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Validation Report

Triveni Engineering and Industries Ltd.

**Validation of the “Deoband Bagasse based
Co-generation Power Project, India”**

Report No. 806967, Revision 01

August 23, 2006

TÜV SÜD Industrie Service GmbH
Carbon Management Service
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Client:	Triveni Engineering and Industries Ltd. 15-16, Sector 16-A, 8 th floor, Express Trade Towers Noida 201301, India			
Contract approved by:	Michael Rumberg			
Report Title:	Validation of the “Deoband Bagasse based Co-generation Power Project, India”			
Number of pages	19 (excluding cover page and annexes)			
Summary:	<p>The Certification Body “Climate and Energy” has been ordered by Triveni Engineering and Industries Ltd. to perform a validation of the above mentioned project. The project is a unilateral CDM project.</p> <p>Using a risk based approach, the validation of this project has been performed by document reviews and on-site inspection, audits at the locations of the project and interviews at the offices of the project developer and the project owner.</p> <p>As the result of this procedure, it can be confirmed that the submitted project documentation is in line with all requirements set by the Kyoto Protocol, the Marrakech Accords and relevant guidance by the CDM Executive Board.</p> <p>Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reduction of 854 695 tonnes CO₂e over a crediting period of ten years, resulting in a calculated annual average of 85 470 tonnes CO₂e, represents a reasonable estimation using the assumptions given by the project documents.</p>			
Work carried out by:	<ul style="list-style-type: none"> • Michael Rumberg (Project manager, GHG lead auditor) • Sunil Kathuria (Lead Auditor Environmental Management Systems (ISO 14001), Local expert, GHG auditor) • Prabhat Kumar (Auditor Environmental Management Systems (ISO 14001), Local expert, GHG auditor) • Dr. Alexandra Babeck (Technical expert, GHG auditor – trainee) 	Internal Quality Control by: <ul style="list-style-type: none"> • Werner Betzenbichler (Project manager, GHG lead auditor) • Thomas Kleiser (Project manager, GHG lead auditor) 		

Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
ODA	Official Development Assistance
PDD	Project Design Document
PPA	Power Purchase Agreement
TEIL	Triveni Engineering and Industries Ltd.
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
UP	Uttar Pradesh
UPPCL	Uttar Pradesh Power Corporation Limited
VVM	Validation and Verification Manual



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Annex 1: Validation Protocol

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1 INTRODUCTION

1.1 Objective

Triveni Engineering and Industries Ltd. has commissioned TÜV SÜD Industrie Service GmbH (TÜV SÜD) to validate the “Deoband Bagasse based Co-generation Power Project, India”. The validation serves as a design verification and is a requirement of all CDM projects. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual, employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

The audit team has been provided with the first PDD version in October 2005. Based on this documentation, a document review and a fact finding mission in form of an on site audit has taken place. In response to the CAR and CRs the PDD has been revised. A final PDD version was submitted in August 2006. The PDD and the results from the on site audit serves as the basis for the assessment presented herewith.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the validation team has to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing (ISO 14000, EMAS)
- Quality assurance
- Technical aspects of sugar manufacturing process and equipments
- Technical aspects of biomass cogeneration plants
- Monitoring concepts
- Political, economical and technical framework conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV certification body “climate and energy”:

Michael Rumberg is head of the division CDM/JI at TÜV SÜD Industrie Service GmbH. In his position he is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. Before entering this company he worked as an expert for renewable energy, forestry, environmental issues, climate change and sustainability within the environmental branch of an insurance company. His competences are covering risk assessments, quality and environmental auditing (EMS auditor), baseline setting, monitoring and verification due to the requirements of the Kyoto Protocol.

Sunil Kathuria is a lead auditor for CDM/JI projects and a lead auditor for quality and environmental management systems (according to ISO 9001 and ISO 14001) at TÜV South Asia, TÜV SÜD Group. He is based in New Delhi. In his position he is implementing validation, verification and certification audits for CDM projects. He has received extensive training in the CDM validation process and participated already in several CDM project assessments.

Prabhat Kumar is an auditor for quality and environmental management systems (according to ISO 9001 and ISO 14001) and an auditor for CDM/JI projects at TÜV South Asia, TÜV SÜD Group. He is also based in New Delhi. He has received extensive training in the CDM validation process and participated already in several CDM project assessments.

Dr. Alexandra Babeck is a technical expert on food technology, energy systems and environmental technologies and an auditor for environmental management systems (UMA-TÜV of TÜV SÜD). Before joining the TÜV SÜD Industrie Service GmbH as co-operation partner she worked as an expert for energy efficiency, renewable energy, environmental technologies and emission trading. Her competences are covering energy and environmental auditing, baseline setting, monitoring and verification due to the requirements of the Kyoto Protocol. She participated already in several CDM project assessments.

The audit team covers the above mentioned requirements as follows:

- Knowledge of Kyoto Protocol and the Marrakech Accords (RUMBERG / KATHURIA / BABECK)
- Environmental and Social Impact Assessment (ALL)
- Skills in environmental auditing (ALL)
- Quality assurance (ALL)
- Technical aspects of sugar manufacturing process (BABECK / KATHURIA)
- Technical aspects of biomass cogeneration plants and grid operation (ALL)
- Monitoring concepts (RUMBERG / KATHURIA / BABECK)
- Political, economical and technical framework conditions in host country (KATHURIA / KUMAR)

In order to have an internal quality control of the project, a team of the following persons has been composed by the certification body “climate and energy”:

- Werner Betzenbichler (head of the certification body “climate and energy”)
- Thomas Kleiser (Project manager, GHG lead auditor)

1.3 GHG Project Description

The project activity takes place adjacent to the sugar plant of Triveni Engineering Industries Limited in Deoband, and involves the installation of an 22 MW_e high-pressure cogeneration unit, which is operated next to existing biomass power generation units. The surplus electricity generated by the plant will be exported to the state electricity company, Uttar Pradesh Power Corporation Limited (UPPCL), which is part of the Northern Region grid.

The plant is located in Deoband, Saharanpur district, Uttar Pradesh. The project is a unilateral CDM project. Project participant is Triveni Engineering and Industries Ltd., India. Host Party of the project activity is India.

