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# VALIDATION REPORT

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## INDUR 7.5 MW NON- CONVENTIONAL RENEWABLE SOURCES BIOMASS POWER PROJECT IN INDIA

REPORT No. 2005-9008

REVISION No. 02

DET NORSKE VERITAS



## VALIDATION REPORT

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### Summary:

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project” project in 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 modalities and procedures, the simplified modalities and procedures for small-scale CDM project activities and the subsequent decisions by the CDM Executive Board.

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

In summary, it is DNV's opinion that the project, as described in the revised project design document of February 2006, meets all relevant UNFCCC requirements for the CDM, is eligible as a category I.D small-scale CDM project activity and correctly applies the approved simplified baseline and monitoring methodology AMS-I.D. Hence, DNV requests the registration of the “Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project” project as a CDM project activity.

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Report title: Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project in India									
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[Appendix A Validation Protocol](#)



### ***Abbreviations***

AP	Andhra Pradesh
APEREC	Andhra Pradesh Electricity Regulatory Commission
APPCB	Andhra Pradesh Pollution Control Board
APTRANSCO	Andhra Pradesh Transmission company
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electrical Authority
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH <sub>4</sub>	Methane
CL	Clarification request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
KWh	Kilo Watt hour
MW	Mega Watts
MNES	Ministry of Non-conventional energy sources
MoEF	Ministry of Environment and Forest
MP	Monitoring Plan
NEDCAP	The Non-Conventional Energy Development Corporation of Andhra Pradesh
N <sub>2</sub> O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PDD	Project Design Document
PPA	Power Purchase agreement
USD	United States Dollar
UNFCCC	United Nations Framework Convention on Climate Change



## 1 INTRODUCTION

Indur Green Power Private Ltd. (IGPPL) has commissioned Det Norske Veritas Certification Ltd. (DNV) to validate the “Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project” project (hereafter called “the project”) in India. This report summarises the initial findings of the validation of the project, performed on the basis of UNFCCC criteria for small-scale CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consists of the following personnel:

1. Astakala Vidyacharan	DNV, India	Team Leader
2. Santhosh Jayaram	DNV, India	GHG auditor
3. Subhendu Biswas	DNV, India	GHG Auditor.
4. Einar Telnes	DNV Oslo	Sector expert, Technical Reviewer

### 1.1 Validation Objective

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

### 1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, the simplified modalities and procedures for small-scale CDM project activities /5/ and the relevant decisions by the CDM Executive Board. The validation team has, based on the recommendations in the Validation and Verification Manual /4/ employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

### 1.3 Description of Proposed CDM Project

The project is a 7.5 MW (gross) capacity grid-connected biomass based power project. The project was commissioned in February 2003. The project utilises the available biomass in the region where the project activity is located, such as rice husk, bagasse, cotton stalks, juliflora etc for generation of electricity that is exported to the Andhra Pradesh state electricity grid. It uses a condensing type steam turbo generator with a matching boiler of travelling grate technology capable of firing multiple fuels. The technology used in this project is indigenous.



The objective of the project is to reduce anthropogenic GHG emissions by displacing fossil fuel based electricity generation with renewable biomass, thereby indirectly help in reducing the power deficit in the state of Andhra Pradesh and also contribute towards natural resources conservation like coal.

Based on a baseline emission factor determined at 0.830 kgCO<sub>2</sub> per kWh, the project is expected to result in emission reductions of 35,116 tonnes of CO<sub>2</sub> per year during the first renewable seven years crediting period.

## 2 METHODOLOGY

The validation of the project started in the month of August 2005, with hosting the version 1 of the project design document at the UNFCCC website and inviting stakeholders comments. The validation consists of the following three phases:

- i) a desk review of the project design document
- ii) follow-up interviews with project stakeholders
- iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /4/. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, 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 for the “Indur 7.5 MW Non-conventional renewable sources biomass power project” is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective Action Requests (CAR) is issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) Validation protocol requirements have not been met; or
- iii) There is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term Clarification may be used where additional information is needed to fully clarify an issue.



<b>Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities</b>			
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>	<b>Cross reference</b>
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), a <b>Corrective Action Request (CAR)</b> of risk or non-compliance with stated requirements or a request for <b>Clarification (CL)</b> where further clarifications are needed.</i>	<i>Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.</i>

  

<b>Validation Protocol Table 2: Requirement Checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>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.</i>	<i>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.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). A request for <b>Clarification (CL)</b> is used when the validation team has identified a need for further clarification.</i>

  

<b>Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification</b>			
<b>Draft report corrective action requests and requests for clarifications</b>	<b>Ref. to Table 2</b>	<b>Summary of project participants' response</b>	<b>Final conclusion</b>
<i>If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.</i>	<i>The responses given by the project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".</i>

**Figure 1 Validation protocol tables**



## 2.1 Review of Documents

The PDD /1/, submitted by the Indur Green Power Private Ltd and additional background documents related to the project design and baseline like baseline calculation data, local stakeholder's comments and the monitoring plan were assessed as a part of validation.

## 2.2 Follow-up Interviews

On 26 and 28 September 2005, DNV Certification performed interviews with representatives of Indur Green Power Private Ltd and local stakeholders subsequently to confirm selected information and to resolve issues identified during the document review. The main topics of the interviews are summarised in Table 1 Interview topics.

**Table 1 Interview topics**

Interviewed organisation/persons	Interview topics
Indur Green Power Private Ltd.	<ul style="list-style-type: none"> <li>➤ Further clarifications 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, barriers due to prevailing practice or other barriers.</li> <li>➤ Clarifications on establishment of baseline, monitoring plan and emission reduction calculations.</li> <li>➤ Resources, training needs and procedures for operation and maintenance.</li> <li>➤ Benefits from CDM registration.</li> </ul>
Environment engineer APPCB Nizamabad division	<ul style="list-style-type: none"> <li>➤ Overall impact of Indur green power project on local environment</li> <li>➤ Job opportunities</li> <li>➤ Any complaints on project</li> </ul>
Ex-President Sattapur village ( the president of this village when project was started)	<ul style="list-style-type: none"> <li>➤ Local people reaction to the project</li> <li>➤ Economic impact on local population</li> </ul>
Village president Renjal village	<ul style="list-style-type: none"> <li>➤ Implications due to biomass plant associated activities</li> <li>➤ Local benefits due to project</li> </ul>
Zilla parishad Chairman, Renjal mandal	<ul style="list-style-type: none"> <li>➤ Overall impact of project</li> <li>➤ Revenue benefits to village</li> <li>➤ Job opportunities, direct, indirect</li> </ul>
Biomass suppliers	<ul style="list-style-type: none"> <li>➤ Availability of biomass</li> <li>➤ Cost of biomass</li> <li>➤ Benefits due to project activity</li> </ul>
Forest Range Officer –Nizamabad region	<ul style="list-style-type: none"> <li>➤ Impact of project on forest conservation</li> </ul>

## 2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. The initial validation identified three Corrective Action Requests and nine requests for Clarification. These requests were presented to the project participants in DNV's draft validation report and the project





participants were invited to provide a response to these requests. The project participants' response, which included the submission of a revised PDD dated 06 February 2006 addressed the Corrective Action Requests and requests for Clarification to DNV's satisfaction.

To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project participants are documented in Table 3 of the Validation Protocol in Appendix A to this report.

### 3 VALIDATION FINDINGS

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

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation of dated 6<sup>th</sup> February 2006.

#### 3.1 Participation Requirements

The project activity is being proposed as a unilateral project by Indur Green Power Private Ltd, which is the only project participant. The host party India meets all participation requirements and the DNA of India approved the project on 23 September 2005 and has provided confirmation that the project assists in achieving sustainable development.

#### 3.2 Project Design

The project has a rated generation capacity of 7.5 MW and aims to export the electricity to the Andhra Pradesh state electricity grid, which forms a part of the Southern Regional electricity grid. The project will be connected to the APTRANSCO grid through their 33/11 KV at Renjal sub-station which is approximately 1 km from the project.

