



VALIDATION REPORT

VELAGAPUDI POWER GENERATION LIMITED

VALIDATION OF THE
“4 MW biomass based power generation project at
Guntur, Andhra Pradesh.”

REPORT No. INDIA-VAL/105.49/2008

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BUREAU VERITAS CERTIFICATION



VALIDATION REPORT

Date of first issue: 08/04/2008	Organizational unit: Bureau Veritas Certification Holding SA
Client: Velagapudi Power generation Limited	Client ref.: Mr. V. Venkateswara Rao

Summary:

Bureau Veritas Certification has made the validation of the “4 MW biomass based power generation project at Guntur, Andhra Pradesh.” (Hereafter called “the project”) located in Nadimpalem, Prattipadu Mandal of Guntur District of Andhra Pradesh, India on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology “AMS I.D. Grid connected renewable electricity generation”, Version 11, and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: INDIA-val/105.49/2008	Subject Group: CDM	
Project title: 4 MW biomass based power generation project at Guntur, Andhra Pradesh.		
Work carried out by: Sameer Pendse – Team Leader P. Srinivas – Team Member Sushil Budhia – Financial Expert		
Work verified by: Mr. H. B. Muralidhar		
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Indexing terms

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
DOE	Designated Operational Entity
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
MoV	Means of Verification
NGO	Non Government Organization
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
VPGL	Velagapudi Power Generation Limited
NEDCAP	Non-Conventional Energy Development Corporation of Andhra Pradesh Ltd



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1.0 INTRODUCTION

M/s. VPGL (hereafter called “the client”) has commissioned Bureau Veritas Certification to validate its “4 MW biomass based power generation project at Guntur, Andhra Pradesh. (Hereafter called “the project”) at District Guntur, Andhra Pradesh, India

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 OBJECTIVE

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is 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).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 SCOPE

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

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

1.3 GHG PROJECT DESCRIPTION

The proposed 4 MW capacity plant is operating from January 2007 and power is being supplied to the grid. The gross power generation per year is estimated to be 27.38 MUs considering 95% designed PLF and minimum of 330 days of service in year.

The project activity has been essentially conceived to generate GHG emission free electricity by making use of available biomass at the project site to meet the regional electricity demand. The project being a renewable energy project leads to sustainable development through efficient utilisation of available biomass and generation of additional employment for the local stakeholders. Project participant has a plan of putting up a steel processing plant in the premises.



Webhosted PDD mentioned that the electricity generated from plant can also be used by project participant other than export to grid for their own purpose (For this steel processing plant) in future.

This was also discussed during the site visit & subsequently Project participant has confirmed that this project activity has been conceived as independent power plant for selling the energy to grid and will maintain the same status throughout the project life. Project participant has given an undertaking for the same. DOE has accepted this and validation opinion is based on conformance to this condition throughout the project life.

1.4 VALIDATION TEAM

The validation team consists of the following personnel:

Mr. Sameer Pendse

Bureau Veritas Certification Team Leader, Climate Change Verifier

Mr. P. Srinivas

Bureau Veritas Certification Climate Change Verifier

Mr. Sushil Budhia

Financial Expert, Sushil Budhia Associates

Mr. H.B.Muralidhar

Bureau Veritas Certification, Internal Technical reviewer

Competence details about the team are given in Appendix B

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification 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;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in Appendix A to this report.

**Validation Protocol Table 1: Mandatory Requirements**

Requirement	Reference	Conclusion	Cross reference
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) or a Clarification Request (CL) of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Validation Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Protocol Table 2: Requirements checklist

Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Baseline and Monitoring Methodologies

Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements of baseline and monitoring methodologies should be met. The checklist is organised in several sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.



Validation Protocol Table 4: Legal requirements				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 5 : Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3	Summary of project owner response	Validation conclusion
If the conclusions from the Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Validation protocol tables

2.1 REVIEW OF DOCUMENTS

The Project Design Document (PDD) submitted by M/s. VPGL and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests VPGL revised the PDD and resubmitted it in March 2008.

The validation findings presented in this report relate to the project as described in the PDD version 3.



2.2 FOLLOW-UP INTERVIEWS

On 23/07/2007 and 24/07/2007 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of VPGL were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
VPGL	Project description Contribution of Project towards Sustainable Development Operational aspects Monitoring Methodologies, plans and Procedures. QA/ QC Procedures Internal review / verification mechanism Competency Management Approach towards understanding the issues pertaining to interested parties Additionality and Investment analysis
Local Stakeholder	Social and economical benefits due to Project.
Consultant	Project Category Additionality and investment analysis Base line – Justification and Application Monitoring plans

2.3 RESOLUTION OF CLARIFICATION AND CORRECTIVE ACTION REQUESTS

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections, the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

- 1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
- 2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued.

VALIDATION REPORT

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A.

The validation of the Project resulted in 07 (Seven) Corrective Action Requests and 06 (Six) Clarification Requests.

- 3) The conclusions for validation subject are presented.

3.1 PROJECT DESIGN

VPGL is promoted by Mr. Velagapudi Sambasiva Rao and his family members. Mr. Rao has held several positions in the Andhra Pradesh (AP) Rice Millers Association. He subsequently diversified into cold storage business and became a pioneer in the field in the state of AP. He along with his family members has successfully built seven cold storages in Vijayawada, Guntur and Khammam sites in AP and all the units are running successfully.

The proposed 4 MW capacity plant is operating from January 2007 and power is being supplied to the grid. The gross power generation per year is estimated to be 27.388 MUs considering 95% designed PLF and minimum of 330 days of service in year.

The project activity has been essentially conceived to generate GHG emission free electricity by making use of available biomass at the project site to meet the regional electricity demand. The project being a renewable energy project leads to sustainable development through efficient utilisation of available biomass and generation of additional employment for the local stakeholders. The electricity generated from plant can also be used by project participant other than export to grid for their own purpose and activity.

The power generation scheme proposed envisages a single boiler with all its auxiliary systems and an bleed cum condensing turbo-generator with all its auxiliary systems, HV and EHV systems for the export of the power to the grid and the remaining balance of plant items to complete the power plant.

The scheme envisages a 20 TPH capacity steam generator with the outlet steam parameters of 66 ata and 485 °C, with the feed water inlet temperature of 116.3 °C. The turbo-generator is of 4 MW normal capacity with two uncontrolled extractions. The plant is designed with all other balance of plant systems like the fuel handling system, ash handling system, raw water system, cooling water system, de-mineralized water system, compressed air system, HV and EHV systems etc. for its successful operation. The scheme is configured to optimize the power generation, with one stage of feed water heating. The power generation at turbo generator is at 11 kV, 50 Hz, 3 phases. The power will be supplied to the Andhra Pradesh Transmission Corporation of India Ltd. (APTRANSCO) grid at the near by 33/11 kV substation at Prattipadu, which is about 6 km from the generation plant.

In the absence of the project activity, electricity would have been generated using a fossil fuel based thermal power plants. This would have resulted in higher GHG emissions than those emitted in the project activity.



Bureau Veritas Certification recognizes that VPGL's Project is helping country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because the project activity's contributions to sustainable development are as follows:

- Project is generating power from renewable sources of energy; biomass in this case.
- The plant site is an isolated rural area where unemployment, poverty and other economic backwardness are prevailing; the project would lead to the development of the region
 - Since, the biomass resources are collected and transported to the plant site from the fields, opportunities are generated for the rural people to collect and transport biomass. This results in the enhanced employment of the people.
 - The plant is generating commercial value to agricultural residues enabling the farmers to get better price out of their produce augmenting their income. The above benefits due to project activity ensure that the project would contribute to the social and economic well being in the region. Hence, the project contributes to the economic sustainability around the plant site, which is promotion of decentralization of economic power.
- Project has helped improving the infrastructure in the area of project.
- The project has facilitated technology transfer from Urban to rural area.

The project design is sound and the geographical Village-Nadimpalem, Mandal-Prattipadu, District-Guntur and (temporal 20 years) boundaries of the project are clearly defined.

Confirmation on Debundling

Based on the available information, it is confirmed that

- The project is first for VPGL and so far only generation plant;
- VPGL have not registered any other small-scale project activity within the previous two years; and the project boundary is not within 1 km radius.

Confirmation on small-scale limits

The proposed 4 MW capacity plant and power is being exported to grid. Since rated capacity is by design, it is not likely that it would be changed during crediting period and therefore project scale will remain within the small-scale limits of 15 MW. In section B.2 of PDD, project participant has provided the confirmation of the same. Additionally, project participant has given an undertaking project will remain under small-scale limits throughout the crediting period.

For CAR's and CL's related to Project design, refer Appendix A (Validation protocol).

3.2 BASELINE AND ADDITIONALITY

Project uses the approved consolidated baseline methodology AMS I.D. Grid connected renewable electricity generation", Version 11, EB33



The adopted monitoring methodology has been chosen based on the following reasons:

- Installed capacity of Project is 4.0 MW, which is below threshold limit of 15 MW for small scale Projects.
- Project is 'Generation of electricity from renewable energy i.e. biomass generated is connected to Grid' – Southern grid in this case.

