</b> 1) The basis for capital subsidy is verified from the MNES document dated 2007-07-01. Thus the assumption is valid and applicable for the project activity. 2) DPR and KERC order has been referred for the Debt:Equity ratio. Thus the value applied is valid and correct. CL-07 is closed successfully.
19.	CL	08	<b>Cash flow worksheet:</b>  1. Transmission loss is calculated on the gross energy generated instead of on net energy	7.3.4 7.3.10	<b>PP Response#1:</b>  1. Workings are now revised suitably based on the observation.	<b>DOE Assessment#1:/P05-2/./P08/</b>  1) Transmission loss is now correctly calculated

			<p>available after auxiliary consumption. Please clarify.</p> <p>2. Row 31: Formula for CER revenue appears to be wrong. Please clarify.</p> <p>3. Repayment period of term loan and moratorium are not mentioned in assumptions. Please clarify.</p> <p>4. Capital subsidy is shown to be paid in the 2<sup>nd</sup> year to towards repayment of bank loan. What is the basis?</p>		<p>2. Workings are now revised suitably based on the observation.</p> <p>3. The repayment period of term loan and moratorium have been mentioned in the assumptions in the revised model.</p> <p>4. As per capital subsidy circular para VII (i), the capital subsidy is payable only after the plant is commissioned &amp; the plant is demonstrated to run successfully for a period of 90 days. Considering the time involved in the above process and the sanction time at MNRE, it is expected that the subsidy release would take about 1-1 ½ years from the time the plant goes on stream. Hence, the receipt of subsidy is shown in the 2<sup>nd</sup> year.</p>	<p>based on the net electricity supplied to the grid. The calculations are verified and found to be correct.</p> <p>2) The formula has been now corrected for CER revenue calculation. It is verified and found to be correct.</p> <p>3) Repayment, moratorium term loan is now included in the revised IRR spread sheet.</p> <p>4) The explanation provided by the PP is verified and found to be correct. The same is followed in the IRR spread sheet.</p> <p>CL-08 is closed successfully.</p>
20.	CL	09	<p><b>IRR and DSCR worksheet:</b></p> <p>1. In case if the project IRR is chosen as the financial indicator to establish additionality, Guidance 11 of Guidelines on the assessment of Investment</p>	7.3.3	<p><b>PP Response#1:</b></p> <p>1. The guideline does not bar use of post-tax IRR as the financial indicator. It states that post tax IRR can be taken as the indicator provided the tax effect on the</p>	<p><b>DOE Assessment#1:/P05-2/,/B07-7/,/B12/,/B13/,/B14/,/B19/</b></p> <p>1) The explanation provided by the PP is verified and found to be</p>