The category of the project activity is in Scope 1 – Energy industries (renewable - / non-renewable sources). The approved and applied baselines and monitoring methodologies are ACM0006 / Version 03, 19 May 2006, “Consolidated baseline methodology for grid-connected electricity generation from biomass residues” and ACM0002 / Version 06, 19 May 2006, “Consolidated baseline methodology for zero-emissions grid-connected electricity generation from renewable sources”.

Project start was in June 2003. The fixed crediting period of 10 years starts on 1st November 2004.

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual (for further information see www.vvmanual.info), an initiative of all Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

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

- It 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 is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	Reference	Conclusion	Cross reference
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.	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.

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification is used when the validation team has identified a need for further clarification.

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

Figure 1 Validation Protocol Tables

2.1 Review of Documents

The project design document submitted by the client and additional background documents related to the project design and baseline were reviewed. A complete list of all documents reviewed is attached as Annex 2 to this report. The project design document underwent several revisions addressing clarification requests issued by TÜV SÜD. The audit team has been provided with a first PDD version in October 2005 which had been made public on www.netinform.de. The project design document was assessed by several revisions addressing changes to the baseline and monitoring methodology by the CDM Executive Board and clarification requests issued by TÜV SÜD. The final PDD version submitted in August 2006 serves as the basis for the assessment presented herewith.

2.2 Follow-up Interviews

In the period of October 14-15, 2005, and November 8, 2005 TÜV SÜD performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Triveni Engineering and Industries Ltd. were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Triveni Engineering and Industries Ltd.	<ul style="list-style-type: none">➤ Project design➤ Technical equipment➤ Sustainable development issues➤ Baseline determination➤ Additionality➤ Crediting period➤ Monitoring plan➤ Management system➤ Environmental impacts➤ Stakeholder process➤ Approval by the Parties involved

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communications between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses given are summarised in chapter 3 below and documented in more detail in the validation protocol in Annex 1.

3 VALIDATION FINDINGS

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

- 1) The findings from the desk review of the project design documents and the findings from interviews during the follow up visit are summarised. A more detailed record of these findings can be found in the Validation Protocol in Annex 1.
- 2) Where TÜV SÜD had identified issues that needed clarification or that represented a risk to the fulfilment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in annex 1. The validation of the project resulted in seven Clarification and eight Corrective Action Requests.
- 3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the client and TÜV SÜD to resolve these Clarification or Corrective Action Requests is summarised.
- 4) The conclusions for validation subject are presented.

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

3.1 Project Design

3.1.1 Discussion

The project is a unilateral project. Project participant is Triveni Engineering and Industries Ltd., India. The involved Party, India, as the host Party meets all relevant participation requirements. The project has received a Letter of Approval from the Indian government in October 2005.

The project does confirm with the project category Scope 1. “Energy industries (renewable/non-renewable sources”. The objective of the project is to utilize the available sugar mill generated bagasse to generate steam and electricity for internal use and to export the surplus electricity to the Uttar Pradesh Power Corporation Limited (UPPCL) grid, which is part of the Northern Region grid.

The revised PDD does clearly define the project’s spatial boundaries. The project involves the implementation of a 22 MW_e high-pressure cogeneration unit, which is operated next to existing biomass heat and power generation units. All components and facilities used to mitigate GHGs or which may form a potential source of GHGs are covered. Information regarding the capacity of the installation is described in the PDD and has been supported by corresponding documentation.

The project design engineering does reflect current good practices. The project is professionally developed and the applied technology represents state-of-the-art boiler and turbine technologies. The efficiency of electricity generation is significantly higher in the new power unit than in the existing units and the applied technology in the project activity does not represent a business as usual scenario.

The life-time of the project technology is predicted with 20 years and it is unlikely that the key technology applied will be substituted by other or more efficient technologies within the crediting period of 10 years.

During the visit on site it has been confirmed that trained manpower, with background of working in power plants, is available to meet the operation and maintenance needs of the plant. The project creates additional season-independent employment in operation and maintenance of the cogeneration plant including security.

The project obtained all necessary permissions and licences for erection and operation of the plant. The relevant documentation has been verified. The issuance of the Letter of Approval by the Indian DNA indicates that the project is in line with sustainable development policies of the country and fulfils national CDM requirements.

The funding for the project does not lead to a diversion of official development assistance according to the information obtained by the audit team. Official Development Assistance (ODA) does not contribute to the financing of the project.

Both the starting date as well as the crediting period are clearly defined. A fixed crediting period of 10 years is applied.

Moreover it is assured that - as the start of the crediting period is before the registration of the project - the project activities starting date falls in the period between 1st January 2000 and the registration of the first clean development mechanism project on 18th November 2004. Documentary evidence has been provided in the form of purchase orders for boiler and turbine.

3.1.2 Findings

Corrective Action Request No. 1:

The project boundary needs to be corrected to incorporate existing Power Generating Sources at Triveni sugar plant.

Response:

The PDD has been revised accordingly. The project boundary has been corrected and the existing power generating sources have been included.

3.1.3 Conclusion

The project does comply with the CDM requirements. Pre- and post-project scenario has been clearly defined. A possible diversion of biomass from the existing power plants to the new power generation unit is accounted by the methodology.

3.2 Baseline and Additionality

3.2.1 Discussion

The project is based on the approved baseline methodology ACM0006, version 03 “Consolidated baseline methodology for grid-connected electricity generation from biomass residues” of 19 May 2006 which is deemed to be the one most applicable for this project. The PDD responds convincingly to each of the applicability criteria which are outlined in the baseline methodology.

The application of the methodology, the discussion of the baseline scenario alternatives and determination of the baseline are presented transparently in the updated PDD. The application follows each of the steps outlined in the methodology and answers the corresponding sections in a proper manner. Baseline scenario 12 is identified as the most likely alternative.

The baseline is been determined using reliable assumptions. The grid emission factor calculation has been revised and is in accordance with the latest version of ACM0002 “Consolidated baseline methodology for grid connected electricity generation from renewable sources”. The baseline is based on project specific data and does sufficiently take into account relevant national and sectoral policies and developments.

The demonstration of the projects additionality is following the “tool for the demonstration and assessment of additionality”. Taking into account the guidelines given by this tool, the PDD complies with each defined step. The audit team verified that start of project activities has been before the registration date of the first clean development mechanism project. Evidence has been provided that CDM has been considered in the decision to proceed with the project activity.