Starting date and CDM Consideration

Starting date for project is taken to be 12/10/2004, date on which Purchase order was issued to Equipment supplier M/s. Thermodyne for supply of 1 no.20 TPH boiler

Evidence of CDM consideration is available in the form of letter from VPGL to Vi-sa services dated 20/08/2003 in which VPGL sought information on amount of CER and revenue that can be available to improve financial viability of the project.

Validation team also evaluated the time frame from date of CDM consideration on above mentioned date to submission of the project as CDM Project. Evidently Project participant was quite aware about concepts like Green Energy, CDM etc. through their interactions through various consultants. PDD explains this in a chronological order.

Validation team has verified these evidences and found them in order to justify the delay.

The alternatives considered for determination of the baseline scenario in the context of the project activity is continuation of existing situation and no Project activity. In that scenario, the equivalent electricity would have been generated using primarily fossil fuels in the grid to which project is connected to. This alternative is in line with compliance requirements of host country.

The baseline options considered do not include those options that:

- Do not comply with legal and regulatory requirements; or
- Depend on key resources such as fuels, materials or technology that are not available at the project site.

It has been demonstrated in PDD that proposed project activity cannot exist without backup from CDM revenues. The arguments related to additionality are presented in PDD. Barriers for implementation of the project are –

1. Investment analysis - IRR without CDM revenue is 11.39% and with CDM revenue is to 17.29 %.
2. Technological Barriers.
3. Barriers due to prevailing practice.
4. Institutional barriers.
5. Other barriers like managerial resource, organisational capacity etc.

DOE validated these arguments. These arguments and validation of those is presented below.

Validation of Additionality claims by DOE

**1. Investment Analysis –****Claims –**

- A. IRR without CDM revenue is 11.39 % and with CDM revenue is 17.29 %.
- B. Sensitivity Analysis - 5 % increase in generation and 10 % decrease in Fuel cost as well use of use of biomass from energy plantation Results obtained: "IRR without CDM revenue –15.54 %" ,12.54 & 15.48 % respectively.

Claims of IRR working as well as sensitivity analysis is based on actual data as well as certain assumptions. The data and verifiable evidence / justification available for the same is presented below:

1. Project life has been considered to be 20 years, which is based on certificate dated 01/08/07 issued by chartered Engineers M/s. Sri Durga Civil and Enviro. Consultants.
2. Capital cost including cost of Project, Land, Civil work as well as charges for Installation and commissioning. – Various Purchase orders as well as cost considered in loan sanction letter dated 21/07/2004 from State Bank Of India.
3. Residual value has been considered to be 5 % of capital cost, which is as per industry norms.
4. Project has loan component in financing – Loans taken from State Bank of India and Indian Overseas Bank.
5. O&M Expenses and annual escalation – As per industrial norms 5% has been considered. 5% annual escalation is also considered in the same, which is also as per industrial norms.
6. Rate of purchase of power is varying & based on APERC order dated 20th March 2004.
7. Plant load factor (PLF) – 95% has been considered. Actually Detailed project Report PLF is considered to be 80% but conservative side maximum PLF possible i.e. 95% has been considered.

Sensitivity analysis is also presented in PDD with following most influencing factors

- Change in PLF
- Change in Fuel cost.
- Procurement of biomass from own energy plantation.

As seen from analysis, Maximum IRR achieved is with 10% decrease in fuel cost which is 15.54%. This factor of fuel cost is beyond the control of project participant and 15.54% rate of return is also below the benchmark of APERC.

Similarly sensitivity analysis is also done with procurement of biomass from own energy plantation The cost of biomass from energy plantation has been calculated on the most conservative manner and does not include lease amount and transportation paid by VPGL, which will further reduce the IRR. With this calculation, IRR works out to be 15.48% which is still below benchmark of IRR of 16%.

As demonstrated in PDD, project has applied a benchmark of 16% as return on equity as per APERC order dated 20th March 2004. This benchmark is applicable to the type of project activity since the concerned order mentions biomass based project activity and expected returns. PDD also compares various assumptions considered by this



order against actual parameters for the project activity and justifies how IRR worked out by the project activity is lesser when tariff is determined to yield 16% returns.

Validation team has validated these actual parameters and assumptions as per APERC order of 2004.

Validation team has also obtained a certificate from statutory auditor of the company that the project activity of the company has not availed any capital or interest subsidy.

2. Technological Barriers

Claims in the PDD and validation opinion of the same

Claims

- A. Barrier due to uncertainty of fuel supply
- B. Barriers due to loss in power sold due to grid failure

Validation opinion

- A. It is correct that any project depending on biomass as raw material has inherent uncertainty since biomass availability is critical aspect. This typically would depend on monsoon in the region, possible increase of similar power plants in the region etc. To that extent this barrier is justifiable generically to such plants in the region and not only to the proposed project activity. Hence validation team has not accepted this barrier as a prohibitive barrier.
- B. Project participant has provided the data on grid failure for Pratipadu Substation in the year 2007. This data is correct however it may be noted that these barriers are post implementation barriers and information on grid failure was not evidently available to project participant at the time of decision making. Hence this barrier cannot be accepted as barrier for demonstrating additionality.

3. Prevailing practice barrier

Claims in the PDD and validation opinion of the same

Claims

- Biomass power plants is not a common practice in the region.

Validation opinion

Data presented in PDD on biomass plants installation till September 2007 is available from publicly available from source. From the data it is clear that NEDCAP has sanctioned in all 59 biomass plants in Andhra Pradesh besides additional 8 biomass plants exclusively on plantation, totalling to 67 units with a total installed capacity of 408.75 MW. This works out to hardly 3.37 % of the total power utilized in the State as on September 30, 2007.

It is also correct from publicly available source (www.aptranscorp.com/pact01.pdf), out of 12129.04 MW of power being utilised in Andhra Pradesh as on September 30, 2007, about 64 % comes from fossil fuel including 11.23 % in the private sector. The share of the Mini Hydel, Wind, Cogen & Biomass, set up by the private sector is less than 5 %.

Hence claim of biomass projects in the region is not a common practice is justifiable and has been accepted by validation team.



4. Other barriers

- Institutional barriers like tariff determination, No third party sale allowed in A.P.
- Barriers like managerial barriers, organisational capacity barriers etc.

Validation team has evaluated all these claims related to institutional barriers.

Validation team is of the opinion that these barriers exist but these cannot be treated as prohibitive in nature to demonstrate the additionality.

For CAR's and CL's, related to Baseline and additionality, refer Appendix A (Validation protocol).

3.3 MONITORING PLAN

Project uses approved consolidated monitoring methodology (Type I Category I.D Renewable electricity generation for a grid) (Version 11), as per Appendix B of the Simplified modalities and procedures for small-scale CDM project activities.

The adopted monitoring methodology has been chosen based on the following reasons:

Installed capacity of Project is 4 MW, which is below threshold limit of 15 MW for small scale Projects.

Project is ' Generation of electricity from renewable energy i.e. biomass.

Electricity generated is connected to Grid – Southern grid in this case.

As per methodology AMS – I.D, Version 11, "Monitoring is to consist of metering the electricity generated by the renewable technology. In the case of co-fired plants, the amount of biomass and fossil fuel input shall be monitored". Monitoring plan in PDD depicted in sections B.7 and CDM manual established by company includes parameters like electricity export, auxiliary consumption, biomass quantity etc.

According to Consent to establish accorded to company, condition was indicated to use coal to the tune of maximum of 30%. According to MNRE (Ministry of New and Renewable Energy) guidelines that independent biomass based power plants are permitted to use coal to the tune of maximum 15% . However in subject project case boiler is not designed to use coal. Boiler supplier has also confirmed the same by issuing the letter.

However since use of coal is permitted, project participant has included the parameter of coal usage in the monitoring plan.

CDM manual also makes provision for calibration of meters at regular intervals.



Since project activity is biomass based power plant in which biomass is not generated within the plant, monitoring plan also makes a provision to monitor the quantity of biomass in the region by third party survey for each type of biomass to demonstrate that biomass available in the region is sufficient (minimum 25% in excess) to cater the projects in the region.

Monitoring plan is found to be complete and transparent.

For CAR's and CLs related to Monitoring Plan refer Appendix A (Validation protocol).

3.4 CALCULATION OF GHG EMISSIONS

As per Methodology Type I, category D, the baseline emission sources considered are fossil fuel fired power plants connected to the relevant electricity system (grid). The relevant grid considered for the calculation of baseline emissions is the Southern region grid

As required under Type I – Category D, (version 11) the baseline emissions are calculated as per combined margin approach, both in terms of relevant grid definitions and the emission factors. The operating margin in the baseline emissions is calculated using equation described in no of the methodology. For calculating the operating margin, data vintage of 3-year average (based on the most recent publicly available statistics available at the time of PDD submission) has been used. The build margin calculations have been completed with most recent information available on plants already built at the time of PDD submission. The combined margin calculation is based on straight average of operating and build margin. Version of the methodology applied to the project (Version 11, EB 33) also mandates calculation of combined margin as per weightage factor as outlined in ACM 0002, Version 6; dated 19 May 2006. The detailed algorithms are described later under sections B.6.1, B.6.2, B.6.3 and Annex 3 of the PDD. Referring to Appendix B of the Simplified Baseline and Monitoring Methodologies (Item No 7(a)), the kWh produced by the renewable generating unit multiplied by the average of the “approximate operating margin” and “build margin” has been selected to arrive at the ‘combined margin’.