		<p>Analysis (EB62, Annex 5, Ver.5.0) has recommended the use of pretax Project IRR. Please clarify the reason for choosing post-tax IRR.</p> <p>2. For calculation post tax cost of debt, MAT rate is applied as tax rate and not at regular rate of tax payable by a company. Please clarify.</p> <p>3. Claim for deduction under section 80IA of the Income Tax Act, 1961 is not in accordance with the provisions of that specific section. Please clarify.</p>	<p>interest element is considered in the calculation. And, in our calculation, we have considered interest as an expense before computing the tax. Hence, post-tax IRR is utilized in the analysis.</p> <p>2. During the debt repayment period, only MAT rate is applicable in this project (pl. refer IT computation sheet). Hence, MAT rate is considered in WACC computation.</p> <p>3. Section 80 IA benefit is not considered in the calculations as the benefit will be available for only those projects, which are likely to go on stream before 31<sup>st</sup> March,</p>	<p>valid. PP can decide on the financial indicator either pre-tax or post-tax. The financial calculations are verified and found to be valid and correct.</p> <p>2) The loan repayment period considered as 10 years and the PP is paying MAT till the debt repayment period. Hence for post-tax the rate considered from MAT is appropriate and correct which is in line with local accounting principle. Further as interest on loan is tax deductible, the Minimum Alternative Tax rate of 20.00% is used for computation of cost of Debt while calculating applicable WACC for the project activity.</p> <p>3) The explanation provided by the PP is verified against the documentary evidence</p>
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					2013. The proof has been provided along with this response viz., Budget 2012-13 highlights available at web link: <a href="http://indiabudget.nic.in">http://indiabudget.nic.in</a> . In this document, please refer to Page 12 item 10 under Part B -Tax Proposals for the relevant guideline on 80 IA.	submitted by the PP. hence CL-09 is closed successfully.
21.	CL	10	<b>Sensitivity Analysis:</b> <ol style="list-style-type: none"> <li>1. Sensitivity analysis is not transparent. There are no formulas or links to verify the results given by the PP by applying the variation in parameters.</li> <li>2. When PLF is increased by 10%, the IRR (without CDM revenue) works out to 10.37% and the IRR with CDM revenue would be 12.45%. But the IRRs given by PP are 10.84% and 12.95% respectively. Please clarify.</li> <li>3. When the tariff is increased by 10%, IRR with CDM revenue would be 14.56% and if it is decreased by 10%, IRR with CDM revenue would be 5.48%. But the IRRs given by PP are 14.57% and 5.49% respectively. Please clarify.</li> </ol>	7.3.11	<b>PP Response#1:</b> <ol style="list-style-type: none"> <li>1. Links have now been created to enable the Validator to cross check the calculations.</li> <li>2. Calculations revised suitably. Pl. cross check</li> <li>3. Calculations revised suitably. Pl. cross check.</li> </ol>	<b>DOE Assessment#1:/P05-2/</b> <ol style="list-style-type: none"> <li>1) The revised IRR spread sheet is verified and found to include links for transparent review of sensitivity values.</li> <li>2) The mistake is rectified in the revised IRR spread sheet. It is verified and found to be OK.</li> <li>3) The mistake is rectified in the revised IRR spread sheet. It is verified and found to be OK.</li> <li>4) The mistake is rectified in</li> </ol>



			<p>4. When the project cost is increased or decreased by 10%, there is no change in individual costs of assets, depreciable cost of assets, depreciation under companies act, depreciation under Income tax Act, 1961 and salvage value in cash flow statement. Please clarify.</p> <p>5. When the fuel cost is decreased by 10% the IRR with CDM revenue would be 14.17% but IRR given by PP is 14.18%. Please clarify.</p> <p>6. The details of variation in parameters which leads to a situation of crossing benchmark are not furnished in worksheet and PDD. Please provide the same in work sheet and PDD.</p>		<p>4. Calculations revised suitably. Pl. cross check.</p> <p>5. Calculations revised suitably. Pl. cross check.</p> <p>6. Furnished now in the worksheet as well as in the PDD.</p>	<p>the revised IRR spread sheet. It is verified and found to be OK.</p> <p>5) The mistake is rectified in the revised IRR spread sheet. It is verified and found to be OK.</p> <p>6) The details are now furnished in the revised IRR spread sheet. The same is verified and found to be correct. CL-10 is closed successfully.</p>
22.	CL	11	PDD has mentions many type of biomass as the source of fuel for the boiler. Please clarify	8.1	<p><b>PP Response#1:</b> The Biomass Assessment Report identified the various types of biomass available in the region. However, the PP shall utilize only rice husk as the primary and only fuel during the operational period.</p>	<p><b>DOE Assessment#1:/P02/,/P08/,/P14/</b> The revised PDD include rice husk as the primary fuel for power generation. Clear explanation is now provided in the PDD.</p>