Via barrier analysis the project demonstrates that it is not the baseline scenario. The analysis is underlined by respective literature sources. The barrier due to prevailing practice describes that it is not common to operate bagasse fueled high pressure boiler systems in the Indian sugar industry for efficient electricity generation in order to export electricity to the grid. The project is one of the first projects with all of them applying for CDM registration. Supporting documentation giving evidence for the same has been submitted.

References have been made to all data sources used.

3.2.2 Findings

Corrective Action Request No. 2:

Please base the baseline on the revised methodology ACM0006.

Response:

The PDD has been revised.

Corrective Action Request No. 3:

Please explain why heat baseline scenario H4 “the generation of heat in boilers using the same type of biomass residues” is more likely than H2 “the proposed project activity (installation of a cogeneration power plant), fired with the same type of biomass but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector)” or H5 “the continuation of heat generation in an existing cogeneration plant, fired with the same

type of biomass as in the project activity, and implementation of the project activity, not undertaken as a CDM project activity, at the end of the lifetime of the existing plant”.

The power generation scenario discussed should focus on realistic baseline scenarios rather than exclude scenarios not leading to CO₂ reductions or lowering baseline emissions.

Response:

The baseline discussion has been revised. As the life of the existing units is more than the crediting period so the project activity would not occur before that without CDM funding.

Description of existing units in pre- and post-project scenario has been included in the revised version of PDD. It is evident from this description that four numbers 11 kg/cm² boilers which were used in pre project scenario to supply steam to drive tandem mills of sugar manufacturing have not been used in post project scenario. However, these boilers still have residual technical life span. The steam requirement for driving these tandem units has been fulfilled by supply from project cogeneration unit. In absence of project activity, these boilers would have been used for generating heat which corresponds to scenario H4.

Scenario H2, which requires additional cost can not be an economically and likely scenario, when heat requirement of plant can be met by existing boilers.

Corrective Action Request No. 4:

According to ACM0002 a regional grid definition should be used in large countries with layered dispatch systems like in India. Please provide documentary evidence that power imports and exports are negligible in UPPCL grid and discuss the conservativeness of this approach.

In case that this statement could neither be underlined by respective documentation nor a conservativeness of this approach could be demonstrated, the regional grid definition should be applied.

Response:

The PDD has been revised accordingly and the emission factor calculations are based on the Northern regional grid definitions.

Corrective Action Request No. 5:

Please give details on the selection of power plants for the calculation of built margin (BM) emission factor. Include data from 2004/2005 and clear source of reference for commissioning date. The sample group should include also non-CDM hydro power plants.

Response:

Please refer the revised baseline calculation sheet and revised PDD based on the Northern regional grid.

Corrective Action Request No. 6:

The data for operating margin should base on the average of the last three years (2005/2004; 2004/2003; 2003/2002).

Response:

Please refer the revised baseline calculation sheet and revised PDD based on the Northern regional grid.

Corrective Action Request No. 7:

The barrier analysis should concentrate on specific project barriers exceeding barriers due to normal project evolution. Documentary evidence underlying the barrier analysis should be provided.

Response:

The barrier analysis has been revised accordingly and respective documentation has been provided

Clarification Request No. 1:

Analysing the power generation report for the period December 2004-May 2005 (/Reference No.11) a difference between power provided (incl. Power import) and power consumed (incl. Power export). Please clarify.

Response:

The generation and consumption figures are attached. The discrepancy in the figures is due to time lag between UPPCL and TEIL in noting figures. The export reading at UPPCL end has been taken every month at 12 Noon on last day and the generation was derived accordingly where as TEIL records are provided for the calender month (up to 6 am of the 1st day of particular month) and that's how the mismatch could have happened. TEIL has revised its monitoring plan so as to note the generation figures as per UPPCL timings

Clarification Request No. 2:

Details regarding investment barriers should be provided. What are the conditions to receive funding from the Sugar Development Fund? In which way is CDM necessary to overcome these barriers?

Response:

On 8th May 2002, an amendment to the Sugar Development Fund Act, 1982, was passed wherein a clause was inserted for making loans available to sugar industry implementing bagasse based co-generation power projects.

The decision to implement the CDM project activity was taken in January 2003, till then the modalities and procedures for getting funding from SDF was not very clear and not much disbursement had happened from this fund. Moreover, as per the annual report of Department of food and public distribution, 2004-05, loan disbursal for bagasse based cogeneration project till 30th November, 2004 was only INR 238.5 millions representing only 0.88% of the total amount disbursed by the fund. This implies that either the sugar industry is reluctant to go ahead with the implementation of bagasse based co-generation power project or funding is not easily available from SDF. Still TEIL took a significant risk in going ahead with the implementation of the project activity.

3.2.3 Conclusion

The project does comply with the requirements.

3.3 Monitoring Plan

3.3.1 Discussion

The selected monitoring methodology ACM 0006 is deemed to be the most applicable for this project. The application of the monitoring methodology is transparent.

The monitoring plan of the final PDD does include all relevant parameters to determine project emissions and it is possible to monitor and/or measure the currently specified.

No leakage is to be considered according to the methodology.

All relevant parameters to determine baseline emissions as well as parameters to demonstrate plausibility are included in the monitoring plan and it is possible to monitor and/or measure the currently specified indicators. Recalculation of the emission factor for the grid electricity replaced by the project activity is not required as it is based on an ex-ante approach. Thus respective parameters do not need to be monitored.

The parameters defined allow calculating the baseline and projecting emissions in a proper manner. Information on accuracy level of measurement instruments are included in the revised PDD. Recording frequency and archiving methods are considered being reasonable and appropriate as well.

The project is considered to have no negative environmental, social and economic effects and a monitoring of such data is also not required by the applied monitoring methodology. This approach is deemed sufficient.

The PDD describes the overall operational and management structure for monitoring. A CDM team has been formed, which will be responsible for monitoring of all relevant data as well as record keeping. A separate working document on “GHG Performance Monitoring, Measurement and Reporting of data” has been elaborated and submitted to the audit team, which defines the GHG monitoring organisation structure of the project in detail together with relevant procedures for project management. Project performance is compiled on daily and monthly basis. Monitoring reports are regularly reviewed by members of the CDM team.

3.3.2 Findings

Corrective Action Request No. 8:

According to the Environmental Impact Assessment as well as the detailed project report provided to the DOE there will be transports of bagasse from Khatauli to the site. The PDD does not discuss nor include monitoring of emissions due to these transports. Please correct the monitoring plan accordingly.