Conservativeness

Version 2.0 of the CO₂ Baseline Database was initially adopted for baseline determination in accordance with ACM0002 (as prescribed in AMS ID). The resulting emission factor from applying the data provided in version 2.0 of the CEA database was 0.86 tCO₂/MWh. However during the course of validation, version 3.0 of the database was published with data added for the year 2006-2007. The emission factor resulting from data in the updated database is 0.85 tCO₂/MWh. Thus, a more conservative baseline for the project activity is established using data from version 3.0. Therefore, the ex-ante values for the operating margin, build margin, and corresponding emission factor were updated as per version 3.0 of the CO₂ Baseline database.

As described in Type I – Category D (version 11) project does not lead to any leakage. However provision for annual survey of availability of biomass has been included in the monitoring plan.



The gross annual estimate of 23,397 t eCO₂, estimated project emissions of 273 t eCO₂ on account of transportation of biomass & therefore net emission reduction of 23,123 t eCO₂ is reasonable based on generation, export, likely fossil fuel consumption and emission factor of southern grid.

3.5 SUSTAINABLE DEVELOPMENT IMPACTS

No significant environmental impacts have been identified from the project activity. Similarly the project activity does not have any adverse impacts on environment during its construction or operational phase.

This CDM initiative would contribute towards:

- Strengthening the Southern grid.
- Generation of energy from renewable energy i.e biomass in this case
- Creating employment opportunities in the region of installation.
- Conservation of natural resources including land, forests, minerals, water and ecosystems.

In view of above and contribution towards the country's goal of sustainable development and improvement in quality of life of local population, the development and implementation of systems for "4 MW biomass based power generation project at Guntur, Andhra Pradesh." were recommended by the M/s. VPGL's management. The clearance of this CDM initiative by VPGL would facilitate the process of sustainable energy production.

3.6 COMMENTS BY LOCAL STAKEHOLDERS

The local stakeholders are immediately affected by the activities of the project. The effect is on the local environment, social life and economics. All the individuals and organizations falling in the above effects are perceived as stakeholders. They can be within the boundaries of the village, district, state or nation. VPGL checked the opinion of the stakeholders on the project through consultation of stakeholders. The following stakeholders were identified:

- Gram Panchayat
- The rural population living in the neighborhood of the plant
- Licensing and regulatory authorities

A meeting was organized on 23/09/2006 by the project proponent at the project site to get the comments and suggestions of the local stakeholders on their project activity. Invitation was sent in the form of individual letters addressed to the different stakeholders identified for the project. Representatives of a wide cross section of the society of the local inhabitants were invited to express their views. Representatives of the project proponent were present to clarify queries and receive feedback on the project activity. The venue of the meeting was the 'Factory office' of VPGL Plant at Village - Nadimpalem, Mandal - Prattipadu, District – Guntur. To get an organized and structured feedback from the stakeholders, the meeting was designed in a question answer format, where social, economic and environmental issues were put up in the



form of questions and comments were invited on them. Project proponent replied to their queries appropriately and suggestions came up in this meeting have been given due consideration and future actions were planned accordingly.

The project participant has maintained the list of participants & minutes of meeting of the stakeholders.

The stakeholders have not put forth any negative comments about the project activity, instead they have appreciated the initiative taken up by the project participants for promoting biomass power project in their locality. The stakeholders viewed project title project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development.

The local stakeholders interviewed by the validation team during the site visit of the validation activity endorsed these views.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days; comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the UNFCCC CDM website (<http://cdm.unfccc.int>) on 22/06/2007 and invited comments within 21/07/2007 by Parties, stakeholders and non-governmental organizations.

No Comments were received during the commenting period.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the “4 MW biomass based power generation project at Guntur, Andhra Pradesh.” Project in India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/ used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment, technological and other barriers to determine that the project activity itself is not the baseline scenario.



By synthetic description of the project, the project is expected to result in reductions of GHG emissions. An analysis of the investment and prevailing practice barriers demonstrates that the proposed project activity 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. Given that the project is implemented and maintained as designed with the condition that it will continue to operate as energy export to grid, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (Version 3, 24/03/2008) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

The validation is based on the information made available to us and the engagement conditions detailed in this report.

6 REFERENCES

Category 1 Documents:

Documents provided by VPGL that relate directly to the GHG components of the project.

/1/	Host country approval dated 22/02/2007
/2/	PDD – Initial version – Version 1 & Final Version – Version 3 dated 24/03/2008
	Starting date and Evidence of CDM Consideration
/3/	Starting Date: Purchase order PO-001/2004 dated 12/10/2004 issued to Thermodyne Technologies Pvt. Ltd., for supply of 1 no. 20 TPH agro-waste fired boiler
/4/	Publication by Winrock International with information on CDM dated September 2002
/5/	Letter from MEDA dated 01/01/2003 for participation in a conference on Biomass Power including CDM.
/6/	Letter from Vi-sa services dated 12/08/2003 for offering services for CDM cycle
/7/	Actual evidence - Letter to Vi-sa services from VPGL dated 20/08/2003 for seeking information on amount of CER and revenue that can be available to improve financial viability of the project.
	Financial & other relevant Documents relevant to Investment analysis the Project
/8/	Loan sanction letter from Syndicate bank dated 30/04/07
/9/	Power Purchase agreement dated 12/11/2006 between Southern Power Distribution Company of Andhra Pradesh Limited
/10/	Purchase order PO-002/2004 dated 15/10/2004 issued to Thermodyne Technologies Pvt. Ltd., for erection and commissioning of 1 no. 20 TPH boiler.
/11/	Detailed Project Report
/12/	Letter issued by statutory auditor of the company that project has not availed any capital or interest subsidy for the project



	capital or interest subsidy for the project.
	Regulatory Requirements
/13/	Agreement with NEDCAP Dated 03/08/02
/14/	Consent to Operate dated 21/08/07 issued by Andhra Pradesh Pollution Control Board.
/15/	Boiler test Certificate dated 30/03/2007 issued by Competent authority from Government of Andhra Pradesh.
	Stake Holders consultation
/16/	Invitation letter dated 18/09/2006 to local stakeholders for inviting stakeholders for meeting
/17/	Records of Stakeholder meeting dated 23/09/2006.
	Other relevant documents
/18/	Environmental Management plan
/19/	Undertaking of client dated 05/04/2008 that project will maintain the status as project exporting energy to grid and will not use any energy generated from project for captive purpose.
/20/	Letter from Boiler supplier M/s. Thermodyne dated 04/04/2008 mentioning that boiler supplied by them for the project activity is not suitable for using fossil fuel.

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/	Kyoto Protocol to the United Nations Framework Convention on Climate Change, United Nations, 1997
/2/	Guidelines for completing CDM-PDD - Version 04 – 22 December 2006.
/3/	Approved Methodology – I D - Version 11, EB 33
/4/	Attachment A to Appendix B for demonstration and Assessment of Additionality – version 6, dated 30/09/2005
/5/	Attachment C to Appendix B - General guidance on leakage in biomass project activities, Version 2

Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/	Mr. V Jeethendra – Director – VPGL
/2/	Mr. M Ramesh – Plant Manager – VPGL
/3/	Mr. T Raju – Accounts Officer – VPGL
/4/	Mr. Vijayanand – Sr. Consultant – MITCON
/5/	Mr. B R Purnachandra – Associate Consultant – MITCON
/6/	Mr. Hariprasad Rao – Farmer, Village Kondrupadu (Local Stakeholder)



/7/	Mr. Laxminarayana – Farmer, Village Nandimpalem (Local Stakeholder)
/8/	Mr. Nageswara Rao – Farmer, Village Prattipadu (Local Stakeholder)
/9/	Mr. Subba Rao – Farmer, Village Prattipadu (Local Stakeholder)
/10/	Mr. Ravikumar – Farmer, Village Kondrupadu (Local Stakeholder)
/11/	Mr. Krishna Rao – Farmer, Village Prattipadu (Local Stakeholder)
/12/	Mr. Changanti Babu – Surpanch, Village Kondrupadu (Local Stakeholder)

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APPENDIX A: VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Small Scale Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art. 12.2	OK	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	Project proponent has obtained Host country approval (India). Host country approval dated is attached.	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art. 12.2.	Yes, the project is assisting	Table 2, Section E.4.1
4. The project shall have written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	Project proponent has received Host country approval (India) from the Ministry of Environment and Forests that is the DNA for India	Written approval of voluntary participation from the DNA is obtained.
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	Yes, the estimated emission reductions over the 10-year fixed crediting period would be 23,123 tCO ₂ .	Table 2, Section E.1 to E.4
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e.	Kyoto Protocol Art. 12.5.c,	Yes the project activity is additional.	Table 2, Section B.2.1