The technology used in the project is available in India and no transfer of technology is envisaged. The biomass based power plant will generate electricity by utilizing the available biomass in the region, which will be primarily rice husk, and cotton stalks with small quantities of juliflora. The rice husk and cotton stalks used in the project are renewable biomass. Small quantities of juliflora twigs that constitute woody biomass as per the NEDCAP are also considered as renewable (as per the definition of renewable biomass provided at the 23<sup>rd</sup> meeting by the EB) as the growth period for these small branches is approximately 12 to 15 months and the land area remains a cropland. Prevailing practice is that growing of juliflora is unplanned and the normal harvesting practice is restricted to the cuttings from the plants and therefore carbon stocks can be deemed to decrease only temporarily. Hence, the use of juliflora in small quantities can be considered as renewable. The project at present does not use any other woody biomass. The source of any other woody biomass, if used, is to be verified during verification stage, in order to determine whether it can be considered renewable.

The project consists of a condensing type steam turbo generator with matching boiler of travelling grate type capable of firing multiple fuels. The capacity of boiler is 33 tones of steam per hour at a pressure of 67 kg/cm<sup>2</sup> and temperature of around 495<sup>0</sup>C.



The project results in reduction of GHG emissions by capacity addition to the grid, which is dominated by fossil fuel based power generators. The added advantage of the project will be in terms of additional income generated for the farmer and also in terms of jobs generated due to this project. The technology applied is deemed current good practice and is not expected to be replaced within the crediting period.

The project started with an agreement dated 15 October 2001 with M/s. ISGEC John Thompson for design, supply and commissioning of the boiler. The expected operational lifetime of the project is 25 years and a renewable crediting period of 7 years has been chosen with the starting date of the first crediting period as 15 February 2003.

The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards India.

### 3.3 Project Baseline

Since the projects capacity is less than 15 MW, the project is eligible as type I small-scale CDM project activity and can apply a simplified baseline methodology. The project applies the baseline methodology stipulated for category I.D of the “simplified modalities and procedure for small scale CDM project activity” (AMS-I.D). The simplified baseline methodology AMS-I.D is applicable for grid connected renewable electricity generation projects. The application of AMS-I.D is justified as the project generates electricity using biomass and it displaces the grid electricity.

In accordance with AMS-I.D the biomass power plant can co-fire fossil fuels. As per the guidelines of the Non-conventional Energy Development Corporation of Andhra Pradesh Limited (NEDCAP), the project can use coal up to 25% as support fuel. To arrive at a conservative ex-ante GHG emission reduction estimates, it was assumed that the project will co-fire 30% coal although actual coal consumption is expected to be less than 25%. The emissions resulting from use of coal is incorporated as project emissions and the capacity of the unit including coal and biomass is 7.5MW.

As the project activity is feeding power to Andhra Pradesh state electricity grid which is a part of southern region electricity board, the baseline for this project activity is the function of the generation mix of southern region grid. The selection of the southern region grid as the grid system boundary for the project activity is in line with the recent EB guidance for large countries such as India. Using the methodology available for small-scale project activities as applicable for category I.D, the average of the “approximate operating margin” and the “build margin” emission coefficient for southern grid of India has been estimated to be 0.830 kg CO<sub>2e</sub> / kWh. All data has been sourced from data published by the Central Electricity Authority.

### 3.4 Additionality

As per the Attachment A to Appendix B, the project demonstrates additionality through the existence of prevailing practice and other barriers.

DNV was able to verify the CDM revenue was considered during the project design stage. The director’s report for the year 2001-2002 was verified as evidence for this claim.



DNV could verify that the power generation using renewable sources was not a common practice and was less than 1% of total generation mix of APTRANSCO, thereby by establishing the renewable power generation is not a prevailing practice, in spite of government promotion at the time of project initiation.

It was also demonstrated that the estimated IRR of 10% for the project activity without CDM benefits increases to 18% upon considering CDM revenue, thereby establishing that the project was not viable even with low raw material cost at the time of the detailed project report preparation.

DNV was also able to verify the presented steep increase in the cost of biomass with the suppliers.

Another barrier perceived for the project is the risk due to the policy changes related to the tariff rates, by which the tariffs have reduced from Rs.3.48 per unit in 2003-04 to Rs.2.88 per unit for the year 2004-05. While the policy change takes in to account the variable cost of power generation and fixes an increase of 5 % every year, the increasing cost of the raw material is creating an imbalance in the % increase in the variable cost and the actual operating cost. The policy change by which electricity units generated at plant load factors greater than 80 % are priced less than the actual generating cost is also seen as a deterrent.

Based on the above, it is substantiated that the project faces barriers and is thus additional.

### 3.5 Monitoring Plan

The project applies category AMS-I.D. Since the project co-fires coal, the amount of biomass and fossil fuel used is monitored apart from electricity generated and supplied to grid.

The selected monitoring methodology is in line with the monitoring methodology AMS-I.D – metering the electricity generated by the renewable technology. The total electricity produced and auxiliary consumptions are monitored and the net electricity supplied to the nearest grid by the project activity multiplied by emission factor for the grid forms the baseline for the project activity.

Direct emissions due to usage of coal (based of carbon content of the coal used) as fuel are considered as project emissions. Indirect emissions have also been considered, but are negligible such as due to transportation of bio-mass material and possible ash disposal.

Maintenance and calibration are being carried out as per the internally established procedures of Indur green power private limited and in accordance with power purchase agreement with APTRANSCO. All data will be archived in paper/electronic form and archived until two years after verification.

While the General Manager of IGPPL is responsible for project management, the plant manager is responsible for data recording and for archiving and reporting. Procedures for internal audit, performance reviews and corrective actions have also been established. The provided monitoring plan is adequate to provide necessary information for the calculation of electricity generated, the fuel consumed and analysis of the biomass used and also can measure the emissions occurring with the project boundary due to input power consumption in terms of auxiliary consumption.



### 3.6 Calculation of GHG Emissions

Direct onsite emissions are limited to the use of fuel in the boiler, when used during shortfall in rice husk supply. Transportation of biomass from the sources occurs within a 30 km radius of power plant. Emissions due to transportation of biomass have been estimated to be around 640 tCO<sub>2</sub>/year. It has been argued that the same types of GHG emissions occur during transportation of coal from coal mines for which transport distances are much longer. Hence, emissions due to transportation of biomass in comparison are considered negligible and are therefore not considered.

Since the energy generating equipment is not transferred from another activity and no existing equipment is transferred to another activity, no leakage needs to be considered.

Uncertainty is expected to be only on account of non availability of Biomass. The substitute will be usage of coal, and the monitoring of coal has been addressed in the PDD.

The project replaces fossil fuel-based electricity generation. While the project emissions are zero, baseline emissions are calculated to be 0.830 KgCO<sub>2</sub> per KWh. The project is expected to result in emission reductions of 245,813 tonnes of CO<sub>2</sub>, during the first 7 years of crediting period.

### 3.7 Environmental Impacts

The environmental impacts of the project are sufficiently assessed. The project's environmental impacts related to suspended particulate matter, nitrogen oxides and sulphur dioxide apart for generation of fly ash. An electrostatic precipitator (ESP) has been installed and the project is designed to adhere to the stipulations as per the state pollution control board. Ash collected is disposed for manufacturing of fly ash bricks.

As per the MoEF, an EIA is not required for projects costing less than USD 22 Million, which is the case for this project.

### 3.8 Comments by Local Stakeholders

The comments from local stakeholders like local village bearers, biomass suppliers, Local NGOs were invited through personal communication. No adverse comments were received from local stakeholders.

## 4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD of 7<sup>th</sup> August 2005 was made publicly available on DNV's climate change website ([www.dnv.com/certification/climatechange](http://www.dnv.com/certification/climatechange)) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 09 August 2005 to 07 September 2005.

Three comments were received on 07 September 2005. The comment received (in unedited form) is given in the below text box.

**1. Comment by:** Axel Michaelowa, Hamburg Institute of International Economics (HWWA)  
**Inserted on:** 2005-08-31  
**Subject:** Baseline and additionality problems

**Comment:**

1. The relevant grid is the regional (multi-state), not the state grid.
2. Build margin power plant efficiencies are assumed and not substantiated. Even under Indian conditions, efficiencies of new coal plants are higher than 30% (new CCGT plants as likely above 45%) and thus the build margin is not conservative.
3. Arguing additionality on the basis of 2004/5 biomass prices for a plant that started operations in early 2003 is not acceptable. The argument should be based on prices of the time when financial closure was achieved.
4. The monitoring plan should include fossil fuel used for starting the boilers and used in periods of non-availability of biomass. There are no biomass power plants in India that use 100% biomass.
5. I assume that the project proponent wants to start the crediting period in 2003, not 2004 if the plant is fully operational since 2003.