Response:

While preparing the DPR it was anticipated that bagasse would be required from the Khatauli sugar plant of TEIL. Since bagasse is available in sufficient quantity at Deoband so no procurement of bagasse from Khatauli would take place. However project emissions monitoring due to transport of Bagasse and calculations will be done if any bagasse procurement would happen from anywhere in future. PDD and Monitoring Plan has been revised accordingly.

Clarification Request No. 3:

The authority and overall responsibility of project management and its linkage to the existing company needs to be clearly defined.

Response:

An internal document “TEIL GHG Performance Monitoring, Measurement and Reporting of data”, defines the authority and overall responsibility for the project. Management structure has been included.

Clarification Request No. 4:

Procedures for Monitoring & Measurements including role and responsibility should be specified and documented.

Response:

The internal document “TEIL GHG Performance Monitoring, Measurement and Reporting of data”, defines the procedures including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of monitoring equipment and installations etc. for the project.

Clarification Request No. 5:

Respective procedures including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of monitoring equipment and installations etc. needs to be submitted to DOE.

Response:

The internal document “TEIL GHG Performance Monitoring, Measurement and Reporting of data”, defines the procedures. including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of monitoring equipment and installations etc. for the project.

Clarification Request No. 6:

Respective procedures covering internal audits, performance reviews and corrective actions should be defined and submitted to the audit team.

Response:

The internal document “TEIL GHG Performance Monitoring, Measurement and Reporting of data”, defines the procedures.

3.3.3 Conclusion

The project does comply with the requirements.

3.4 Calculation of GHG Emissions

3.4.1 Discussion

The PDD does clearly define the project’s spatial boundaries. It involves the energy generating equipments at the sugar plant including bagasse fuel storage, new cogeneration plant and auxiliaries, existing boilers/turbines as well as all power plants connected to the Northern grid.

The projects components are clearly defined and described in the revised PDD. During the visit on site the given information has been confirmed.

Details on the assumptions for the emission reduction calculations have been submitted. The formulae used are correctly applied. For the selected project baseline (scenario 12) data on the net quantity of electricity generated during the most recent three years in all power plants fired with the bagasse are required according to ACM0006. Data for electricity production (EG_{historic}) during the crushing season 2001/2002, 2002/2003 and 2003/2004 and respective evidence has been provided to the audit team.

Project emission estimations due to transportation are based on the additional bagasse amount needed according to the calculations done at the project planning stage.

Leakage emissions do not need to be addressed in that project baseline according to ACM0006. Emission reductions or increase due to the displacement of heat can be estimated as zero.

In conclusion, it can be stated that all aspects related to direct and indirect baseline emissions are captured in the project design. The calculations of the baseline emissions are documented in a complete and transparent manner. Data provided are retraceable.

3.4.2 Findings

Clarification Request No. 7:

According to the detailed project report of January 2003 (Reference List No. 7) the estimations of annual net electricity exports amount to 92,96 MU. The PDD estimates 94,94 MU/a. Please clarify.

Response:

Figures of generation for cogeneration unit are taken from generation report of TEIL and emission reduction calculations are revised accordingly. The estimates have been adapted according to the detailed project report which represents the more conservative values.

3.4.3 Conclusion

The calculation of GHG emissions and used data are according to applied methodologies and their requirements.

3.5 Environmental Impacts

3.5.1 Discussion

An environmental impact assessment has been undertaken although a formal EIA is not required for this project according to Indian legislation. The environmental impacts and respective mitigation measures are addressed in the PDD. It is not expected that the project will create adverse environmental effects. Transboundary effects are also not expected.

The project does comply with the environmental legislation and the company has obtained the relevant consents under the Air Act, 1981 (Section 21) and Water Act 1974 (Section 25/26) from the Uttar Pradesh Pollution Control Board.

3.5.2 Findings

None.

3.5.3 Conclusion

The project does comply with the requirements.

3.6 Comments by Local Stakeholders

3.6.1 Discussion

Besides regulatory authorities, local stakeholders such as the village Panchayat as well as other local institutions like farmer bodies have been directly addressed to comment on the project. No stakeholder process is required according to national legislation.

Stakeholders has been informed personally by TEIL representatives. A summary on the results has been included in the PDD. No major concern was raised during the consultation with local stakeholders.

The relevant comments and important clauses mentioned in the project documents/clearances like Detailed Project Report (DPR), environmental clearances, power purchase agreement, local clearance etc. were considered in the project design. The required consents and permissions to establish and operate the plant have been obtained.

3.6.2 Findings

None.

3.6.3 Conclusion

The project does comply with the requirements.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on its website and invited comments from Parties, stakeholders and non-governmental organizations during a period of 30 days, from October 15 to November 13, 2005.

Published on:

http://www.netinform.de/KE/Wegweiser/Guide2.aspx?ID=1304&Ebene1_ID=26&Ebene2_ID=328&mode=1

During the commenting period one comment was received. The comment has been submitted on November 11, 2005 by Mr. Rahul Subhash Agnihotri. Mr. Rahul Subhash Agnihotri is not an accredited observer organisation to the United Nations Framework Convention on Climate Change Conference of the Parties. The comment has subsequently not been considered as per the regulations, but relevant points have been taken into account during the validation process.

VALIDATION OPINION

TÜV SÜD has performed a validation of the “Deoband Bagasse based Co-generation Power Project, India”. The project is a unilateral CDM project. Party involved is India as host country. The validation was performed on the basis of UNFCCC criteria 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 subsequent decisions by the CDM Executive Board.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project does meet all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by TÜV SÜD for registration with the UNFCCC under the CDM.

By avoiding GHG emissions from fossil fuelled electricity generation, the project results in reductions of GHG emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

Additionally the assessment team reviewed the estimation of the projected emission reductions. We can confirm that the indicated amount of emission reduction of of 854 695 tonnes CO₂e over a crediting period of ten years, resulting in a calculated annual average of 85 470 tonnes CO₂e, represents a reasonable estimation using the assumptions given by the project documents.