VALIDATION REPORT



REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §26		
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	The Project will not receive any public funding from parties included in Annex I	Declaration by the Project Proponent in Annex. 2 of PDD.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	Ministry of Environment and Forest (MOEF) is the Designated National Authority (DNA) of India	Government of India has designated the National Clean Development Mechanism (CDM) Authority under Ministry of Environment & Forest to act as DNA. Source http://cdm.unfccc.int/DNA
9. The host country shall be a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	Yes	Date of accession – August 2002 Source http://unfccc.int/parties_and_observers/parties/items/2109.php
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in	Simplified Modalities and Procedures for Small	Yes. It is not a debundled component.	Table 2, Section A.1

VALIDATION REPORT



REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference/ Comment
§ 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Scale CDM Project Activities §12a,c		
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	Yes. The Project Design Document conforms to current version of Small Scale Project Design Document Format	Gaps were identified during documentation review and the requirements of PDD with the small-scale CDM projects were conformed.
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	Yes, monitoring mechanism is in place.	Table 2, Section A.1.3 and B.1
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	Yes, local stakeholders were consulted. There are no comments.	Table 2, Section G
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	Not required by Host Country See Table 2, Section F.1.1	Table 2, Section F
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	Project Design Document (PDD) was made publicly available on UNFCC Website for the period of 30 days from 22/06/2007 to 21/07/2007	Source http://cdm.unfccc.int/P-projects/Validation

**Table 2 Requirements Checklist**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. 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?	1	DR	Yes, as per 17/CP.7 (ii). The capacity of the project is 4 MW at Velagapudi Power Generation Limited, (project proponent) in Guntur District.	OK	OK
A.1.2. The small-scale project activity is not a debundled component of a larger project activity?	1	DR I	Velagapudi Power Generation Limited (VPGL) has not registered any other small-scale project with in last 2 years and with in 1 km of the project boundary.	OK	OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small-scale CDM project activities?	2	DR	Yes, Project Type I – Renewable energy project. Category I D – Renewable Electricity Generation (Version 12). However PDD uses Version 11	CL-1	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	1	DR I	The project site is located at Nadimpalem, Prattipadu Mandal, Guntur Dist, Andhra Pradesh. Project site is located at a 16°10'60" latitude (north) and 80°19'60" longitude (east). The unique site survey number is not mentioned.	CAR-1	OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	1	DR	Refer B.3 of PDD; The project evacuates the power to the Southern Region Grid. The project involves the installation of one 20 TPH boiler at 66kg/cm ² and 485 oC which feeds steam to a double extraction Steam Turbine Generator of 4 MW normal capacity. The project activity is expected to provide this 4 MW of electrical power to the Andhra Pradesh Transmission Corporation of India Limited (APTRANSCO) grid. However following needs to be clarified PDD mentions ' extraction cum condensing type turbine' then it would typically be termed as cogeneration plant PDD also mentions that energy generated would be used for captive purpose for steel processing	CL-2	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			plant.		
A.2.3. Does the project design engineering reflect current good practices?	-	DR	Yes. The project involves Renewable energy project with modern safety features and pollution control systems.	OK	OK
A.2.4. Will the project result in technology transfer to the host country?	-	DR	No, as indicated in PDD – Refer A.4.2, there is no transfer of technology	OK	OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs?	-	DR I	It is not clear how project has made provisions for Initial training and maintenance efforts	CL-3	OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	1	DR I	Yes. Contribution to sustainable development are: <ul style="list-style-type: none"> • Social well-being • Economic Well-being • Environmental Well-being • Technological Well-being Refer A 2 of PDD.	OK	OK
A.3.2. Will the project create any adverse environmental or social effects?	1	DR	No adverse environmental or social effects are envisaged. Ambient Air monitoring Records. Air consents copy	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			to be provided. Hazardous waste generation and disposal.		
A.3.3. Is the project in line with sustainable development policies of the host country?	1	DR	Yes Refer A.2 of PDD, Government of India has guidelines for sustainable development n the interim approval guidelines for CDM projects are described. DNA approval has been received on 22 nd February 2007.	OK	OK
A.3.4. Is the project in line with relevant legislation and plans in the host country?	-	DR I	In the manufacturing sector in India, energy efficiency projects are not under the purview of any legal act. However following needs to be clarified The organization has got consent to establish. (APPCB/VJA/GTR/745/HO/2004 dated 17/11/2004) Evidently application for Consent for operation has been submitted on 23/03/2007 Refer ' Consent to Establish APPCB/VJA/GTR/745/HO/2004 dated 17/11/2004. As per Schedule B of the consent #3 - Company is to develop of energy plantation in area of AC 504 as committed in Ir. Dt. 30/4/2007. - <u>Plan needs to be submitted for the same</u> #9 – Industry to use biomass fuels and 30% coal as mentioned in CFE application and biomass from energy plantation being developed - <u>Evidently coal is planned to be used. However it is</u>	CAR-2	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p><u>not appearing in monitoring plan.</u></p> <p>There is evidence of letter issued by APPCB Lt. No. 8/APPCB/CFO-BO/EE-II/2006-1985 dated 23/12/2006 directing company to submit the 'Progress made by company in utilising the municipal solid waste as per GO.MS.No.3 dt. 08/01/2004 issued by EFS&T Department government of A.P</p> <p>If municipal solid waste is planned to be used in the plant then project does not qualify as using 'biomass' as per definition of biomass.</p>		
B. Project Baseline The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.					
B.1. Baseline Methodology It is assessed whether the project applies an appropriate baseline methodology.					
B.1.1. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	1,2	DR	Yes, approved methodology For Type I. Category D has been considered in accordance with simplified baseline and monitoring methodologies for selected CDM project – Appendix B.	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.1.2. Is the baseline methodology applicable to the project being considered?	1,2	DR	Yes, this methodology is applicable to power generation from a renewable energy source from biomass and supply to grid. However, refer PDD section A.2. it says "The electricity generated from plant can also be used by project participant other than export to grid for their own purpose and activity". This needs to be clarified.	CL-4	OK
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	1	DR	Refer B.5 of PDD Technological barriers and barriers due to prevailing practices have been discussed and demonstrated. Following claims however are not convincing / clear <ul style="list-style-type: none"> - Evidence of CDM consideration is not yet available. - Evidence of sanction letter from NEDCAP is not yet available. - Comparison of fossil fuel fired plants is given, which is not relevant since this is independent power producer. - Details of IRR working is not provided. 	CAR-3	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<ul style="list-style-type: none"> - Claims in technology barriers and barriers under prevailing practice are contradictory since as per NEDCAP 59 Projects, with most of them in biomass sector have been sanctioned. In prevailing practice barrier, however it is mentioned that biomass power plants is not a prevailing practice. Data presented for the same is for India and Southern India but not for Andhra Pradesh. - Data on variation in rainfall is not available. - Tariff rate barrier is common to all the plants in the region and how is this affecting the project only is not clear. Same is the case with third party sale. - Comparison between rates of delayed payment and bank rates can not assessed since evidences of bank rates are not provided. - New technology claims like installation of DCS are not correct, since DCS has been in practice in similar plants. - Argument in PDD 'The low share of biomass power projects in the total installed capacity of the country confirms these prohibitive barriers' must be supported by how many projects have applied for 		