**The project participants' response:**

1. *Regional grid is considered instead of state grid and changed accordingly in PDD.*
2. *The efficiency values of the power plants was collected from the CEA reports and the average efficiency of these power plants selected under build margin calculations is corresponding to the average efficiency of power plants evaluated in CEA's general review reports. Now, the actual fuel consumption values are used for baseline estimation and hence there is no relevance for the efficiency values.*
3. *The main barrier for the project is the prevailing practice barrier. Though the additionality argument based on biomass prices should be for the year of financial closure, considering the resolution of the plant to consider the CDM revenue in the eventuality of abnormal price rise in coming years at the start of the project conceptualization, the comparison was made with the current prices of biomass though there was a continuous increment in the price of biomass every year. The price of the biomass at the initial stage was assumed based on the reports submitted by the NEDCAP on biomass availability in the region during the DPR stage and from the field data collected on pricing of the biomass material in the region. The increased price from DPR stage to project commissioning stage itself indicates the uncertainty in predicting the fuel prices in the region. Hence, it may not be relevant to compare the biomass prices during financial closure to comment on the sustainability of the project.*
4. *Plant has not used fossil fuel like coal since beginning. However, usage of coal, if any in future, will be monitored and recorded. The same will be made available during verification stage. Also, the same will be included in the monitoring plan.*
5. *The start of the crediting period is from 2003 only. This is corrected in revised PDD.*

**How DNV has considered the comment received in its validation:**

1. The selection of the Southern India grid as the electricity grid system boundary is justified and in accordance with recent EB guidance on selecting the electricity grid system boundary.
2. In the final PDD, the calculation of baseline emissions is based on the combined margin approach, using actual fuel consumption data and no longer plant efficiencies. The combined margin calculations were verified and accepted by DNV. Hence, the project participant's response is considered justified.
3. The main barrier for establishing the additionality of the project is the barrier due to prevailing practice. The price rise and other barriers were presented to highlight the additional barriers that have come up since the detailed project report stage.
4. As per the records plant has not used coal so far. Since there is a permission to use up to 25% provision for monitoring fossil fuel in the monitoring plan has been advised and was included.
5. Start date of crediting period is verified as 15 February 2003.

**2. Comment by:** Sripur, EnerGHG**Inserted on:** 2005-09-07**Subject:** Comment on Indur 7.5 MW Biomass Power Project.**Comment:**

In the Project Design Document (PDD), it is mentioned that the project is operational since 15th February 2003 and the start date of the crediting period as 15th February 2004. And also it is stated that the CDM fund was initially considered to cover the project risk in future. Project developers presented several financial barriers and policy threats in support of the project activity for CDM.

India very well recognized the importance of renewable energy sources and their contribution to energy security and environment development in early Nineties. To give a fillip to the development of renewable energy sources, Ministry of Non-conventional Energy Sources (MNES) announced a policy in the year 1994-95 which set an attractive tariff of Rs.2.25 per kWh with an annual escalation of 5%. This was adopted at State level by many State Governments including Andhra Pradesh. Government of AP (through Non-conventional Energy Development Corporation of Andhra Pradesh or NEDCAP) made a public call in the year 1999 for project proposals to set up biomass power projects in the State of Andhra Pradesh. With the attractive tariff, other incentives and also due to the encouragement given by MNES & other stakeholders, many entrepreneurs showed interest to set up biomass power projects. Most of the proposals were approved by NEDCAP and projects were implemented between 2000 and 2002. During this period the procedures, modalities, market and the capacity of CDM are not existed / clear. With this short background, I would like to state that CDM fund was not at all considered for all these projects. My comments on some of the aspects mentioned in the PDD are furnished below.

Project is operational since 15th February 2003: One question remains to be answered is if CDM fund is initially considered then why the validation process is started only after 2 ½ years of operation? Only after the reduction of tariff by the APERC? As yet no buyers have been





identified? Appendix A of Annex B, Indicative simplified baseline and monitoring methodologies for selected Small-Scale CDM project activities clearly states that project participants shall provide a qualitative explanation to show that the project activity would not have occurred anyway. But, all these projects have occurred anyway. Project developers shall present credible evidence (to the DOE) in support of the role of the CDM fund for the project activity. The reason why the crediting period starts exactly after one year of starting of plant operation is not clear.

**Increase in cost of fuel:** In the PDD, it is stated that there is an abundance of biomass within 25km radius. If there is an abundance of biomass, naturally biomass prices should not increase drastically. This is clearly evident from the data given in Page 13 of the PDD, which shows a small difference of around 4% to 6% per year between the DPR cost (assumed as prepared during the year 2000) and existing cost (during 2004-05). As per the MNES policy guidelines, all biomass power projects (including those established in Andhra Pradesh state) can utilize supplementary fuels such as Coal up to a maximum of 25% of the total annual fuel requirement. Since, coal is a viable fuel, project participants as well can use coal if the cost of biomass really increases. However, increase in the cost of fuel price is already taken care in the tariff structure in the form of an annual (normalized) escalation. This clearly shows that increase in the cost of biomass will not really affect the economic viability of the project.

**Reduction in Tariff by APERC:** There was a clause in the policy adopted by the Government of AP for renewable energy projects, which stated that the tariff would be revised after completion of 10 years from 1994-95. Accordingly, the tariff was worked out and revised in 2004-05 by the Andhra Pradesh Electricity Regulatory Commission (APERC), which is an independent regulatory body constituted to look after the electricity regulatory issues in Andhra Pradesh State. APERC has worked out the tariff taking into consideration several factual data, conducting independent surveys, trends in variations of biomass prices, operational history of biomass power plants etc. and concluded the tariff after several deliberations with project developers. APERC brought out a workable tariff such that it would neither hamper the sustainability of projects nor burden the power purchasers / utilities. In view of the above, revision of the tariff is not an unexpected thing, but known to all project developers in advance and hence does not represent a policy barrier. Also, the project developers statement in Page 13 “This would result in heavy financial losses and put an additional burden on the financial sustainability of the project” is not correct. For further details Tariff Order released by APERC may be referred.

**Restriction on fixed part for 80% PLF:** APERC has concluded the tariff in two parts viz. fixed part and variable part. Fixed part corresponds mainly to the investment and fixed expenses. Variable part corresponds mainly to the fuel prices and other variable expenses. Fixed part is calculated such that at 80% PLF all (100%) fixed expenses including investment part are recovered. Hence, up to 80% PLF all fixed expenses of the plant are fully recovered. Any electricity generation above the 80% PLF is actually expense-free to the developer and fixed part need not be paid. But, APERC offered an incentive of Rs.0.25 per kWh (+ variable part) for the electricity generation above 80% PLF. Hence, the project developers statement in Page 15 that “Thus it is imperative that the present tariff is not sufficient and will significantly impact the sustainability of the project” is not correct.



2% subsidy is withdrawn: Project developers shall provide documentary evidence (to DOE) for the claim that the government policy was changed and the subsidy was withdrawn.

Removal of 3rd party sale: APTRANSCO has removed the third party sale and increased the wheeling charge to 28.4% only to encourage the power off-take by industries and major consumers through APTRANSCO, since APTRANSCO is formed to act as a state owned power Transmission Company in the state of Andhra Pradesh. However, as explained above, APERC concluded the tariff keeping in view the economic viability of biomass power projects. Hence, removal of 3rd party sale and increase of wheeling charges would in no way affect the financial stability of biomass power projects.

Grid emission factor: From the attached calculation sheet, it appears that “weighted average emissions of the current generation mix” as per 29.b. is not correctly applied. The project developers has considered only net emission factor for thermal generation (generation by coal and gas) instead of weighted average emissions for the entire grid system according to 29.b. of SSC CDM modalities. Also, the grid emission factor is not monitored ex-post, although the dynamic grid emission factor is chosen. This is not appropriate and results in substantial errors in the calculation of emission reductions. Project developers shall revise the estimation of baseline / grid emission factor.