						CL-11 is closed successfully.
23.	CL	12	Reason for mentioning Gross, Auxiliary, Import, Export as separate monitoring parameter shall be explained.	8.1	<b>PP Response#1:</b> The monitoring of Gross, Auxiliary, Import and Export has been deleted and only monitoring of net electricity has been retained to be in line with the requirements of AMS ID, Version 17, Para 24, Table 1.	<b>DOE Assessment#1:/P02/</b> The revised PDD mention the clear explanation of monitoring of net electricity supplied by the project activity. Net electricity delivered by the project activity is difference between import and export. CL-12 is closed successfully.
24.	CL	13	The explanation provided under section B.5 is not very clear about start date, intimation to UNFCCC and NCDMA, DNA of India. Please clarify.	7.1.1 to 7.1.4 7.1.7 8.3	<b>PP Response#1:</b> The Key Milestones Section in Section B.5 has been included to clearly mention the key dates surrounding the project activity.	<b>DOE Assessment#1:/P23/,/P21/,/P02/</b> Revised PDD mention clear explanation of start date, UNFCCC/DNA intimation date. The same is verified from the documentary evidence. CL-13 is closed successfully.
25.	CL	14	The reason for neglecting few ex-ante parameters as per the methodology in the PDD is not clear to the DOE. Please clarify	5.5.1 5.5.2 5.5.7	<b>PP Response#1:</b> Additional parameters have been included in the revised PDD Version 2.0 to meet the requirements of the methodology.	<b>DOE Assessment#1:/P02/</b> All the parameters as required by methodology, tools and procedures to calculate baseline emission, project emission are correctly referred in the revised PDD. CL-14 is closed successfully.
26.	CL	15	Based on the document review the following points are raised,		<b>PP Response#1:</b>	<b>DOE Assessment#1:/P08/,/P13/,/P11/,/P14/</b>

			<p>1) In DPR in some page it is mentioned as 35 TPH capacity. Please clarify.</p> <p>2) Project cost in DPR is 5300 INR Lakhs and similarly in Government of Karnataka KUM clearance mentions the project cost as 4800 INR Lakhs. Please clarify.</p>		<p>1) It is a typographical error in the DPR. Actual is 40TPH as provided in the PDD.</p> <p>2) While estimating the cost in DPR, the IDC was arrived at INR 369 Lakhs assuming Interest rate of 13.00% pa. However, during validation a CAR was raised on BPLR prevailing standard rate in the market rather than individual case. Hence, the interest rate was increased to 14.75% per annum and hence the IDC increased to INR 392 Lakhs. Generally, KUM clearance does not make provision for contingency, IDC and working capital margins in the project cost. Hence, the difference.</p>	<p>1) All other pages in the DPR mention the boiler capacity as 40TPH. The typographical error explained by the PP is accepted. All the clearance mentions the capacity of project as 9.0 MW. The DOE verified all the clearances and found valid.</p> <p>2) The DOE raised the concern of BPLR impact on the WACC calculation. However the PP has changed the BPLR consistently both for the term loan interest, interest on working capital and WACC calculation. Even considering the interest rate of 13.00% in project IRR doesn't change much and well below the benchmark. While calculating WACC, the BPLR value considered should be standard in the market as per Guidelines on investment analysis,</p>
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			<p>3) Biomass assessment survey report says the specific fuel consumption rate of rice husk as 1: 1.3. Please clarify.</p> <p>4) KSPCB clearance mention the operation of DG set in future. Similarly DPR mention the usage of Furnace oil.</p>		<p>3) The Biomass Assessment Survey was approved in June 26, 2012 and hence the SFC value provided in the Biomass Assessment Survey report has not been utilized. And, in order to have a conservative biomass quantity the SFC of 1.1 has been utilized. In the event you require us to use 1.3, we shall submit the revised financials.</p> <p>4) KSPCB clearance contains general conditions for all industries are not specific to this industry. However, the PP does not propose to use DG set in the future. The use of furnace oil is not envisaged although it does find mention in the DPR.</p>	<p>thus SBI PLR is considered for WACC calculation. The approach is found to be valid and correct.</p> <p>3) The specific fuel consumption rate mentioned in the DPR, financial analysis are more conservative and is in line with CERC regulations. Hence the explanation provided by the PP is accepted.</p> <p>4) As confirmed from the PP during validation stage, usage of Diesel in DG set or furnace oil is not envisaged after commission. Hence the same is not accounted in project emission calculation. Nevertheless FAR-02 is raised. CL-15 is closed successfully.</p>
27.	CL	16	It is unclear to the DOE whether only rice husk will be used as the fuel in the FBC boiler, since the PDD mention availability of many biomass species in the project area. Please clarify.	3.2 5.4.1.2	<p><b>PP Response#1:</b> As explained in the PDD, the project is implemented under an arrangement wherein all the power consumers are rice mill owners and</p>	<p><b>DOE Assessment#1:/P02/</b> The explanation provided in the PDD for the usage of biomass is clearly explained in the PDD and confirms that</p>