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			registration as CDM Project. -		
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	1	DR I	Refer B.6.1 of PDD. Average OM and Average BM has been calculated. The determination of the chosen baseline is transparent. However PDD uses version 11 of applicable methodology, while as on date version 12 is in use. Refer section A.1.3 above.		OK
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	-	DR	Refer section B.5 of PDD relevant national and/or sectoral policies have been have been taken into account.	OK	OK
B.2.4. Is the baseline selection compatible with the available data?	1	DR	Refer B.2.2.	OK	OK
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	1,2	DR	Yes. Baseline has been chosen as per the methodology, which is electricity generation by fossil fuel plants connected to grid	OK	OK
C. Duration of the Project / Crediting Period It is assessed whether the temporary boundaries of the project are clearly defined.					
C.1.1. Are the project's starting date and operational lifetime clearly defined?	1	DR	Starting date: 20/10/2004. However Purchase order for boiler was raised on 12/10/2004 which is before	CAR-4	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			above mentioned date. Expected operational life 20 years.		
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	1	DR	Opted for a fixed crediting period of 10 years starting from 01/06/2008 or the project registration date, which ever is later.	OK	OK
D. Monitoring Plan The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
D.1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	1,2	DR	The monitoring methodology is as per "metering the electricity generated by the renewable technology. In the case of co-fired plants, the amount of biomass and fossil fuel input shall be monitored." as per Type I D Version 11. However as per 'General guidance on leakage in biomass project activities' annual evaluation of biomass to demonstrate that quantity of available biomass in the region (e.g.50 km radius), is at least 25% larger than the quantity of biomass that is utilised including the project activity must be done and need to be included in monitoring plan. This is not	CAR-5	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			evident.		
D.1.2. Is the monitoring methodology applicable to the project being considered?	1,2	DR	Yes.	OK	OK
D.1.3. Is the application of the monitoring methodology transparent?	1,2	DR	Refer D.1.1 above.		OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	1	DR	Refer D.1.1 above		OK
D.2. Monitoring of Project Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Are the choices of project emission indicators reasonable?	1	DR	Project has provision to use coal. However project emissions due to use of coal has not been evidently considered.	CL-5	OK
D.2.2. Will it be possible to monitor / measure the specified project emission indicators?	1	DR	Refer D.2.1 above		OK
D.2.3. Do the measuring technique and frequency comply with good monitoring practices?	1	DR	Refer D.2.1 above		OK
D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification?	1	DR	Refer D.2.1 above		OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. If applicable, are the choices of leakage indicators reasonable?	1	DR	Refer D.1.1 above.		OK
D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators?	1	DR	Refer D.1.1 above.		OK
D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices?	1	DR	Refer D.1.1 above.		OK
D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification?	1	DR	Refer D.1.1 above.		OK
D.4. Monitoring of Baseline Emissions It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1	DR	Reasonable as per approved monitoring plan.	OK	OK
D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators?	1	DR	Yes.	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.4.3. Do the measuring technique and frequency comply with good monitoring practices?	1	DR I	Yes.	OK	OK
D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification?	1	DR	Data will be measured and monitored at the project site. They will be electronic archiving and data will be retained for a period of two years beyond crediting period. Refer Annex 4.	OK	OK
D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed.					
D.5.1. Is the authority and responsibility of project management clearly described?	1	DR	Authority and responsibility of project management is not clearly defined	CL-6	OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	1	DR I	Registration responsibility is as per annex 1 information in PDD. However responsibility of monitoring measurement and reporting is not clearly described	CL-6	OK
D.5.3. Are procedures identified for training of monitoring personnel?	1	DR I	No evidence of identification of training for monitoring personnel.	CL-6	OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1	DR I	Project is likely to use coal, emergencies leading to higher GHG emissions due to high quantity of coal are not identified.	CL-6	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.5.5. Are procedures identified for calibration of monitoring equipment?	1	DR I	Procedures are not identified for calibration of monitoring equipment	CL-6	OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	1	DR I	Procedures for maintenance of monitoring equipment and installations are not identified.	CL-6	OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	1	DR I	Though procedure for monitoring is explained, there is no procedure for reporting and who will be monitoring and verifying the data.	CL-6	OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1	DR I	Procedures are not identified for day to day records handling.	CL-6	OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1	DR I	Procedures are not identified for dealing with possible monitoring data adjustments and uncertainties	CL-6	OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	1	DR I	Procedures are not identified for internal audits of GHG project compliance with operational requirements as applicable	CL-6	OK
D.5.11. Are procedures identified for project performance reviews?	1	DR I	Procedures are not identified for project performance reviews	CL-6	OK
D.5.12. Are procedures identified for corrective actions?	1	DR I	Procedures are not identified for corrective actions	CL-6	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E. Calculation of GHG emission It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.					
E.1. Project GHG Emissions The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.					
E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design?	1	DR	Refer D.2.1 above		OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	1	DR	Refer E.1.1.	-	OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	1	DR	Refer E.1.1.	-	OK
E.1.4. Are the calculations documented in a complete and transparent manner?	1	DR	Refer E.1.1.	-	OK
E.1.5. Have conservative assumptions been used?	1	DR	Refer E.1.1.	-	OK
E.1.6. Are uncertainties in the project	1	DR	Refer E.1.1.	-	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
emissions estimates properly addressed?					
E.2. Leakage It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.					
E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	1	DR	Refer D.1.1 above		OK
E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)?	1	DR	Refer D.1.1 above		OK
E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)?	1	DR	Refer D.1.1 above		OK
E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)?	1	DR	Refer D.1.1 above		OK
E.2.5. Have conservative assumptions been used (if applicable)?	1	DR	Refer D.1.1 above		OK
E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)?	1	DR	Refer D.1.1 above		OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	1	DR	The baseline emission boundaries have been defined in B 3. However, Prattipadu substation or the switchyard is not included in the project boundary.	CAR-6	OK
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	1	DR	Yes. Refer Annex 3 of PDD.	OK	OK
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	1	DR	Yes. Refer Annex 3 of PDD.	OK	OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	1	DR	Yes. Refer Annex 3 of PDD.	OK	OK
E.3.5. Are the calculations documented in a complete and transparent manner?	1	DR	Yes. Refer Annex 3 of PDD.	OK	OK
E.3.6. Have conservative assumptions been used?	1	DR	Yes.	OK	OK
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	1	DR	Yes.	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline case?	1	DR	Yes.	OK	OK
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	1	DR I	Not required as it is based on renewable energy usage.	OK	OK
F.1.2. Does the project comply with environmental legislation in the host country?	1	DR I	Project has obtained 'Consent to Operate' dated 21/08/07 from APPCB.	OK	OK
F.1.3. Will the project create any adverse environmental effects?	1	DR	If project is implemented as per design indicated in PDD, it is not likely to create any adverse environmental impacts.	OK	OK
F.1.4. Have environmental impacts been identified and addressed in the PDD?	1	DR	Yes. Refer section D.1 and D.2 of PDD.	OK	OK
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been	1	DR	Stakeholder meeting was held on 23/09/2006 at the	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
consulted?		I	project site.		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1	DR	Invitations were sent in the form of individual letters addressed to different stakeholders.	OK	OK
G.1.3. 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?	1	DR	Not required.	OK	OK
G.1.4. Is a summary of the comments received provided?	1	DR	Though there were questions asked and answered, there were no negative comments in context of the project activity. To be verified during site visit.	-	OK
G.1.5. Has due account been taken of any comments received?	1	DR	Refer G.1.4.	-	OK