I believe in the concept of Clean Development Mechanism, which is innovatively designed to combat the climate change at the same time assisting developing countries in achieving the sustainable development and also benefiting from the transfer of environment friendly technologies. I, also strongly believe that CDM should not subsidize business as usual projects diverting the CDM funds. Let the real project cases, which are additional and contributing, get the CDM opportunities.

I request the DOE to look into the above aspects during validation of the CDM project.

### **The project participants' response:**

*Kyoto protocol has gained the legal status only in the month of Feb 2005 and till then there were lot of uncertainties on the whole mechanism. In addition, the first project got only registered during Nov 2004. Hence, the project developer decided to wait and watch the happenings in the CDM market to get matured. It is decided to register unilaterally and hence no buyer identification done. Credible evidence in support of the role of CDM fund for the project activity is available and will be provided to the DOE during the validation process. The project proponent wants to start the crediting period in 2003 only and will be modified accordingly in the document.*

*Biomass plants are supposed to use biomass material only irrespective of the price of the material. Plants are allowed to use up to 25% coal in cases of non availability of biomass but not to offset the increase in price of the biomass. The prices of the biomass were estimated based on the availability of the biomass reports (by NEDCAP) in the region during DPR stage.*





*Considering the report findings on availability of biomass in the region, it was not predicted such steep increase in the prices of the fuel. The increase in fuel prices are also attributed to the emergence of many other applications to use biomass fuels such as paper industry leading to higher demand of the fuel. In addition, it was not expected the reduction in the tariff by APERC which would have offset the additional investment due to higher fuel prices to maximum extent. This has resulted in to significant financial loss to the power plants in the state.*

*Though it was expected revision in the prices during 2004-05 as per the clause in APERC, it was not expected reduction in the price from the existing. APERC has considered very less kcal/kWh value to estimate the unit cost which is very distant from the actual value. The very fact that all the biomass power projects are not satisfied with APERC Tariff Order and approached the Hon'ble High Court in the absence of Electricity Tribunal for upward revision of tariff in April 2004. The Hon'ble High Court has passed an interim order for paying the 50% of differential tariff. This is an indication that there is no economic viability of the project with the APERC tariff. The projects are operating in anticipation of the CDM benefits.*

*As mentioned above, APERC had estimated pricing based on certain efficiency of the power plants which is not the realistic one and accordingly approached High Court of AP to put a stay on the tariff order. The incentive APERC providing to operate at more than 80% PLF is not meeting the actual cost of generation at more than 80% PLF (as discussed in PDD). In addition, all the biomass plants in the state are opting to shut down once they achieve the target generation for the month. This also builds up the inefficiency in the operation of power plants and hence more financial loss to the project promoter.*

*Though project envisaged the loan from IREDA in the beginning, but later opted loan from PFC. Clarification on the same provided to DOE.*

*The project has been envisaged with the aim for sale of power to Third Party. However, APERC in their Tariff Order Notification dated March 6, 2000 has withdrawn the benefit of third party sale and directed all Renewable Energy Projects to sell the power only to APTRANSCO. Selling power to third party at previous wheeling charges would have fetched more revenue to the project activity but revised tariff order with higher wheeling charges will definitely affect the economic viability of the project.*

*Baseline emission factor is revised as per EB guidance and used generation mix of southern regional grid to estimate the same. The baseline emission factor is estimated using combined margin approach. Considering the higher monitoring costs to monitor the emission factor every year, the baseline calculations are modified and fixed at one value based on the ex-ante monitoring.*

#### **How DNV has considered the comment received in its validation:**

The start date of project is 15 October 2001, the date when an agreement is signed with ISGEC John Thompson for design supply and commissioning of boiler. DNV witnessed the related document and satisfied with the requirement for the start date of project activity. Evidence has also been provided that the CDM was considered during the initiation of project.

The Start date of crediting period is 15 February 2003.

As per the power purchase agreement with APTRANSCO, the rate payable to the project proponent is Rs.3.48/unit at full plant load factor, and subsequent revision of tariff order



concludes a two tier tariff system, according to which, the generation at 80% PLF, Rs.2.88/unit is paid, that includes both variable and fixed cost. While the power generated above 80% PLF, only variable cost of Rs.1.27/unit is paid. The fact that the revised tariff is unattractive for project survival, the grievance is acceptable.

DNV agrees with the project proponent that as per the regulation, biomass power producers can use up to 25 % of coal along with the biomass.

The *ex-ante* determination of the average of the “approximate operating margin” and the “build margin” emission coefficient is as the EB guidance.

**3. Comment by: GOPALA REDDY ANNAPUREDDY, APITCO LTD.**

**Inserted on:** 2005-08-12

**Subject:** comments

**Comment:**

I do feel that considering the present situation of biomass scarcity being faced by majority of the biomass power projects in Andhra Pradesh state and also the indiscriminate utilisation of all types of biomass, which are needed for ecological balance and also the recent Government Order on restricting use of wood as fuel in biomass power projects; the whole concept of promoting biomass power projects indiscriminately is a policy disaster.

The present cdm project DOESNOT thoroughly analyzed the future availability of the required biomass for power generation, considering the changes in crop patterns, rainfall, socio-economic conditions. Besides, provision of only an acre of land for captive generation of biomass as feed material is not justified. Also, lack of availability AND continuous increase in cost of required biomass besides

UNVIABLE PROOJECT ECONOMICS proves that the whole idea of biomass based power plants seems to be a flawed policy.

Considering the tremendous possibility for indiscriminate destruction of green cover in the guise of green power without a scientific biomass regeneration programme, the biomass projects should not be encouraged by providing additional incentives in the form of carbon credits.

**The project participants' response:**

*Though NEDCAP has conducted detailed study on the availability of the biomass in various regions in the state, the actual availability of biomass to power plants has reduced due to higher demand and due to sanction of more power plants than required. The gradual increase in the biomass price is also due to the increased applications of the usage of biomass and hence increased demand for the same. In addition, draught conditions in the state also contributed for the increased supply demand gap of the fuel. In view of this, project participants have no option*



*than running the plant with higher operating costs and look for options like CDM to fill the gap. Also, project participants also in the process of initiating steps towards energy plantation and exploring it's financially viability in large scale, with the help of local farmers in the region. At present, project participants have no option but to operate the plants with loss due to higher fuel prices and reduced tariff rates. Hence, it is very much essential to have CDM revenue to make the projects sustainable in the state.*

**How DNV has considered the comment received in its validation:**

DNV has interacted with biomass suppliers, forest department officials before coming to a conclusion on future availability of biomass for the project. This particular region is more suitable for agriculture also abundant potential for generation of renewable biomass, like rice husk and cotton stalks and juliflora. It was also evidenced that the gradual increase in cost of supplied bio mass is because it is seen as a business opportunity by the local people on demand supply basis. CDM revenue can off set these barriers for continual running of these projects.



## 5 VALIDATION OPINION

*Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Indur 7.5 MW Non-conventional renewable sources biomass power project ” in , Renjal Village, Bodhan Taluk, Nizamabad District, Andhra Pradesh in India. The validation is performed on the basis of UNFCCC criteria for the CDM and host country criteria, 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 modalities and procedures and the subsequent decisions by the CDM Executive Board.*

*The project participant is Indur Green Power Private Limited. The host Party India meets all participation requirements and the DNA of India approved the project.*

*The validation has confirmed that the project correctly applies the simplified baseline and monitoring methodology AMS-I D. The determination of the baseline is well elaborated, transparent and sufficiently supported with facts. The selected baseline scenario, i.e. baseline emissions, is reasonable for the selected 7 year crediting period. Moreover, an analysis of the policy & financial barriers of the project demonstrates that project is not a likely baseline scenario.*

*The project will contribute to sustainable development through renewable energy generation and resource utilisation. The DNA of India has confirmed that the project assists in achieving sustainable development and has accorded the approval for the project on 23<sup>rd</sup> September 2005.*

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

*The project results in the reduction of GHG emissions those are real, measurable and give long-term benefits and that are additional to what would have occurred in the absence of the project.*

*The monitoring plan makes sufficient provision for monitoring relevant project and baseline emission indicators. Responsibilities and authorities for project management, monitoring and reporting and QA/QC procedures have also been addressed.*

*A local stakeholder consultation process has been carried out by the project participant. DNV published the PDD on the DNV Climate Change web site and comments by Parties, stakeholders and UNFCCC accredited NGOs were invited through the CDM web site. Three comments were received on this call. These comments have been considered in the validation and the issues raised have been resolved satisfactorily.*

*In summary, it is DNV’s opinion that the project, as described in the project design document version 02 of dated 06<sup>th</sup> February 2006, meets all relevant UNFCCC requirements for the CDM, and is eligible as category I D small-scale CDM project activity and correctly applies the approved simplified baseline and monitoring methodology AMS-I D. Hence, DNV requests the registration of the “Indur 7.5 MW Non-Conventional Renewable Sources Biomass power project” as CDM project activity.*



## REFERENCES

*Documents provided by the project proponent that relate directly to the project:*

- /1/ Indur Green Power Private Limited: CDM PDD for “Indur 7.5 MW Non-Conventional Renewable Sources Biomass Power Project in India”, version 1 of 7 August 2005 and version 2 of 6 -February 2006
- /2/ Indur green Power Private Limited -Calculation worksheet-grid emission,
- /3/ DNA of India Host country approval letter dated 23 September 2005.