					<p>these rice mill owners provide the rice husk for the operation of the project. The PP enters into both a Rice Husk Supply Agreement and Power Purchase Agreement with the rice mill owners. It is expected that over, 69 rice mill will enter into an arrangement with the PP. These 69 rice mills produce around 300,000 tons per annum of rice husk. And, the project requirement is around 80,000 tons per annum which constitutes around 30% of the total production. Hence, the PP does not envisage the use of any other biomass other than rice husk during the term of the project.</p>	<p>the project uses 100% rice husk as the fuel for power generation. CL-16 is closed successfully.</p>
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<b>Table 3: List of forward action requests (FARs)</b> Validation / Verification Standard (27) The DOE shall raise a forward action request (FAR) during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.			
<b>FAR number</b>	<b>Reference</b>	<b>Summary of project owner response</b>	<b>Validation team conclusion</b>
<b>FAR-01:</b> The project is not yet commissioned and the project proponent didn't place purchase order for civil works or plant and other machineries. Hence the detailed technical specifications mentioned in the project description, actual monitoring plan are not verified by the DOE during validation stage. Hence the DOE request the verification DOE to cross check all explanation in the PDD during first verification.	4.8	<b>PP Response#1:</b> The PP is in the process of selecting the EPC Contractor and other service providers for the project activity. And, the PP shall ensure through the EPC Contractor and other service providers that the project is implemented as per the technical specifications in the DPR.	<b>DOE Assessment#1:</b> During first verification, the verification DOE should assessed the raised FAR during validation and provide the opinion in their first verification report. FAR-01 is open.
<b>FAR-02</b> Actual monitoring after the implementation of the project should be in line with the monitoring plan mentioned in the final version of the PDD submitted for registration.	8.13	<b>PP Response#1:</b> The PP shall monitor the operation of the project activity in line with the final version of the PDD submitted for registration.	<b>DOE Assessment#1:</b> During first verification, the verification DOE should assessed the raised FAR during validation and provide the opinion in their first verification report. FAR-02 is open.



## Appendix B

### Certificates of Competence

## Qualification

Ramalingam, Murali /

## Emission Trading

### United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

ja

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

Add. reviewer:  
(Zusätzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)  
CDM 03 - Energy demand

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

05/15/2012

Valid to:  
(Gültig bis)

05/14/2015

Remarks:

TA 1.2

TA 3.1

Languages:

Tamil

English

## Experience Exchange

Date

Location

Remarks

Accreditation(s)

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

## History of scope allocation

Date: 2012-06-18  
Change: EAC CDM, CDM added  
By: Praveen Urs  
Reason:

### History

Created:	06/18/2012 10:47:56 AM ZE5B	Kaustubh Rane/Ind/TUV
Modified:	06/18/2012 06:02:36 PM ZE8	Praveen Urs/Chn/TUV
	06/18/2012 06:02:33 PM ZE8	Praveen Urs/Chn/TUV
	06/18/2012 10:48:25 AM ZE5B	Kaustubh Rane/Ind/TUV

## Qualification

MP, Kanal /

### Emission Trading

#### United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

ja

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

Add. reviewer:  
(Zusätzlicher Prüfer)

EAC Scopes:  
(EAC Branchen)

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

CDM 03 - Energy demand

CDM 06 - Construction

CDM 13 - Waste handling and disposal

CDM 15 - Agriculture

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

06/02/2012

Valid to:  
(Gültig bis)

05/02/2015

Remarks:

TA. 1.2, 3.1, 6.1, 13.1/13.2, 15.1

Languages:

English

Tamil

Hindi

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

## History of scope allocation

Date: 2012-07-04  
Change: EAC CDM, CDM, CDM, CDM, CDM added  
By: Praveen Urs  
Reason:

## History

Created:	03/12/2012 01:18:50 PM ZE5B	Kanal MP/Ind/TUV
Modified:	07/04/2012 02:21:23 PM ZE8	Praveen Urs/Chn/TUV
	06/29/2012 01:57:34 PM ZE8	Praveen Urs/Chn/TUV
	03/12/2012 01:19:19 PM ZE5B	Kanal MP/Ind/TUV

## Qualification

R, Narendra Kumar /

### Emission Trading

#### United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

ja

Qualification Level: Lead Auditor

(Qualifikationsstufe)

External:

(Externer)