**Table 3 Baseline and Monitoring Methodologies: AMS – ID version 11, EB 33**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. Applicability					
1.1.1. Does the project activity generate electricity from a renewable source like such as photovoltaics, hydro, tidal/wave, wind, geothermal and renewable biomass	2	DR I	Yes. It generates electricity from renewable biomass.	OK	OK
1.1.2. Is the power connected to the grid or displace electricity from electricity distribution system?	2	DR I	Yes, it is connected to Southern grid.	OK	OK
1.1.3 Is the project activity has two components both renewable and non-renewable?	2	DR I	No. It is presently operated on renewable biomass. However, it is allowed to operate on 30% coal mixing.	-	OK
1.1.4 If answer to question 1.1.3 above is yes, then is renewable portion is within small-scale limits?	2	DR I	Yes, the monitoring plan includes the monitoring of coal consumed. Refer: B.7.1 of PDD.	OK	OK
1.1.5 Is the project activity/unit involves co-firing of fossil fuel.	2	DR I	Refer 1.1.3 of checklist.	OK	OK
1.1.6 Is the project activity involves the addition of renewable energy generation units at an existing renewable power generation facility,	2	DR I	No. This is a new project.	OK	OK
1.1.7 If answer to question 1.1.6 above is yes, then is it evident that the added capacity of the units added by the project is lower than 15 MW and is physically distinct ² from the existing units.	2	DR I	Not applicable.	OK	OK
1.1.8 Does the project is of type retrofit or	2	DR	Not applicable.	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
modification of an existing facility?		I			
1.1.9 If answer to question 1.1.8 above is yes, then is it evident that the total output of the modified or retrofitted unit is not exceeding the limit of 15 MW?	2	DR I	Not applicable.	OK	OK
1.1.10 What is the sub-type of the project activity?	2	DR I	It is AMS Type – I, sub-type D.	OK	OK
1.1.11 Is the baseline methodology used in conjunction with the approved monitoring methodology ACM0002	2	DR I	Yes.	OK	OK
1. 2. Project boundary					
1.2.1. Does the project boundary encompasses the physical, geographical site of the renewable generation source?	2	DR	Refer E.3.1 of checklist.	CAR-6	OK
1.2.2. Did the project participant account for the CO ₂ emissions from electricity generation in fossil fuel fired power that is displaced due to project activity?	2	DR	Yes. The project activity is expected to displace 23123 t eCO ₂ /yr.	OK	OK
1.2.3. Does the spatial extent of the project boundary include the project site and all power plants connected physically to the electricity system that the CDM project power plant is connected to?	2	DR	Refer E.3.1 of checklist.	CAR-6	OK
1.2.4. Is the regional project electricity system identified by the spatial extent of the power plants that can be dispatched without significant transmission constraints?	2	DR	Yes. The power is supplied to Southern grid.	OK	OK
1.2.5. Are the assumptions made in determining the project electricity system defined and justified?	2	DR	Yes. Refer Annex 3.	OK	OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1.2.6. Does the application of this methodology result in a clear grid boundary?	2	DR	Refer E.3.1 of checklist.		OK
1.2.7. Does the application of this methodology result in a given country specific variations in grid management policies?	2	DR	Yes. The details are given in Annex 3 of PDD.	OK	OK
1.2.8. If answer to question is no whether DNA guidance is available for defining the boundary.	2	DR	Not applicable.	OK	OK
1.2.9. If answer to question is no and if the host country has a layered dispatch system (e.g. state/provincial/regional/national), is the regional grid is used?	2	DR	Southern Grid is used for evacuation of power.	OK	OK
1.2.10. If the regional grid is not used whether the national grid is used.	2	DR	Southern Grid is used for evacuation of power.	OK	OK
1.2.11. Have the electricity transfers from connected electricity systems to the project electricity system are defined as electricity imports?	2	DR	Yes.	-	OK
1.2.12. Have the electricity transfers to connected electricity systems to the project electricity system are defined as electricity exports?	2	DR	Yes.	-	OK
1.2.13. For the purpose of build margin, Is the spatial extent to the project boundary limited to project electricity system?	2	DR	Yes.	-	OK
1.2.14. Are recent or likely future additions to transmission capacity likely to significantly increase	2	DR I	No. There is no possibility.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
imported electricity?					
1.2.15. If answer to question is yes whether transmission capacity is considered a build margin source with the emission factor determined as for the OM imports.	2	DR	Not applicable.	-	OK
1.2.16. Is the emission factor determined as one of the four options for the OM imports?	2	DR	Yes.	OK	OK
1.2.17. For determining the operating margin, is one of the four options chosen to determine the CO ₂ emission factors for net electricity imports within the same host country?	2	DR	Yes.	OK	OK
1.2.18. If the import of electricity is from another country, is the CO ₂ emission factors for net electricity imports considered as 0 t CO ₂ per MWh.	2	DR	Not applicable.	-	OK
1.3. Identification of alternative baseline scenarios					
1.3.1. Does the project involves recovered methane for power generation?	2	DR	Not applicable.	-	OK
1.3.2 If answer to question 13.1 above is yes then is the baseline determined as recommended by methodology?	2	DR I	Not applicable.	-	OK
1.3.3 Does the system involves all generators using exclusively fuel oil and/or diesel fuel?	2	DR I	Not applicable.	-	OK
13.4 If answer to question 13.1 above is yes, then is the baseline calculated as per Table I.D.1 in the methodology?	2	DR I	Not applicable.	-	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1.3.5 If answer to all the above questions are no, then is the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO ₂ e/kWh) calculated in a transparent and conservative manner as described in methodology (as per latest version of approved methodology ACM 0002)?	2	DR I	Yes. The emission factor taken is 0.85 using latest CEA data, version 3, dated 15 December 2007.	OK	OK
1.3.6 In case of then project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, where the existing and new units share the use of common and limited renewable resources (e.g. stream flow, reservoir capacity, biomass residues), is the potential for the project activity to reduce the amount of renewable resource available to, and thus electricity generation by, existing units is considered in the determination of baseline emissions, project emissions, and/or leakage, as relevant ?	2	DR I	Not applicable.	-	OK
1.3.7 In case of project activities that seek to retrofit or modify an existing facility for renewable energy generation is the baseline scenario identified as recommended by methodology i.e. historical generation by existing unit?	2	DR I	Not applicable.	-	OK
1.3.8. If the answer is Yes from that point of time onwards whether the baseline scenario is assumed to correspond to the project activity, and the baseline electricity production is assumed to equal	2	DR	Not applicable.	-	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
project electricity production and no emission reductions are assumed to occur?					
1.3.9. Where EG-historical is the average of historical electricity delivered by the existing facility to the Grid, whether spanning all data from the most recent available year (or month, week or other time period) to the time at which the facility was constructed, retrofit, or modified in a manner that significantly affected output (i.e., by 5% or more), expressed in MWh per year. A minimum of 5 years (120 months) (excluding abnormal years) of historical generation data is required in the case of hydro facilities.	2	DR	Not applicable.	-	OK
1.3.10. Whether a minimum of three years data is referred and used in case the project is non-hydro?	2	DR	Yes. Data from 2002 is referred.	OK	OK
1.3.11 Is it required to estimate the point in time when the existing equipment would need to be replaced in the absence of project activity?	2	DR	Not applicable.	-	OK
1.3.12 If the answer to question is Yes Whether project participants have taken any of the two approached, indicated in the ACM0002 into account?	2	DR	Not applicable.	-	OK
1.3.13 Whether the typical average technical lifetime of the type equipment is determined and documented taking into account common practices in the sector and country e.g. based on industry surveys, statistics, and technical literature?	2	DR	Lifetime of the project is estimated as 20 years. basis of this is available in the form of certificate from Chartered Engineer.	-	OK
1.3.14. Whether the common practices of the	2	DR	Not applicable.	-	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
responsible practices of the responsible company regarding the replacement schedules is evaluated and documented, e.g. based on historical replacement records for such equipment?					
1.3.15. Whether the baseline emission factor is calculated as a combined margin consisting of the combination of operating margin (OM) and build margin factors according to three steps indicated in the methodology ACM0002?	2	DR	Yes.	OK	OK
1.3.16. Whether the weighted average applied by project participant is fixed for a crediting period.	2	DR	Yes, it for a fixed crediting period of 10 years.	OK	OK
1.3.17 If the project is generation of electricity from wind or solar, whether weighted average takes in to account the default weights as wOM = 0.75 and Wbm = 0.25 as required by Version 6 of ACM 0002?	2	DR	No, the generation of electricity is from renewable biomass.	OK	OK
1.3.18 Whether operating margin emission factors calculations are based on one of the four methods described in the methodology ACM 0002?	2	DR	Yes, step 2 & 3 are used.	OK	OK
1.3.19. Is the most likely baseline scenario 'electricity production from other sources feeding into the grid?	2	DR	Yes.	OK	OK
1.3.20. Did the project participant provide evidence and supporting documents to exclude baseline options that do not comply with legal and regulatory requirements; or depend on key resources such as fuels, materials or technology that are not available at the project site?	2	I	Alternatives do not include those do not comply with legal and regulatory requirements; or depend on key resources such as fuels, materials or technology that are not available at the project site	OK	OK
1.3.21. If the project activity modifies or retrofits an	2	DR	Project is not of the modification or retrofit type.	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
existing electricity generation facility, is the guidance by EB08 taken into account?		I			
1.4. Additionality					
1.4.1. Was the additionality of the project activity demonstrated and assessed using - Attachment A to Appendix B for demonstration and Assessment of Additionality – version 6, dated 30/09/2005	2	DR	Yes.	OK	OK
1.5 Project Emissions					
1.5.1. Are the project emissions considered as zero [0]?	2	DR	Yes.	OK	OK
1.6. Baseline Emissions					
1.6.1. Are the baseline emissions determined according to the formula $BE_y = EG_y \times EF_y$? In case of project activities using renewable sources but without retrofit / modification?	2	DR	Yes. Refer Annex 3 of PDD.	OK	OK
1.6.2 Are the baseline emissions determined according to the formula $BE_y = (EG_y - EG_{baseline}) \times EF_y$ in case of project activities using renewable sources with retrofit / modification?	2	DR I	Yes. Refer Annex 3 of PDD.	OK	OK
1.6.3 For project activities that involve the addition of new generation units, whether historical generation of existing units WTE_y has been calculated as either $WTE_y = \text{MAX}(WTE_{actual,y}, WTE_{estimated,y})$	2	DR I	Not applicable.	OK	OK
1.6.2. Were the Emissions Factor for displaced electricity calculated as in ACM0002?	2	DR	Yes. The emission factor is 0.85.	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1.7. Leakage					
1.7.1. Is the leakage considered if any equipment transfer is evident?	2	DR	Not applicable.	-	OK
1.7.2. If answer to question 1.7.1 is no, is leakage considered to be zero (0)	2	DR	Yes. Leakage is considered is zero.	OK	OK
1.8. Emission Reduction					
1.8.1. Did the emissions reductions were determined according to the formula $ER_v = BE_v$?	2	DR			OK
1.8.2. Were all values chosen in a conservative manner and was the choice justified?	2	DR I	Yes.	OK	OK
1.8.3. Whether an estimate of likely project emission reductions for the proposed crediting period is prepared as part of the PDD?	2	DR	Yes, due to this project activity 23123 tCO ₂ /yr will be reduced. Refer B.6.4. of PDD.	OK	OK
1.8.4. Whether the estimate in principle employs the same methodology ACM0002?	2	DR	Yes. It refers ACM 0002, version 6.	OK	OK
1.8.5. Whether the emission factor is determined ex-post during monitoring?	2	DR	No, the emission factor is determined as per CEA data.	-	OK
1.8.6. If yes whether project participants have used models or other tools to estimate the emission reductions prior to validation?	2	DR	Refer 1.8.5 above.	-	OK
2. Monitoring Methodology					
2.1. Applicability					
2.1.1. Does the project activity generate electricity from a renewable source?	2	DR I	Yes, it generates electricity from renewable biomass.	OK	OK
2.1.2. Is the power connected to the grid?	2	DR I	Yes, it is connected to Southern grid.	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.1.3. Does the project activity relate to electricity capacity additions from renewable sources?	2	DR I	Refer 2.1.1 of checklist.	-	OK
2.1.4 Can the geographic and system boundaries for the relevant electricity grid be clearly identified?	2	DR I	Refer E.3.1 of checklist.	-	OK
2.1.5. Is the information on the characteristics of the grid available?	2	DR I	Refer E.3.1 of checklist.	-	OK
2.1.6. If the electricity generation is from landfill gas capture, is the methodology combined with the approved "Consolidated baseline methodology for landfill gas project activities" [ACM 0001]?	2	DR	Not applicable.	-	OK
2.2. Monitoring Methodology					
2.2.1. Does the monitoring plan include monitoring of electricity generation from the proposed project activity?	2	DR	Yes. Refer B.7.1 of PDD.	OK	OK
2.2.2 Does monitoring plan include monitoring of biomass or biomass and fossil fuel where only biomass or biomass and fossil fuel co-firing is done?	2	DR I	Biomass quantity is monitored. However, the method of monitoring specific quantity of different biomass quantities that are being fed is not clear.	CAR-7	OK
2.2.3 Does monitoring plan include monitoring of specific consumption of fuel of each type of fuel?	2	DR I	Refer 2.2.3 above.	-	OK
2.2.4 In case of more than one type of biomass fuel, does monitoring plan require monitoring of the same separately?	2	DR I	Yes. Refer point 16 of approved methodology of AMS I.D.	-	OK
2.2.5 In case of use of fossil fuel, does electricity generation metered is adjusted to deduct electricity generation from fossil fuels using the specific fuel consumption and the quantity of fossil fuel consumed.	2	DR I	Refer 1.1.3 of checklist.	-	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.2.6 Does the amount of electricity generated using biomass fuels calculated as per 2.2.5 above, is compared with the amount of electricity generated calculated using specific fuel consumption and amount of each type of biomass fuel used. In that case whether the lower of the two values is used to calculate emission reductions.	2	DR I	Refer 1.1.3 of checklist.		OK
2.2.7 Does the methodology requires monitoring of Data needed to recalculate the operating margin emission factor, if needed, based on the choice of the method to determine the operating margin (OM), consistent with ACM0002?	2	DR	No.	-	OK
2.2.8. Does the monitoring plan require monitoring of Data needed to recalculate the build margin emission factor, if needed, consistent with ACM0002?	2	DR	No.	-	OK
2.2.9 Does the monitoring plan require monitoring of data needed to calculate fugitive carbon dioxide and methane emissions and carbon dioxide emissions from combustion of fossil fuels required to operate the geothermal power plant?	2	DR	Not applicable.	-	OK
2.3. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.3.1. Did all measurements use calibrated measurement equipment that is regularly checked for it's functioning?	2	I	Refer D.5.5 of checklist.	-	OK
2.3.2. Are the data double-checked against commercial data?	2	DR	There is an adequate provision to cross- verify the data with commercial data.		OK