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

- /4/ International Emission Trading Association (IETA) & the World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- /5/ Appendix B of the simplified modalities and procedures for small-scale CDM project activities: *Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories*. Version 07: 28 November 2005.
- /6/ Revised 1996 IPCC guidelines for national green house gas inventories – Reference Manual (Volume 3)

*Persons interviewed during the validation, or persons contributed with other information that are not included in the documents listed above:*

- /7/ Mr. Ramakoteswara Rao, Director, Indur Green Power Private Ltd.  
Mr. J. Nageshwara Rao, Director, Indur Green Power Private Ltd.  
Mr. D. Chakravarthi, Plant Manager, Indur Green Power Private Ltd.

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## **APPENDIX A**

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### **VALIDATION PROTOCOL FOR SMALL-SCALE CDM PROJECT ACTIVITIES**

**Table 1 Mandatory Requirement 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	OK	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.	<del>Clarifications pending.</del> OK	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	OK.	Approval from the DNA of India, dated 23 September 2005 has been made available.  No Annex I party has yet been identified.
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	<del>Clarifications pending.</del> OK	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. 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	Kyoto Protocol Art. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26	<del>Clarifications pending.</del> OK	Table 2, Section B.2.1
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development	Decision 17/CP.7	OK	The Project is proposed as an unilateral Project

Requirement	Reference	Conclusion	Cross Reference/ Comment
assistance			
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures § 29	OK	DNA of India: National Clean development Mechanism Authority, Ministry of Environment and forests.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities and Procedures § 30, 31b	OK	India: Ratification on August 2002. Annex I party has not yet been identified.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	Not applicable	No Annex I party has yet been identified.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	Not applicable	No Annex I party has yet been identified.
12. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	OK	Table 2, Section A.1.
13. 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	<del>Clarifications pending.</del> OK	
14. 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	OK	Table 2, Section A.1.3, B and D.
15. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small	OK	Table 2, Section G Local stake holders are consulted by the project



Requirement	Reference	Conclusion	Cross Reference/ Comment
	Scale CDM Project Activities §22b		proponent.
16. 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	OK	Table 2, Section F
17. 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	OK	<p>The PDD was be made publicly available on <a href="http://www.dnv.com/certification/climatechange">www.dnv.com/certification/climatechange</a> and Parties, stakeholders and NGOs will through the CDM website be invited to provide comments during the 30 day period from 09 August 2005 to 07 September 2005.</p> <p>Three comments were received, made publicly available and have been taken into account in DNV's validation of the project.</p>

**Table 2 Requirements Checklist**

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
<b>A. Project Description</b> The project design is assessed.					
<b>A.1. Small scale project activity</b> 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/ /7/	DR	The Project comprises a 7.5 MW power generation unit using renewable energy as source of the main fuel. This project qualifies as Type I, Category D of the small scale CDM projects and as the generation capacity is below the stipulated limit of 15MW.		OK
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	/1/ /7/	DR	No. The project participant has not registered any small scale CDM project in the last 2 years and the project boundary is not within 1 km radius of any other proposed small scale CDM project.		OK
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	/1/	DR	Yes the project conforms to the Category type I D for small scale CDM projects. The project is a grid connected renewable electricity generation unit (Biomass).		OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
<b>A.2. Project Design</b> 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/ /7/	DR	Yes, it is clearly defined.  The spatial boundary of the project includes the project site (up to the evacuation point of electricity to state grid) and includes biomass collection and storage.  The project is located at Renjal Village, Bodhan Taluk, Nizamabad District, Andhra Pradesh, India.  The grid dispatch point will be the Renjal sub-station approximately 1 Km from the project.		OK
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/1/ /7/	DR	Components including storage of biomass material and the generation unit in the project boundary and for calculation of baseline emission factor the power plants generating and exporting to the southern India electricity grid are included in the system boundary.		OK
A.2.3. Does the project design engineering reflect current good practices?	/1/ /7/	DR	Yes, The project consists of a travelling grate type boiler capable of firing multi fuels like rice husk, Juliflora, cotton stalks and Bagasse.		OK
A.2.4. Will the project result in technology transfer to the host country?	/1/	DR	Since the technology is available in India, no technology transfer is envisaged in this project.		OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
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?	/1/ /7/	DR	Yes, the project will require trained and qualified manpower in order to work as presumed during the project period. The boiler operations should be carried out by qualified personnel as per statutory requirements in India. The certificate of qualification of the personal operating the boiler was evidenced during site visit.		OK
<b>A.3. Contribution to Sustainable Development</b> 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/ /7/	DR	Yes,  The project has resulted in direct (165 employees) and in-direct employment opportunity to the local population.  The project has also generated an additional revenue stream to farmers caused by the demand for biomass.		OK
A.3.2. Will the project create any adverse environmental or social effects?	/1/ /7/	DR	The uncontrolled use of firewood cut from forests and prohibited species of wood by biomass plants has figured as an concern area for the Andhra Pradesh Electricity Regulatory commission ( as evident in page 86 of " commissions analysis on substantive issues" detailed in tariff order 2005~2006).  Andhra Pradesh Pollution Control Board has issued the consent for establishment (Order no: CFE/APP/CB/HO/R00/CFE/2001/35-2683 dt. 21/03/2002). As per the consent order the project is permitted to use rice husk/ Bagasse/ Juliflora/ cotton stalk and coal (up to 20%) as fuel. During	<del>CL1</del>	OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			<p>site visit, it was found that wood from trees of mango, babool, amla are used.</p> <p>A clarification as how the issue is being dealt with and mechanism to ensure continual supply of permitted biomass material for the project needs further elaboration.</p>		
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/ /7/	DR	Yes, The project is in line with sustainable development policies of India. Host country approval granted vide letter no: F.No. 4/14/2005-CCC dt. 23 September 2005 by Government of India, Ministry of Environment and Forests (DNA of India)		OK
A.3.4. Is the project in line with relevant legislation and plans in the host country?	/1/ /7/	DR	<p>Factory Licence no: 30242, registration no: 63283 dt. 02/09/2003 is available</p> <p>Andhra Pradesh boiler inspection department has issued the certificate for use of a boiler (Registry no: AP-3741) valid up to 01-02-2006.</p> <p>Andhra Pradesh Pollution Control Board has issued the consent for establishment (Order no: CFE/APPCB/HO/R00/CFE/2001/35-2683 dt. 21/03/2002).</p> <p>Andhra Pradesh Pollution Control Board has issued the consent for operation of plant under Air act, 1981 valid up to 31/01/2004. M/s Indur Green Power Private Limited has submitted a request for renewal of this consent order for 2 years dt. 22/01/2004. But no consent issued till date, kindly clarify.</p> <p>Andhra Pradesh Pollution Control Board has issued the consent for operation of plant under Water act, 1974 valid up to 31/01/2004. M/s Indur Green</p>	<del>CL-2</del>	OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			incorporated as project emissions and the capacity of the unit including coal and biomass is 7.5 MWe. The baseline emission coefficient is calculated using the combined margin approach.		
B.1.2. Is the baseline methodology applicable to the project being considered?	/1/	DR	Simplified small scale CDM project category I.D is applicable since the project is a biomass based power plant.		OK
<b>B.2. Baseline Determination</b> 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/ /7/	DR	As per the Attachment A to Appendix B, the project has been analysed in light of other barriers (financial and policy related) and barriers due to funding at higher interest.  The main barrier perceived is the barrier due to prevailing practice. Power generation using renewable sources is not a common practice at the time of project conceptualisation and only 1% of total generation mix of APTRANSCO is generated through renewable sources.  The proof that the project participants have considered the revenue from CDM supporting the sustainability of the project is not evidenced.  To substantiate the barrier analysis a more detailed report on the IRR/NPV of the project in light of the changes in government policies and tariff is required to be evaluated. The same is not	CL-3	OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			evidenced.  The barrier due to higher funding rate is substantiated through the rupee term loan agreement between Power Finance corporation Ltd and Indur green power private Limited (IGPPL) dt-13 December 2002, which clearly indicates that IGPPL has to pay interest higher of the interest rate of lead institutions prevailing on the date of disbursement (which amounts to 13.75%). But the data given in PDD is not correct regarding the financing agency and the rate of interest.		OK
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	/1/ /7/	DR I	The chosen baseline is in accordance with AMS ID. The chosen baseline is transparent and the choice of the weighted average emission of the current generation mix used for estimation of emission coefficient is conservative considering the recent capacity additions of the selected grid dominated by fossil fuel based power plants.  It is not transparent, whether the baseline estimation will consider an ex-ante weighted average emission factor or the emission factor will be calculated using ex-post monitored data. In either case, the project proponent needs to demonstrate the conservativeness of the approach. Analysis of the Table provided under section E.2. Indicates that the emission factor will be calculated using ex-post monitored data, but the data to be monitored is not included in the monitoring plan.	<del>CL-4</del>	OK  OK