The validation is based on the information made available to TÜV SÜD and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2006-08-23



Werner Betzenbichler

Head of certification body “climate and energy“

Munich, 2006-08-23



Michael Rumberg

Project Manager



Industrie Service

Annex 1: Validation Protocol



Table 1 Mandatory Requirements for 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	☑	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, Marrakesh Accords, CDM Modalities §40a	☑	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.	☑	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a	☑	The project is a unilateral project and has received a Letter of Approval from the Indian government. The document contains all relevant elements defined for such documents (see EB 16 annex 6).
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	☑	Table 2, Section E
6. Reduction in GHG emissions shall 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	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43	☑	Table 2, Section B.2



REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
project activity			
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords	☑	According to the information obtained by the audit team ODA does not contribute to the financing of the project.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	☑	India has established a designated national authority.
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	☑	India is a Party to the Kyoto Protocol and has accessed the Protocol at August 26, 2002; entry into force on February 02, 2005.
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	☑	Table 2, Section G
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Accords, CDM Modalities §37c	☑	Table 2, Section F
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	☑	Table 2, Section B.1.1 and D.1.1
13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	Marrakech Accords, CDM Modalities §37f	☑	Table 2, Section D
14. Parties, stakeholders and UNFCCC accredited NGOs shall	Marrakech	☑	A global public stakeholder



REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Accords, CDM Modalities, §40		process on the UNFCCC website took place from October 15 to November 13, 2005.
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45c,d	☑	Table 2, Section B.2
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, CDM Modalities, §47	☑	Table 2, Section B.2
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	☑	The project design document does conform with the CDM Project Design Document format (version 02, from 1 July 2004) valid at the time of PDD submission.



Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity <i>The project design is assessed.</i>					
A.1. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	1,2, 3,4, 35	DR I	The Project is located adjacent to the sugar plant of Triveni Engineering Industries Limited in Deoband, Saharanpur district, Uttar Pradesh. The projects spatial boundary includes the project site (bagasse fuel storage and processing units, boiler/turbine and auxiliaries) as well as all power plants connected to the grid it is supplying electricity to.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1,2, 3,4, 7,35	DR I	The project involves a 22 MWe grid connected bagasse based cogeneration plant consisting of a boiler, turbo-generator, auxiliary components, and switch yard. The exported power will be stepped up from 11 kV to 132 kV and will be interfaced with the grid substation of Uttar Pradesh Power Corporation Ltd. (UPPCL) located at 3 km from the site.	CAR 1	<input checked="" type="checkbox"/>

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p><u>Corrective Action Request No. 1:</u></p> <p>The project boundary needs to be corrected to incorporate existing Power Generating Sources at Triveni sugar plant.</p>		
<p>A.2. Technology to be employed</p> <p><i>Validation of project technology focuses on the project engineering, choice of technology and competence/maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i></p>					
A.2.1. Does the project design engineering reflect current good practices?	1,2,3, 4,6,7, 8,9,12 28	DR I	Yes, the project design engineering does reflect good practices. The detailed project report was carried out by Avant Grade Engineers & consultants.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1,2, 3,4, 7, 8, 9,12, 28	DR I	Yes, the project uses the latest technology of generating and exporting electrical power to the grid. The cogeneration plant comprises a 120 tonnes per hour (tph) high pressure boiler and a 22 MW turbo generator set. The boiler is designed with spreader stoker, travelling grate, membrane furnace walls, and electrostatic precipitators for dust separation. The turbine is a double extraction cum condensing machine.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.3. Is the project technology likely to be substituted	1,2,3,	DR	It is unlikely that the key technology applied	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
by other or more efficient technologies within the project period?	4,6,7, 8,9,12 28	I	will be substituted by other or more efficient technologies within the crediting period of 10 years.		
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2,3, 4,6,7, 8,9,12 28	DR I	No, extensive initial training is not needed as the entire operation and maintenance activities are undertaken by trained technical staff with a background in working in power plants.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.5. Does the project make provisions for meeting training and maintenance needs?	1,2,3, 4,6,7, 8,9,12 28,16	DR I	Trained manpower is available to meet the operation and maintenance needs of the plant .	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i>					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	1,2, 5,6, 12, 13, 28, 33	DR I	<p>The project is in line with relevant legislation and plans in India.</p> <p>The state government promotes power generation in the private sector, however there are no regulatory requirements related to the installation of bagasse based cogeneration.</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.2. Is the project in line with host-country specific CDM requirements?	1,2,5, 6,12, 13,28, 33	DR I	Yes, confirmation from host country India has been obtained on 5 th April 2005 within the Letter of Approval.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.3.3. Is the project in line with sustainable development policies of the host country?	1,2,5,6,12,13,28,33	DR I	Yes, the project is in line with the sustainable development policies of Government of India.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	1,2,5,6,12,13,28,33	DR I	Yes, the project will provide for additional - season independent - employment in operation and maintenance of the cogeneration plant including security. Furthermore the project supports a more reliable, renewable and local supply of electricity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B. Project Baseline					
<i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
B.1. Baseline Methodology					
<i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	1,2,3,4,35	DR I	Yes, the baseline methodology applied has been approved by the CDM Executive Board and is published as under the name ACM0006. "Consolidated baseline methodology for grid-connected electricity generation from biomass residues". The methodology has been revised	CAR 2	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			recently. <u>Corrective Action Request No. 2:</u> Please base the baseline on the revised methodology ACM0006.		
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1,2,3,4,35	DR I	According to the methodology the baseline methodology is only applicable to defined baseline scenarios. The baseline discussion is not transparent and the derived baseline scenario is not convincing. It states that in the absence of the project activity the biomass would be used for heat generation in boilers - scenario H 4 – without discussing scenario H2 and not regarding that currently the biomass is used for heat and electricity generation. <u>Corrective Action Request No. 3:</u> Please explain why heat baseline scenario H4 “the generation of heat in boilers using the same type of biomass residues” is more likely than H2 “the proposed project activity (installation of a cogeneration power plant), fired with the same type of biomass but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector)” or H5 “the continuation of heat generation in an	CAR 3	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p>existing cogeneration plant, fired with the same type of biomass as in the project activity, and implementation of the project activity, not undertaken as a CDM project activity, at the end of the lifetime of the existing plant”.</p> <p>The power generation scenario discussed should focus on realistic baseline scenarios rather than exclude scenarios not leading to CO₂ reductions or lowering baseline emissions (PDD p.11).</p>		
<p>B.2. Baseline Determination</p> <p><i>The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.</i></p>					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	1,2, 3,4, 35	DR I	See comments in B.1.2 (CAR 3)	See CAR 3	<input checked="" type="checkbox"/>
B.2.2. Has the baseline been determined using conservative assumptions where possible?	1,2, 3,4, 35	DR I	<p>UP grid is selected in order to calculate the grid emission factor.</p> <p>According to ACM0002 “Consolidated baseline methodology for grid connected electricity generation from renewable sources” -which the selected methodology ACM0006 is referring to- a regional grid definition should be used in large countries</p>	CAR 4, CAR 5	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p>with layered dispatch systems like in India.</p> <p><u>Corrective Action Request No. 4:</u> Please provide documentary evidence that power imports and exports are negligible in UPPCL grid and discuss the conservativeness of this approach.</p> <p>In case that this statement could not be underlined by respective documentation nor a conservativeness of this approach could be demonstrated the regional grid definition should be applied.</p> <p>The calculation of the BM emission factor should be based on the most recent information available on plants already built should be taken into account.</p> <p><u>Corrective Action Request No. 5:</u> Please give details on the selection of power plants for the calculation of built margin emission factor. Include data from 2004/2005 and clear source of reference for commissioning date. The sample group should include also non-CDM hydro power plants.</p>		
B.2.3. Has the baseline been established on a project-	1,2,	DR	Yes.	☑	☑