VALIDATION REPORT



CHECKLIST QUESTION	Ref.	MoV ^a	COMMENTS	Draft Concl	Final Concl
		I	data with commercial data.		

Table 4 Legal Requirements

CHECKLIST QUESTION	Ref.	MoV ^a	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	2	DR	Refer section B.2.1 of checklist above on consent status and related issues		OK
1.2. Are the conditions of the environmental license being met?	2	DR	Refer 1.1 above		OK
1.3 Are the conditions of the Designated National Authority being met?	2	DR	Refer 1.1 above		OK

**Table 5 Resolutions of Corrective Action and Clarification Requests**

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>The project site is located at Nadimpalem, Prattipadu Mandal, Guntur Dist, Andhra Pradesh. Project site is located at a 16°10'60" latitude (north) and 80°19'60" longitude (east).</p> <p>The unique site survey number is not mentioned.</p>	<p>A.2.1. CAR-1</p>	<p>The plant is located at plot no. 67, 68, 70, 71, and 72. The plant lay out with mention of above has been submitted to DOE and included in PDD.</p>	<p>Verified PDD, version 3 dated 24/03/08 for inclusion of unique identification for site of the project activity. Corrective action Request CAR-1 therefore is closed.</p>
<p>In the manufacturing sector in India, energy efficiency projects are not under the purview of any legal act. However following needs to be clarified</p> <p>The organization has got consent to establish. (APPCB/VJA/GTR/745/HO/2004 dated 17/11/2004) Evidently application for Consent for operation has been submitted on 23/03/2007</p> <p>Refer ' Consent to Establish APPCB/VJA/GTR/745/HO/2004 dated 17/11/2004. As per Schedule B of the consent</p>	<p>A.3.4 CAR-2</p>	<p>1. VPGL has already developed the plantation of AC 504, a letter declaring the same has been submitted to DOE.</p> <p>There is no plan to use coal though it is permitted upto 30%. But since it is permitted and project may use coal in extreme condition such as monsoon season, now coal has been included in monitoring parameter.</p>	<p>Verified plan for development of plantation of AC 504</p> <p>PDD, version 3 dated 24/03/08 now includes project emission due to use of coal.</p>

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>#3 - Company is to develop of energy plantation in area of AC 504 as committed in Ir. Dt. 30/4/2007.</p> <p>- <u>Plan needs to be submitted for the same</u></p> <p>#9 – Industry to use biomass fuels and 30% coal as mentioned in CFE application and biomass from energy plantation being developed</p> <p>- <u>Evidently coal is planned to be used. However it is not appearing in monitoring plan.</u></p> <p>There is evidence of letter issued by APPCB Lt. No. 8/APPCB/CFO-BO/EE-II/2006-1985 dated 23/12/2006 directing company to submit the 'Progress made by company in utilising the municipal solid waste as per GO.MS.No.3 dt. 08/01/2004 issued by EFS&T Department government of A.P</p> <p>If municipal solid waste is planned to be used in the plant then project does not qualify for using 'biomass'</p>		<p>Consent to operate has been accorded to project activity. Same has been submitted to DOE.</p> <p>Project proponent has written a letter dated 24/03/07 written to APPCB is now made available in which company has clarified that boiler is not suitable to use municipal solid waste.</p>	<p>Verified Consent to operate dated 21/08/2007 issued by Andhra Pradesh Pollution Control Board</p> <p>Evidence as letter dated 24/03/07 written to APPCB is now made available in which company has clarified that boiler is not suitable to use municipal solid waste.</p> <p>Considering all the responses and corrections in PDD, Corrective action request CAR-2 is closed.</p>
Refer B.5 of PDD Technological barriers and barriers due to prevailing practices have been discussed and demonstrated. Following	B.2.1. CAR-3	The evidence for consideration of CDM has been submitted to DOE.	Evidence has been verified as in the form of letter from VPGL to Vi-sa services dated 20/08/2003 in which VPGL asked

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>claims however are not convincing / clear</p> <ul style="list-style-type: none"> - Evidence of CDM consideration is not yet available. - Evidence of sanction letter from NEDCAP is not yet available. - Comparison of fossil fuel fired plants is given, which is not relevant since this is independent power producer. - Details of IRR working is not provided. - Claims in technology barriers and barriers under prevailing practice are contradictory since as per NEDCAP 59 Projects, with most of them in biomass sector have been sanctioned. In prevailing practice barrier, however it is mentioned that biomass power plants is not a prevailing practice. Data presented for the same is for India and Southern India but not for Andhra Pradesh. - Tariff rate barrier is common to all the plants in the region and how is this affecting the project only is not clear. Same is the case with third party sale. 		<p>The letter of sanction from NEDCAP has already been submitted to DOE.</p> <p>The comparison has been withdrawn from PDD.</p> <p>The details of IRR working has been submitted to DOE.</p> <p>Data related to sanctioning of all biomass power plant and the Biomass IPP commissioned has been submitted to DOE. Same analysis for biomass based IPP has now been included in PDD.</p> <p>Analysis of rainfall in Guntur district done in a paper published has been submitted to DOE as evidence.</p> <p>Tariff with in the A.P. is not same for all Biomass IPPs and participant can't sale the</p>	<p>information on amount of CER and revenue that can be available to improve financial viability of the project.</p> <p>Sanction letter dated 03/08/2002 in the form of agreement from NEDCAP is verified.</p> <p>Verified PDD, version 3 dated 24/03/2008. PDD does not include this comparison.</p> <p>Detailed IRR working has been received and validated.</p> <p>PDD version 3 dated 24/03/2008 now includes analysis of biomass plants in Andhra Pradesh as well.</p> <p>Argument is noted but validation team has considered this argument for demonstrating additionality.</p>

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<ul style="list-style-type: none"> - Comparison between rates of delayed payment and bank rates can not assessed since evidences of bank rates are not provided. - New technology claims like installation of DCS are not correct, since DCS has been in practice in similar plants. - Argument in PDD 'The low share of biomass power projects in the total installed capacity of the country confirms these prohibitive barriers' must be supported by how many projects have applied for registration as CDM Project. 		<p>power to third party once entered into agreement with state agency. Same has been mentioned in the submitted PPA.</p> <p>Due to non-availability of authentic documents VPGL wishes to withdraw the statement.</p> <p>The claims have been withdrawn from PDD.</p> <p>Almost all power projects based on biomass has been in process of applying for CDM. All projects are in different stage of CDM project cycle.</p>	<p>Verified PDD, version 3 dated 24/03/08 that does not include arguments related to delayed payments.</p> <p>Verified PDD, version 3 dated 24/03/08 that does not include arguments related to DCS.</p> <p>The list of projects have been provided, which shows that several projects in the region have been proposed as CDM projects.</p> <p>Considering all the responses and corrections in PDD, Corrective action request CAR-3 is closed.</p>
<p>Starting date: 20/10/2004. However Purchase order for boiler was raised on 12/10/2004 which is before above mentioned date.</p> <p>Expected operational life 20 years.</p>	<p>CAR-4 C.1.1 Table 2</p>	<p>Starting date of the project has now been corrected as 12/10/2004</p>	<p>Verified PDD, Version 3 dated 24/03/2008 for correction in starting date of project activity. Corrective Action Request CAR-4 is therefore closed.</p>
<p>The monitoring methodology is as per "metering the electricity generated by the renewable technology. In the case of co-fired plants, the amount of biomass and fossil fuel</p>	<p>D.1.1 CAR-5</p>	<p>VPGL through a third party will conduct annual biomass survey and if the surplus of biomass of is found to be less than 25% then leakage will considered and</p>	<p>Response is accepted and hence CAR-5 is closed.</p>