\* MoV = Means of Verification, DR= Document Review, I= Interview



Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?	/1/	DR	Yes, the selection of weighted average based on the present generation mix is justifiable considering the future expansion projects coming up in the state. The generation pattern will not change significantly over the crediting period.		OK
B.2.4. Is the baseline selection compatible with the available data?	/1/	DR	Yes, the data available is adequate and compatible to evaluate the baseline emissions.		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/	DR	Yes, all data are drawn on the most recent years and all future expansion data are based on sanctioned projects in both renewable and fossil fuels based sectors and thus represent the most likely scenario in absence of the project.		OK
<b>C. Duration of the Project / Crediting Period</b> 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/ /7/	DR	The exact project starting date is not clearly defined; it is defined as between the period January 2000 to 15 February 2003. The proof of starting date is submitted as agreement between M/s Indur Green Power Private Limited, and M/s ISGEC John Thompson, dt. 15 October 2001. The date is not consistent with the information provided in the PDD.  The operational life time of the project is defined as 25 years.	<del>CAR1</del>	OK  OK
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/ /7/	DR	The renewable crediting period is chosen and the first period of 7 yrs is clearly defined in the PDD.  The starting date of the crediting period is indicated as 2004, whereas the project has started operation	<del>CAR1</del>	OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			from 15 February 2003. The proof of commercial production is provided as the billing meter attested by APTRANSCO. Clarification requested on inconsistency in dates.		
<b>D. Monitoring Plan</b> The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.					
<b>D.1. Monitoring Methodology</b> 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/	DR	The project falls under category ID of appendix B of the simplified modalities and procedures for small scale CDM project activities and the monitoring methodology used is in line with the same.		OK
D.1.2. Is the monitoring methodology applicable to the project being considered?	/1/	DR	The project is a renewable energy generation project and thus the monitoring requirement under category I.D. is used in this project. Since the project is co-fires biomass with coal, the amount of biomass and fossil fuel is monitored apart from electricity generated and supplied to grid.		OK
D.1.3. Is the application of the monitoring methodology transparent?	/1/	DR	Yes.		OK
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	/1/	DR	Yes, since the monitoring methodology involve metering of the actual amount of electricity generated from the project and direct measurement of quantity of biomass and coal.		OK

\* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
<b>D.2. Monitoring of Project Emissions</b> It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/		The following clarifications requested on the monitoring plan presented under D.3 of PDD: a) D.3.6, D.3.7 and D.3.8 – data not evidence as per recording frequency. b) Archival of data is given as 2 years; not specific to indicate 2 years after crediting period. c) D.3.7 and D.3.8, analysis will be carried out through an outside lab, no qualification criteria for labs are evidenced.	<del>CL5</del>	OK  OK
D.2.2. Are the choices of project GHG indicators reasonable?	/1/	DR	The choice of indicators is sufficient to monitor the CO <sub>2</sub> , the relevant GHG. CH <sub>4</sub> can get generated due to biomass storage, but since the storage of biomass does not exceed 6 months, it is assumed negligible.		OK
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	/1/	DR	Yes it is possible with the data being monitored.		OK
D.2.4. Will the indicators give opportunity for real measurements of project emissions?	/1/	DR	Comments reserved till comments under D.2.1 are resolved.	<del>CL5</del>	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
<b>D.3. Monitoring of Leakage</b> If applicable, it is assessed whether the monitoring plan provides for reliable and complete leakage data over time.					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/		Since the energy generating equipment is not transferred from another activity and no existing equipment is transferred to another activity, no leakage needs to be considered.		OK
D.3.2. Are the choices of leakage indicators reasonable?	/1/	DR	Not applicable, refer comments under D.3.1.		OK
D.3.3. Will it be possible to monitor / measure the specified leakage indicators?	/1/	DR	Not applicable, refer comments under D.3.1.		OK
D.3.4. Will the indicators give opportunity for real measurements of leakage effects?	/1/	DR	Not applicable, refer comments under D.3.1.		OK
<b>D.4. Monitoring of Baseline Emissions</b> It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/		The following clarifications are requested on the monitoring plan presented under D.3 of PDD. <ul style="list-style-type: none"> <li>a) Proportion of data to be monitored is given as &gt;95%, it is not clear why it is limited to 95%.</li> <li>b) D.3.1, D.3.2, D.3.2, It is indicated that data will be archived in electronic form, but no electronic archiving system was evidenced during site visit.</li> </ul>	<del>CL6</del>	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
			c) D.3.4 and D.3.5– data not evidence as per recording frequency. d) D.3.1, D.3.2 and D.3.3, the identification and location of meters are not specified. e) Archival of data is given as 2 years; not specific to indicate 2 years after crediting period. f) D.3.5 analysis will be carried out through an outside lab; no qualification criteria for labs are evidenced.		
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	The choice of indicators is sufficient to monitor the CO <sub>2</sub> emissions, the relevant GHG.		OK
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	Yes it is possible with the data being monitored.		OK
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?	/1/	DR	Comments reserved till comments under D.4.1 are resolved.	<del>CL5</del>	OK
<b>D.5. Project Management Planning</b> 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/ /7/	DR	The PDD indicates that the project proponent will form a CDM team/committee, which will be responsible for monitoring. But during site visit, no evidence of formation such a team was evidenced.	<del>CAR-2</del>	OK
D.5.2. Is the authority and responsibility for registration monitoring measurement and	/1/	DR	Refer comments under D.5.1.	<del>CAR-2</del>	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
reporting clearly described?					
D.5.3. Are procedures identified for training of monitoring personnel?	/1/	DR	Refer comments under D.5.1.	<del>CAR2</del>	OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	No such emergency scenario is envisaged in this project.		OK
D.5.5. Are procedures identified for calibration of monitoring equipment?	/1/ /7/	DR	No procedure identified for calibration of monitoring equipments. (Energy meters and weighing bridge) Calibration certificates for energy meters were produced during site visit but the validity of calibration is not mentioned. Procedures were not available defining periodicity of calibration.	<del>CAR3</del>	OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/ /7/	DR	No procedures identified for maintenance of monitoring equipment and installations.	<del>CAR3</del>	OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Refer comments under D.5.1.	<del>CAR2</del>	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	No.	<del>CAR3</del>	OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	No.	<del>CAR3</del>	OK
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	/1/	DR	No.	<del>CAR3</del>	OK
D.5.11. Are procedures identified for project performance reviews?	/1/	DR	No.	<del>CAR3</del>	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
D.5.12. Are procedures identified for corrective actions?	/1/	DR	No.	<del>CAR3</del>	OK
<b>E. Calculation of GHG emission</b> 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.					
<b>E.1. Project GHG Emissions</b> 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	Direct emissions due to co-firing of coal are captured in the design document. The project participant identifies emissions from off-site transportation of fuels. But the fuel transportation of the power plants considered in baseline can off set these project emissions.		OK
E.1.2. Have all relevant greenhouse gases and sources been evaluated?	/1/	DR	The project only identifies CO <sub>2</sub> as the relevant GHG as other GHG like CH <sub>4</sub> is considered as negligible considering the storage period.		OK
E.1.3. Do the methodologies for calculating project emissions comply with existing good practice?	/1/ /7/	DR	The project proposes to calculate the project emissions resulting from coal usage either considering the default IPCC emission factor or using the actual carbon content of coal. It is not evident which algorithm will be used for calculation.	<del>CL7</del>	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
E.1.4. Are the calculations documented in a complete and transparent manner?	/1/ /7/	DR	The calculations demonstrated during site visit do not comply with either of the methodologies described under comments given under E.1.3.	<del>CL7</del>	OK
E.1.5. Have conservative assumptions been used?	/1/	DR	Comments reserved till comments under E.1.3, E.1.4 and D.2.1 are resolved.	<del>CL7</del>	OK
E.1.6. Are uncertainties in the project emissions estimates properly addressed?	/1/ /7/	DR	No. The uncertainties can resulting from monitored values of coal are not addressed.	<del>CL8</del>	OK
<b>E.2. Leakage</b> 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	Since the energy generating equipment is not transferred from another activity and no existing equipment is transferred to another activity, no leakage needs to be considered.		OK
E.2.2. Are uncertainties in the leakage estimates properly addressed (if applicable)?	/1/	DR	Not applicable, refer comments under E.2.1		OK
<b>E.3. Baseline GHG Emissions</b> The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emissions boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	/1/	DR	Yes the baseline emission sources are clearly defined.		OK
E.3.2. Are all aspects related to direct and	/1/	DR	Yes, all aspects related to direct baseline		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
indirect baseline emissions captured in the project design?			emissions are captured. No significant indirect emissions, hence not captured.		
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	/1/	DR	Yes, CO <sub>2</sub> is the relevant greenhouse gas and the sources are evaluated.		OK
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	/1/	DR	Comments reserved till comment under B.2.2 is resolved.	<del>CL4</del>	OK
E.3.5. Are the calculations documented in a complete and transparent manner?	/1/	DR	Comments reserved till comment under B.2.2 is resolved.	<del>CL4</del>	OK
E.3.6. Have conservative assumptions been used?	/1/	DR	Comments reserved till comment under B.2.2 is resolved.	<del>CL4</del>	OK
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	/1/	DR	Comments reserved till comment under B.2.2 is resolved.	<del>CL4</del>	OK
<b>E.4. Emission Reductions</b> 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	Comments reserved till comments under B.2.2 and section E.3 are resolved.	<del>CL4</del>	OK
<b>F. Environmental Impacts</b> 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	No, Since the project cost is less than INR 1000 million, it is not required to carry out EIA for the project.		OK
F.1.2. Does the project comply with	/1/	DR	Andhra Pradesh Pollution Control Board has issued	<del>CL2</del>	OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
environmental legislation in the host country?	/7/		the consent for establishment and consent for operation of plant under Water & Air act, valid up to 31/01/2004. M/s Indur Green Power Private Limited has submitted a request for renewal of this consent order for 2 years dated 22/01/2004. No consent is issued till date.  As per the consents, the industry shall store ash in silos of sufficient capacity and ash shall not be stored in open. During the site visit, it was found that the ash was stored in open. Please clarify which actions that are initiated towards compliance for this condition.	<del>CL9</del>	OK
F.1.3. Will the project create any adverse environmental effects?	/1/	DR	Comments reserved till comment under A.3.2 is resolved.	<del>CL1</del>	
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/1/	DR	Yes		OK
<b>G. Comments by Local Stakeholder</b> Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR	Yes.  The biomass suppliers were also consulted, but the PDD has not identified them as stakeholders.		OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	The comments from local stakeholders were invited through personal communication.		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	/1/	DR	It is not required for the given size of the project.		OK

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Checklist Question	Ref.	MoV*	Comments	Draft Concl.	Final Concl.
with such regulations/laws?					
G.1.4. Is a summary of the comments received provided?	/1/	DR	Yes, the summary of the comments received from the stakeholders are summarised.		OK
G.1.5. Has due account been taken of any comments received?	/1/	DR	No adverse comments were received from local stakeholders.		OK

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**Table 3 Resolution of Corrective Action and Clarification Requests**

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
<p><b>CAR-1</b></p> <p>The exact project starting date is not clearly defined; it is defined as between the period January 2000 to 15 February 2003. The proof of starting date is submitted as agreement between M/S Indur Green Power Private Limited, and M/S ISGEC John Thompson, dated 15 October 2001. The date is not consistent with the information provided in the PDD.</p> <p>The date of crediting period is indicated as 2004, whereas the project has started operation from 16 February 2003. The proof of commercial production is provided as the Billing meter attested by APTRANSCO. Clarification requested on inconsistency in dates.</p>	<p>C.1.1 C.1.2</p>	<p>The project start date is 15 October 2001. The Proof for the same is enclosed and the same is incorporated in PDD.</p> <p>The actual crediting period starts a day after the project commissioned i.e. from 16 February 2003. The proof for the same is provided. The same is modified accordingly in PDD.</p>	<p>The complimentary information provided has been accepted. The start of project is 15 October 2001 and first renewable crediting period starts from 15 February 2003.</p> <p>The CAR closed.</p>
<p><b>CAR-2</b></p> <p>The PDD indicates that the project participant will form a CDM team/committee, which will be responsible for monitoring. But during site visit, no evidence of formation of team evidenced.</p>	<p>D.5.1, D.5.2, D.5.3 and D.5.7</p>	<p>The team is formulated and is functional in informal way. Management started streamlining the process of monitoring data for CDM project as per the requirements and the copy of the same is attached. The team structure and their responsibilities can be demonstrated during verification stage.</p>	<p>The complimentary information provided has been accepted</p> <p>The CAR is closed.</p>
<p><b>CAR-3</b></p> <p>No procedures are identified for calibration of monitoring equipment. (Energy meters and</p>	<p>D.5.5 D.5.6</p>	<p>PPA agreement with off taker by the plant indicates the calibration procedure for energy meters in the sub station and</p>	<p>The complimentary information provided has been accepted. The monitoring plan provided is verified and</p>

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
<p>weighing bridge)</p> <p>Procedures are not available that defines periodicity of calibration, maintenance of monitoring equipment and installations, monitoring, measurements and reporting, day-to-day records handling, dealing with possible monitoring data adjustments and uncertainties, internal audits of GHG project compliance with operational requirements as applicable, project performance reviews, corrective actions.</p>	<p>D.5.8</p> <p>D.5.9</p> <p>D.5.10</p> <p>D.5.11</p> <p>D.5.12</p>	<p>the same is being followed. The calibration of weigh bridge is done as per the requirement of the office of the controller of legal metrology.</p> <p>Comprehensive monitoring plan has been developed and the initiated steps towards implementation of the same. The monitoring plan developed in the plant is attached.</p>	<p>acceptable.</p> <p>The CAR closed</p>
<p><del>CL1</del></p> <p>The uncontrolled use of firewood cut from forests and prohibited species of wood by biomass plants has figured as an concern area for the Andhra Pradesh Electricity Regulatory commission ( as evident in page 86 of " commissions analysis on substantive issues" detailed in tariff order 2005~2006) ,</p> <p>Andhra Pradesh Pollution Control Board has issued the consent for establishment (Order no: CFE/APPCB/HO/R00/CFE/2001/35-2683 dt. 21/03/2002). As per the consent order the project is permitted to use Rice husk/ Bagasse/ Juliflora/ cotton stalk and coal (up to 20%) as fuel. During site visit, it was found that wood from trees of Mango, Babool, Amla are used.</p> <p>A clarification as how the issue is being dealt</p>	<p>A.3.2</p>	<p>NEDCAP has permitted the usage of following Biomass fuels in Biomass Power Plants apart from Fossil fuels:</p> <ol style="list-style-type: none"> <li>1 Woody Biomass : Juliflora, Casuarina, Subabul, Eucalyptus, Mango Cuttings, Cashew Cuttings and Saw Dust</li> <li>2 Agricultural Waste: Rice Husk, Bengal gram and Black gram stalks, Maize stalks, Palm oil Wastes, Coconut shell and logs, Chilli stalks, Bagasse etc.</li> </ol> <p>Plant uses very small quantity of Babool and Amla as a part of Woody Biomass.</p> <p>Mango cuttings are used as per the list of permitted fuels from NEDCAP.</p>	<p>The NEDCAP guidelines are Addressing mango cutting, not about Babool, Amla. So it is advised to the PP that, the woody bio mass consumed has to be monitored separately, until a formal consent from the pollution control board is acquired. In line with the EB23 meeting annex 18, on definition of Biomass, the small quantities of juliflora seen used in the project are renewable as the land area where the juliflora grows remains a cropland.</p> <p>It is strongly recommended that any other woody biomass that is non renewable is to be monitored and used for discounting the CERs. This is to be checked during verification.</p> <p>The CL is closed</p>