Add. reviewer:

(Zusätzlicher Prüfer)

EAC Scopes:

(EAC Branchen)

CDM 03 - Energy demand

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

Add. qualification:

(zus. Qualifikation)

First Appointment: 05/15/2012

(Erstberufung)

Valid to:

(Gültig bis)

05/14/2015

Remarks:

TA. 1.2, 3.1

Languages:

Tamil

English

Hindi

### Experience Exchange

Date

Location

Remarks

Accreditation(s)

### Monitoring

Latest Monitoring:

(letzte Beurteilung)

Next Monitoring:

(nächste Beurteilung)

Remarks:

### History of scope allocation



Date: 2012-06-29  
Change: EAC CDM removed; CDM added  
By: Praveen Urs  
Reason:

Date: 2012-06-28  
Change: EAC CDM, CDM added  
By: Praveen Urs  
Reason:

## History

Created:	06/27/2012 12:58:24 PM	Kaustubh Rane/Ind/TUV
Modified:	06/29/2012 06:18:45 PM ZE8	Praveen Urs/Chn/TUV
	06/28/2012 06:04:05 PM ZE8	Praveen Urs/Chn/TUV
	06/27/2012 12:58:53 PM	Kaustubh Rane/Ind/TUV

## Qualification

C, Indumathi /

### Emission Trading

#### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☒ yes

EAC Scopes:  
(EAC Branchen)

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

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

06/06/2012

Valid to:  
(Gültig bis)

05/06/2015

Remarks:

TA 1.2

Languages:

Tamil  
English  
Hindi

### Experience Exchange

Date	Location	Remarks	Accreditation(s)
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### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

### History of scope allocation

Date: 2012-08-02  
Change: EAC CDM added  
By: Praveen Urs  
Reason:

### History

Created:	07/30/2012 12:45:55 PM	Kaustubh Rane/Ind/TUV
Modified:	08/02/2012 05:58:28 PM ZE8	Praveen Urs/Chn/TUV
	07/30/2012 12:46:56 PM	Kaustubh Rane/Ind/TUV

### Export to ICMS

Last Export:

## Qualification

Li, Lixin /

## Emission Trading

### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☒ yes

EAC Scopes:  
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)  
CDM 03 - Energy demand  
CDM 02 - Energy distribution  
CDM 04 - Manufacturing industries

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

09/06/2010

Valid to:  
(Gültig bis)

09/05/2013

Remarks:

Appointed as Technical Reviewer for  
TA 1.1, 1.2, 2.1, 2.2, 3.1  
TA 4.5

Languages:

## Experience Exchange

Date	Location	Remarks	Accreditation(s)
2010-12-21	Beijing	GC CDM Auditor Experience Exchange, Beijing, 2010-12-21to23 United Nations Framework Convention on Climate Change	

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

## History of scope allocation

Date: 2012-03-10  
 Change: EAC CDM, CDM added  
 By: Praveen Urs  
 Reason:

Date:  
 Change:  
 By:  
 Reason:

Date:  
 Change:  
 By:  
 Reason:

Date: 2010-11-08  
 Change: EAC CDM, CDM added  
 By: Manfred Brinkmann  
 Reason: Appointed as Technical Reviewer for

## History

Created:	08/13/2010 11:09:24 AM ZE8	Lixin Li/Bj/Chn/TUV
Modified:	03/10/2012 08:33:44 PM ZE8	Praveen Urs/Chn/TUV
	02/12/2012 06:12:39 PM ZE8	Praveen Urs/Chn/TUV
	11/15/2010 04:02:03 PM ZE8	Lixin Li/Bj/Chn/TUV
	11/15/2010 04:01:56 PM ZE8	Lixin Li/Bj/Chn/TUV
	11/08/2010 09:36:09 AM ZE9	Manfred Brinkmann/Jpn/TUV
	11/08/2010 09:28:17 AM ZE9	Manfred Brinkmann/Jpn/TUV
	11/08/2010 09:28:07 AM ZE9	Manfred Brinkmann/Jpn/TUV
	11/08/2010 09:27:39 AM ZE9	Manfred Brinkmann/Jpn/TUV
	08/13/2010 11:09:41 AM ZE8	Lixin Li/Bj/Chn/TUV