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
specific basis?	3,4	I			
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	1,2,3,4	DR I	See above B.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.5. Is the baseline determination compatible with the available data?	1,2,3,4,35	DR I	<p>The emission factor for displacement of electricity is calculated using the combined margin approach.</p> <p><u>Corrective Action Request No. 6:</u></p> <p>The data for operating margin should be based on the average of the last three years (2005/2004; 2004/2003; 2003/2002).</p> <p><u>Clarification Request No. 1:</u></p> <p>Analysing the power generation report for the period December 2004-May 2005 (Reference No.11) a difference between power provided (incl. power import) and power consumed (incl. power export). Please clarify.</p>	CAR 6 CR 1	<input checked="" type="checkbox"/>
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	1,2,3,4,10,31,32,33,35	DR I	See B 2.1	See CAR 3	<input checked="" type="checkbox"/>
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	1,2,3,4,10,	DR	The demonstration of the project's additionality is following the "tool for the	CR 2 CAR 7	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
(e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?	31,32,33,35	I	<p>demonstration and assessment of additionality".</p> <p><u>Clarification Request No. 2 :</u></p> <p>Details regarding investment barriers should be provided. What are the conditions to receive funding from the Sugar Development Fund? In which way is CDM necessary to overcome these barriers?</p> <p>The barriers regarding human resources and organisation are very general and not really project specific.</p> <p><u>Corrective Action Request No 7:</u></p> <p>The barrier analysis should concentrate on specific project barriers exceeding barriers due to normal project evolution. Documentary evidence underlying the barrier analysis should be provided.</p>		
B.2.8. Have the major risks to the baseline been identified?	1,2,3,4,10,31,32,33	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2.9. Is all literature and sources clearly referenced?	1,2,3,4,10,31,32,33	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1,2,3,4	DR I	The project starting date and operational lifetime are clearly defined and reasonable. Starting date is June 2003 and the operational lifetime for the project is estimated as 20 years.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	1,2,3,4	DR I	Yes, the crediting period is fixed for 10 years, with a starting date as from 01/11/2004.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D. Monitoring Plan <i>The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).</i>					
D.1. Monitoring Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	1,2,3,4	DR I	Yes, it refers to ACM0006, version 03, that has been approved by the CDM Executive Board.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1,2, 3,4	DR I	Yes. The project involves bagasse based cogeneration with electricity export to the grid.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	1,2, 3,4	DR I	See above B.1.2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	1,2, 3,4	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2. Monitoring of Project Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
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?	1,2, 3,4, 35	DR I	<p>According to the Environmental Impact Assessment as well as the detailed project report provided to the DOE there will be transports of bagasse from Khatauli to the site. The PDD does not discuss nor include monitoring of emissions due to these transports.</p> <p><u>Corrective Action Request No. 8:</u> Please correct the monitoring plan accordingly.</p>	CAR 8	<input checked="" type="checkbox"/>
D.2.2. Are the choices of project GHG indicators reasonable?	1,2, 3,4	DR I	See above in D.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	1,2, 3,4	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	1,2,3,4	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.5. Will the indicators enable comparison of project data and performance over time?	1,2,3,4	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3,4	DR I	Leakage effects do not need to be addressed according to the methodology.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.2. Have relevant indicators for GHG leakage been included?	1,2,3,4	DR I	See above in D3.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	1,2,3,4	DR I	See above in D3.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	1,2,3,4	DR I	See above in D3.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.4. Monitoring of Baseline Emissions <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
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?	1,2,3,4	DR	The monitoring of electricity data has been provided according to the requirements of ACM0006.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Recalculation of the emission factor for the grid electricity replaced by the project activity is not required as it is based on an ex-ante approach.		
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	1,2, 3,4	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.4.3. Will it be possible to monitor the specified baseline indicators?	1,2, 3,4, 35	DR	Depending on outcome CAR 4. The methodology selected (scenario 12) requires the net quantity of electricity generated during the most recent three years in all power plants fired with the bagasse. Respective data and evidence need to be provided.	See CAR 4	<input checked="" type="checkbox"/>
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts <i>It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	1,2, 3,4	DR	The methodology does not require the monitoring of such data.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.2. Is the choice of indicators for sustainability development (social, environmental, economic) reasonable?	1,2, 3,4	DR	No, according to the methodology there is no need to define specific indicators.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.5.3. Will it be possible to monitor the specified sustainable development indicators?	1,2, 3,4	DR	See above D5.2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.5.4. Are the sustainable development indicators in line with stated national priorities in the Host Country?	1,2,3,4	DR	See above D5.2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6. Project Management Planning <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
D.6.1. Is the authority and responsibility of project management clearly described?	1,2,6,11,16,29,30,35	DR I	<p>A CDM team has been formed, which will be responsible for monitoring of all relevant data.</p> <p><u>Clarification Request No. 3:</u></p> <p>However the authority and overall responsibility of project management and its linkage to the existing company needs to be clearly defined.</p>	CR 3	<input checked="" type="checkbox"/>
D.6.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1,2,6,11,16,29,30,35	DR I	<p>Monitoring all datas relating to electricity generation as well as record keeping is the responsibility of the CDM team composed by trained and authorized staff.</p> <p>However the respective procedures are only partly defined.</p> <p><u>Clarification Request No. 4:</u></p> <p>Procedures for Monitoring & Measurements including role and responsibility should be</p>	CR 4	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			specified and documented.		