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
with and mechanism to ensure continual supply of permitted biomass material for the project needs further elaboration.			
<p><b>CL-2</b></p> <p>Andhra Pradesh Pollution Control Board has issued the consent for operation of plant under Air act, 1981 valid up to 31/01/2004. M/s Indur Green Power Private Limited has submitted a request for renewal of this consent order for 2 years dt. 22/01/2004. But no consent issued till date, kindly clarify.</p> <p>Andhra Pradesh Pollution Control Board has issued the consent for operation of plant under Water act, 1974 valid up to 31/01/2004. M/s Indur Green Power Private Limited has submitted a request for renewal of this consent order for 2 years dt. 22/01/2004. But no consent issued till date, kindly clarify.</p> <p>The sanction from Non-Conventional Energy Development Corporation of Andhra Pradesh Ltd. Is not evidenced.</p> <p>The Power purchase agreement with APTRANSCO is not evidenced.</p>	A.3.4	<p>Plant has applied for the renewal for the same long back and waiting for the receipt of the renewal licence. The correspondence for the same is enclosed.</p> <p>Permission from NEDCAP and PPA with APTRANSCO is attached.</p>	<p>The complimentary information provided has been accepted. Relevant permissions provided are verified.</p> <p>CL is closed</p>
<p><b>CL-3</b></p> <p>To substantiate the Financial and policy related barrier analysis a more detailed report on the IRR/NPV of the project in light of the changes in government policies and tariff is required to be evaluated. The same is not</p>	B.2.1	<p>IRR calculations for the project are included in attachment. It clearly indicated that the improvement in IRR to reasonable level is possible only with the inclusion of CDM revenue for the project activity.</p>	<p>IRR calculations provided are supporting the argument, and substantiate the additionality. Revised PDD has been verified. Details of loan from PFC are evidenced.</p>

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
evidenced. The data given in PDD is not correct regarding the financing agency and the rate of interest.		Though it was envisaged to take loan from the source mentioned in the PDD, subsequently adopted loan from PFC at same interest rates. The same is incorporated in the document.	CL is closed.
<b>CL4</b> It is not transparent, whether the baseline estimation will consider an ex-ante weighted average emission factor or the emission factor will be calculated using ex-post monitored data. In either case, the project proponent needs to demonstrate the conservativeness of the approach. Analysis of the Table provided under section E.2. Indicates that the emission factor will be calculated using ex-post monitored data, but the data to be monitored is not included in the monitoring plan.	B.2.2	The efficiency of coal based thermal power plants is likely to be improved in future from the present level due to technological improvements. To estimate the CER emissions on conservative basis, ex post emission monitoring is considered. However, considering the additional monitoring cost, it is proposed to use the fixed baseline based on the ex ante emissions and use for the entire crediting period. The same is adopted in the PDD and baseline calculation sheet.	The considering the size of project being a small scale activity this is acceptable.  CL is closed.
<b>CL5</b> The following clarifications requested on the monitoring plan presented under D.3 of PDD: a) D.3.6, D.3.7 and D.3.8 – data not evidence as per recording frequency. b) Archival of data is given as 2 years; not specific to indicate 2 years after crediting period. c) D.3.7 and D.3.8, analysis will be carried out through an outside lab, no	D.2.1	a) Testing biomass and coal on monthly basis is practiced if the fuel is procured from different sources. b) It is two years after the end of credit period or from the date of last issuance of CERs, whichever is later. c) The analysis of items mentioned in D3.7 and D3.8 is done only in the accredited and government approved labs	The corrections have been incorporated  CL is closed

Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
qualification criteria for labs are evidenced			
<p><b>CL6</b></p> <p>The following clarifications requested on the monitoring plan presented under D.3 of PDD.</p> <ul style="list-style-type: none"> <li>a) Proportion of data to be monitored is given as &gt;95%, it is not clear why it is limited to 95%.</li> <li>b) D.3.1, D.3.2, D.3.2, It is indicated data will be archived in electronic form, but no electronic archival evidenced during site visit.</li> <li>c) D.3.4 and D.3.5– data not evidence as per recording frequency.</li> <li>d) D.3.1, D.3.2 and D.3.3, The identification and location of meters are not specified.</li> <li>e) Archival of data is given as 2 years; not specific to indicate 2 years after crediting period.</li> <li>f) D.3.5 analysis will be carried out through an outside lab, no qualification criteria for labs are evidenced.</li> </ul>	D.4.1	<p>a) Minimum 95% of the data is monitored and recorded for the verification purpose. Considering the requirement for the project to assess accurate CER emissions, the same will be done to 100%. Necessary changes are made in PDD accordingly.</p> <p>b) Plant has already initiated archival of these data electronically from paper.</p> <p>c) The data is being maintained as per the frequency mentioned and the can be demonstrated during verification stage.</p> <p>d) Mentioned accordingly in the PDD</p> <p>e) Specified accordingly in PDD</p> <p>f) The analysis of items mentioned in D3.5 is done only in the accredited and government approved labs.</p>	<p>The explanations provided are acceptable.</p> <p>The CL is closed.</p>
<b>CL7</b>	E.1.3	The project emissions due to coal	The complimentary information



Draft report corrective action requests and requests for clarification	Ref. to Table 2	Summary of project participants' response	Final conclusion
<p>The project proposes to calculate the project emissions resulting from coal usage either considering the default IPCC emission factor or using the actual carbon content of coal. It is not evident which algorithm will be used for calculation</p> <p>The calculations demonstrated during site visit do not comply with either of the methodologies described under comments given under E.1.3</p>	E.1.4	<p>usage is estimated based on the basis of actual quantity of coal consumed though project emissions are calculated based on 30% generation using coal usage in baseline calculation sheet.</p> <p>Project emissions due to coal usage are calculated on the basis of actual quantity of coal consumed and % carbon in coal.</p>	<p>Provided has been accepted</p> <p>CL is closed</p>
<p><del>CL8</del></p> <p>The uncertainties can resulting from monitored values of coal are not addressed.</p>	E.1.6	<p>Details regarding usage of all kinds of fuels are submitted to NEDCAP on monthly basis. NEDCAP permits only fixed quantity of coal per annum and are restricted not to use or procure more than the specified tons of coal. All the purchase records of the coal are maintained in the plant for verification.</p>	<p>The complimentary information Provided has been accepted</p> <p>CL is closed</p>
<p><del>CL9</del></p> <p>As per the consents, the industry shall store ash in silos of sufficient capacity and shall not be stored in open. During site visit, it was found that the ash was stored in open. Clarify regarding actions initiated towards compliance against this condition.</p>	F.1.2	<p>As the quantity of ash generated in the plant is very less and is of the order to 40 to 50 T per day, the same will be dispatched to brick manufacturers within 2 days of time and hence it's not stored in the silos. Plant adopts procedure to store in silos when the demand for the same is not there in the market and when there is accumulation of fly ash for more than 4 to 5 days.</p>	<p>The complimentary information Provided has been accepted</p> <p>CL is closed</p>

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