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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
input shall be monitored.” as per Type I D Version 11. However as per ‘General guidance on leakage in biomass project activities’ annual evaluation of biomass to demonstrate that quantity of available biomass in the region (e.g.50 km radius), is at least 25% larger than the quantity of biomass that is utilised including the project activity must be done and need to be included in monitoring plan. This is not evident.		calculated. Same has now been included in the monitoring parameter.	
The baseline emission boundaries have been defined in B 3. However, Prattipadu substation or the switchyard is not included in the project boundary.	E.3.1. 1.2.1, 1.2.2 CAR-6	Now same has been included in the project boundary.	Verified PDD, version 3 dated 24/03/08 for inclusion of Pratipadu substation and hence CAR-6 is closed.
Biomass quantity is monitored. However, the method of monitoring specific quantity of different biomass quantities that are being fed is not clear.	2.2.2. CAR-7	The same has now been included in monitoring plan.	Verified monitoring plan in section B.7 of PDD, Version 3 dated 24/03/08 which includes monitoring of biomass quantities. Corrective action request CAR-7 is hence closed.
Refer B.3 of PDD; The project evacuates the power to the Southern Region Grid. The project involves the installation of one 20 TPH boiler at 66kg/cm2 and 485 oC which feeds steam to a double extraction Steam	A.2.2 CL-1	Project is not a cogeneration plant. The type of turbine as “extraction cum condensing” was typographical error. The turbine is bleed cum condensing type. The correction has been done in PDD and P.O.	Verified the Purchase order, which mentions type of turbine as ‘Bleed cum condensing type’. As such during site visit validation team has confirmed that there is no other activity requiring steam for



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>feeds steam to a double extraction Steam Turbine Generator of 4 MW normal capacity. The project activity is expected to provide this 4 MW of electrical power to the Andhra Pradesh Transmission Corporation of India Limited (APTRANSCO) grid. However following needs to be clarified</p> <p>PDD mentions 'extraction cum condensing type turbine' then it would typically be termed as cogeneration plant</p> <p>PDD also mentions that energy generated would be used for captive purpose for steel processing plant.</p>		<p>of the turbo generator has been submitted to DOE as evidence.</p> <p>The project participant wishes to withdraw any plan of captive consumption from the project activity plant. A declaration from Project participant has been submitted to DOE explaining the same.</p>	<p>process. Hence explanation of 'extraction' as typographical error can be accepted.</p> <p>Validation team has obtained an undertaking from project participant that project status shall not change w.r.t its original idea of exporting energy to grid.</p> <p>Based on above two clarifications provided, clarification request CL-1 has been closed.</p>
Yes, Project Type I – Renewable energy project. Category I D – Renewable Electricity Generation (Version 12). However PDD uses Version 11	A.3.1 CL-2	Version -11 is valid till 09 Apr 08 23:59 GMT for submission of request for registration.	Argument on using version 11 can be accepted and hence Clarification request CL-2 is closed.
It is not clear how project has made provisions for Initial training and maintenance efforts	A.2.5. CL-3	The records of previous training and plan for future training have been submitted to DOE.	Response is satisfactory and hence clarification request CL-3 is closed.
Yes, this methodology is applicable to power generation from a renewable energy source	B.1.2	The VPGL has its plan to come up with a manufacturing unit, if so they may draw	Response is found to be satisfactory & hence clarification request CL-4 is closed.

VALIDATION REPORT



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
from biomass and supply to grid. However, refer PDD section A.2. it says “The electricity generated from plant can also be used by project participant other than export to grid for their own purpose and activity”. This needs to be clarified.	CL-4	electricity from the project plant as captive consumption. But in all case the plant will remain grid connected. Which is not prohibited by methodology.	
Project has provision to use coal. However project emissions due to use of coal has not been evidently considered.	CL-5 D.2.1	There is no plan to use coal though it is permitted upto 30%. But since it is permitted and project may use coal in extreme condition such as monsoon season, now coal has been included in monitoring parameter	Verified PDD, version 3 dated 24/03/08 for inclusions of coal in monitoring plan & hence clarification request CL-5 is closed.
Authority and responsibility of project management is not clearly defined	CL-6 D.5.1	This is now included in CDM manual of the project activity.	Verified CDM manual for inclusion of authority and responsibility.
Registration responsibility is as per annex 1 information in PDD. However responsibility of monitoring measurement and reporting is not clearly described	CL-6 D.5.2	For proper monitoring of the project VPGL has devised a CDM Manual and responsibility of monitoring has been defined in the same document. Same has been included as Appendix – I to PDD.	Verified CDM manual for inclusion of responsibility of monitoring measurement and reporting
No evidence of identification of training for monitoring personnel.	CL-6 D.5.3	Same has now been included in CDM manual.	Verified CDM manual for inclusion of training plan.
Project is likely to use coal, emergencies leading to higher GHG emissions due to high	CL-6	Only 30% use of coal is permitted as per regulation same has now been included in	Verified CDM manual for inclusion of use of coal in project activity.

VALIDATION REPORT



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
quantity of coal are not identified.	D.5.4	PDD and monitoring parameters.	
Procedures are not identified for calibration of monitoring equipment	CL-6 D.5.5	Calibration of monitoring equipment is now included in CDM manual.	Verified CDM manual for inclusion of calibration of equipment.
Procedures for maintenance of monitoring equipment and installations are not identified.	CL-6 D.5.6	Same has now been included in CDM manual.	Verified CDM manual for inclusion of Procedures for maintenance of monitoring equipment and installations
Though procedure for monitoring is explained, there is no procedure for reporting and who will be monitoring and verifying the data.	CL-6 D.5.7	Same has now been included in CDM manual.	Verified CDM manual for inclusion of procedure for reporting and who will be monitoring and verifying the data.
Procedures are not identified for day to day records handling.	CL-6 D.5.8	Same has now been included in CDM manual.	Verified CDM manual for inclusion of Procedures for day-to-day record handling.
Procedures are not identified for dealing with possible monitoring data adjustments and uncertainties	CL-6 D.5.9	Same has now been included in CDM manual.	Verified CDM manual for inclusion of Procedures for dealing with possible monitoring data adjustments and uncertainties
Procedures are not identified for internal audits of GHG project compliance with operational requirements as applicable	CL-6 D.5.10	Same has now been included in CDM manual.	Verified CDM manual for inclusion of Procedures for internal audits of GHG project compliance with operational requirements as applicable
Procedures are not identified for project performance reviews	CL-6 D.5.11	Same has now been included in CDM manual.	Verified CDM manual for inclusion of Procedures for project performance reviews

VALIDATION REPORT



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Procedures are not identified for corrective actions	CL-6 D.5.12	Same has now been included in CDM manual.	Verified CDM manual for inclusion of Procedures for corrective actions Considering all the above mentioned responses Clarification Request CL-6 is now closed

References:

1. Guidelines for completing CDM-SSC-PDD and F-CDM-SSC-Subm Version: 4, 22 December 2006
2. Approved simplified methodology – AMS I.D – Version 11, EB 33
3. Appendix B of the simplified modalities and procedures for small-scale CDM project activities.
4. Attachment C to Appendix B - General guidance on leakage in biomass project activities, Version 2

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APPENDIX C : CVs of Verifiers

H.B. Muralidhar: He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System.. He has several years of Industrial work experience in the field of environmental management systems He has undergone intensive training on Clean Development Mechanism. He is the technical expert & conducted Validation / Verification for more than 30 CDM Projects

Mr. S. V. Pendse: He is the Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. He has done post graduation in the field of Environmental Science and has several years of Industrial work experience in the field of environmental management systems. He has undergone intensive training on Clean Development Mechanism. He so far has carried out Validation/verification for more than 30 CDM projects.

Mr. P. Srinivas: He is the Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. He is Mechanical Engineer and has several years of Industrial work experience in the field of Power generation and related projects. He has undergone intensive training on Clean Development Mechanism. He is technical expert in the team and so far has carried out Validation/verification for more than 15 CDM projects.

Mr. Sushil Budhia: He is a financial analyst and a Chartered Accountant and has extensive experience for conducting statutory and tax audits. He has experience in internal audits and taxation matters. He has done validation of IRR for more than 10 CDM Projects.

End of Report : INDIA-Val/105.49/2008/Rev.01