D.6.3. Are procedures identified for training of monitoring personnel?	1,2,6, 11,16, 29,30	DR I	No, however no special training seems to be required as trained personnel with background in power projects is available.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	1,2,6, 11,16, 29,30	DR I	The risk of emergency situation with unintended emissions is low.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.5. Are procedures identified for calibration of monitoring equipment?	1,2,6, 11,16, 29,30, 35	DR I	<p>Procedures for calibration of monitoring equipment for the power exported and imported has been defined within the PPA signed with UPPCL.</p> <p>In addition these procedures shall also be defined/documented for other monitoring parameters and systematically integrated into management procedures.</p> <p><u>Clarification Request No. 5:</u> Respective procedures including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of monitoring equipment and installations etc. needs to be submitted to DOE.</p>	CR 5	<input checked="" type="checkbox"/>
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	1,2,6, 11,16, 29,30	DR I	See above D.6.5.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.6.7. Are procedures identified for monitoring, measurements and reporting?	1,2,6, 11,16, 29,30	DR I	See above D.6.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	1,2,6, 11,16, 29,30	DR I	Day to day record keeping of various parameters relating to boiler, turbine, export of power are maintained through Yokogawa Blue start control system.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	1,2, 6,16, 27,28, 29,30	DR I	See above D.6.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.10. Are procedures identified for review of reported results/data?	1,2, 6,16, 27,28, 29,30	DR I	See above D.6.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	1,2, 6,16, 27,28, 29,30, 35	DR I	No procedures have been defined. <u>Clarification Request No. 6:</u> Respective procedures covering internal audits, performance reviews and corrective actions should be defined and submitted to the audit team.	CR 6	<input checked="" type="checkbox"/>
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	1,2, 6,16, 27,28, 29,30	DR I	Project performance is recorded live and compiled on daily and monthly basis. Monitoring reports are regularly reviewed by members of the CDM team.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.6.13. Are procedures identified for corrective actions	1,2,	DR	See above D.6.11.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
in order to provide for more accurate future monitoring and reporting?	6,16, 27,28, 29,30	I			
E. Calculation of GHG Emissions by Source <i>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.</i>					
E.1. Predicted Project GHG Emissions <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	1,2, 3,4	DR	Direct emissions may arise from the transport of bagasse to the site. See A.1.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	1,2, 3,4	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2, 3,4	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	1,2, 3,4	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	1,2, 3,4	DR	The methodology only requires the evaluation of CO ₂ .	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.2. Leakage <i>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.</i>					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	1,2,3,4	DR	See above D.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.2. Have these leakage effects been properly accounted for in calculations?	1,2,3,4	DR	See above E.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	1,2,3,4	DR	See above E.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.4. Are the calculations documented in a complete and transparent manner?	1,2,3,4	DR	See above E.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.5. Have conservative assumptions been used when calculating leakage?	1,2,3,4	DR	See above E.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.6. Are uncertainties in the leakage estimates properly addressed?	1,2,3,4	DR	See above E.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3. Baseline Emissions <i>The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.</i>					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	1,2,3,4,35	DR	Depending on outcome of CAR 3 and CAR 4. See above B.1.2 and B.2.2.	CR 7	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<p><u>Clarification Request No. 7:</u></p> <p>According to the detailed project report of January 2003 (Reference List No. 7) the estimations of annual net electricity exports amount to 92,96 MU. The PDD estimates 94,94 MU/a. Please clarify.</p>		
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	1,2, 3,4	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	1,2, 3,4	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	1,2, 3,4, 35	DR	<p>The grid emission factor has been calculated using the state grid and including central power plants only instead of using the regional grid as requested by ACM0002 "Consolidated baseline methodology for grid connected electricity generation from renewable sources".</p> <p>The PDD does not contain a discussion on the conservativeness of this approach.</p> <p>See above B.2.2.</p>	See CAR 4	<input checked="" type="checkbox"/>
E.3.5. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	1,2, 3,4	DR	See above E.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.6. Have the project baseline(s) and the project	1,2,	DR	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
emissions been determined using the same appropriate methodology and conservative assumptions?	3,4				
E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1,2, 3,4 13,14, 15	DR I	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	1,2,3, 4,13, 14,15	DR I	Yes, the PDD includes an analysis of the environmental impacts.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2,3, 4,13, 14,15	DR I	An environmental impact assessment has been undertaken although a formal EIA is not required for this project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.3. Will the project create any adverse environmental effects?	1,2,3, 4,13, 14,15	DR I	No, the project is not expected to create adverse environmental effects	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.4. Are transboundary environmental impacts considered in the analysis?	1,2,3, 4,13,	DR	Transboundary impacts are not considered	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	14,15	I	to be of relevance.		
F.1.5. Have identified environmental impacts been addressed in the project design?	1,2,3, 4,13, 14,15	DR I	The relevant environmental impacts have been considered.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.6. Does the project comply with environmental legislation in the host country?	1,2,3, 4,13, 14,15	DR I	Yes, the company has obtained the relevant consents under the Air Act, 1981 (Section 21) and Water Act 1974 (Section 25/26) from the Uttar Pradesh Pollution Control Board.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G. Stakeholder Comments <i>The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.</i>					
G.1.1. Have relevant stakeholders been consulted?	1,2,3, 4,17, 18,19, 20,21, 22,23, 24,25, 26	DR I	Yes, besides regulatory authorities local stakeholders such as the village Panchayat as well as religious/educational and political institutions including farmer bodies has been addressed.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	1,2,3, 4,17, 18,19, 20,21, 22,23, 24,25, 26	DR I	Yes. Stakeholders has been informed personally by TEIL representatives and asked for feedback.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1,2,3, 4,17, 18,19, 20,21, 22,23, 24,25, 26	DR 	A stakeholder consultation process is not required according to Indian legislation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.4. Is a summary of the stakeholder comments received provided?	1,2,3, 4,17, 18,19, 20,21, 22,23, 24,25, 26,35	DR 	Yes, a summary has been included in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G.1.5. Has due account been taken of any stakeholder comments received?	1,2,3, 4,17, 18,19, 20,21, 22,23, 24,25, 26,35	DR 	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 1</p> <p><u>Corrective Action Request No. 1:</u></p> <p>The project boundary needs to be corrected to incorporate existing Power Generating Sources at Triveni sugar plant.</p>	<p>A.1.2.</p>	<p>The PDD has been revised accordingly. The project boundary has been corrected and the existing power generating sources have been included.</p>	<p><input checked="" type="checkbox"/></p> <p>The existing power generation equipment has been detailed in chapter A2. Pre and post-project scenario has been clearly defined. A possible diversion of biomass from the existing power plants to the new power generation unit is accounted by the methodology.</p> <p>EG_{historic} is based on the electricity generation data of the crushing seasons from 10/2001 to 04/2004, (pre-project scenario). Respective data and evidence has been provided.</p>
<p>CAR 2</p> <p>The methodology has been revised recently.</p> <p><u>Corrective Action Request No. 2:</u></p> <p>Please base the baseline on the revised methodology ACM0006.</p>	<p>B.1.1.</p>	<p>The PDD has been revised.</p>	<p><input checked="" type="checkbox"/></p> <p>ACM 0006, version 03 of 19th of May 2006 has been applied.</p>
<p>CAR 3</p> <p>The baseline discussion is not transparent and the derived baseline scenario is not convincing. It states that in the absence of the project activity the biomass would be used for heat generation in</p>	<p>B.1.2.</p>	<p>The baseline discussion has been revised. As the life of the existing units is more than the crediting period so the project activity would not occur before that without CDM funding.</p>	<p><input checked="" type="checkbox"/></p> <p>Documentary evidence has been provided that boilers still have residual technical lifespan and could be operated further on.</p>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>boilers - scenario H 4 – without discussing scenario H2 and not regarding that currently the biomass is used for heat and electricity generation.</p> <p><u>Corrective Action Request No. 3:</u></p> <p>Please explain why heat baseline scenario H4 “the generation of heat in boilers using the same type of biomass residues” is more likely than H2 “the proposed project activity (installation of a cogeneration power plant), fired with the same type of biomass but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector)” or H5 “the continuation of heat generation in an existing cogeneration plant, fired with the same type of biomass as in the project activity, and implementation of the project activity, not undertaken as a CDM project activity, at the end of the lifetime of the existing plant”.</p> <p>The power generation scenario discussed should focus on realistic baseline scenarios rather than exclude scenarios not leading to CO₂ reductions or lowering baseline emissions (PDD p.11).</p>		<p>Description of existing units in pre- and post-project scenario has been included in the revised version of PDD. It is evident from this description that four numbers 11 kg/cm² boilers which were used in pre project scenario to supply steam to drive tandem mills of sugar manufacturing have not been used in post project scenario. However, these boilers still have residual technical life span. The steam requirement for driving these tandem units has been fulfilled by supply from project cogeneration unit. In absence of project activity, these boilers would have been used for generating heat which corresponds to scenario H4.</p> <p>Scenario H2, which requires additional cost can not be an economically and likely scenario, when heat requirement of plant can be met by existing boilers.</p>	<p>As the heat requirement of plant can be met by existing boilers, the installation of a cogeneration plant with the same firing capacity as the proposed project activity but different efficiency of heat generation would not be a likely scenario.</p> <p>The power generated is mainly exported to the grid, thus P4 “The generation of power in existing and/or new grid-connected power plants” is deemed to be the most likely baseline scenario for power generation.</p>
<p>CAR 4</p> <p>According to ACM0002 “Consolidated baseline methodology for grid connected electricity generation from renewable sources” –which the selected methodology ACM0006 is referring to- a</p>	<p>B.2.2.</p>	<p>The PDD has been revised accordingly and the emission factor calculations are based on the Northern regional grid definitions.</p>	<p><input checked="" type="checkbox"/></p>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>regional grid definition should be used in large countries with layered dispatch systems like in India.</p> <p><u>Corrective Action Request No. 4:</u></p> <p>Please provide documentary evidence that power imports and exports are negligible in UPPCL grid and discuss the conservativeness of this approach.</p> <p>In case that this statement could not be underlined by respective documentation nor a conservativeness of this approach could be demonstrated the regional grid definition should be applied.</p>			
<p>CAR 5</p> <p>The calculation of the BM emission factor should be based on the most recent information available on plants already built should be taken into account.</p> <p><u>Corrective Action Request No. 5:</u></p> <p>Please give details on the selection of power plants for the calculation of built margin emission factor. Include data from 2004/2005 and clear source of reference for commissioning date. The sample group should include also non-CDM hydro power plants.</p>	B.2.2.	Please refer the revised baseline calculation sheet and revised PDD based on the Northern regional grid.	<input checked="" type="checkbox"/>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 6</p> <p>The emission factor for displacement of electricity is calculated using the combined margin approach.</p> <p><u>Corrective Action Request No. 6:</u></p> <p>The data for operating margin should be based on the average of the last three years (2005/2004; 2004/2003; 2003/2002).</p>	<p>B.2.5.</p>	<p>Please refer the revised baseline calculation sheet and revised PDD based on the Northern regional grid.</p>	<p><input checked="" type="checkbox"/></p> <p>Respective reference sources have been included.</p>
<p>CAR 7</p> <p>The barriers regarding human resources and organisation are very general and not really project specific.</p> <p><u>Corrective Action Request No. 7:</u></p> <p>The barrier analysis should concentrate on specific project barriers exceeding barriers due to normal project evolution. Documentary evidence underlying the barrier analysis should be provided.</p>	<p>B.2.7.</p>	<p>The barrier analysis has been revised accordingly and respective documentation has been provided.</p>	<p><input checked="" type="checkbox"/></p>
<p>CAR 8</p> <p>According to the Environmental Impact Assessment as well as the detailed project report provided to the DOE there will be transports of bagasse from Khatauli to the site. The PDD does not discuss nor include monitoring of emissions due to these transports.</p>	<p>D.2.1.</p>	<p>While preparing the DPR it was anticipated that bagasse would be required from the Khatauli sugar plant of TEIL. Since bagasse is available in sufficient quantity at Deoband so no procurement of bagasse from Khatauli would take place. However project emissions monitoring due to transport of Bagasse and calculations will be done if</p>	<p><input checked="" type="checkbox"/></p> <p>As there has been an additional cogeneration project at Khatauli sugar plant itself, there will not be any bagasse transportation from Khatauli to Deoband, but might occur from other places.</p> <p>Monitoring plan and emission reduction</p>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p><u>Corrective Action Request No. 8:</u> Please correct the monitoring plan accordingly.</p>		<p>any bagasse procurement would happen from anywhere in future. PDD and Monitoring Plan has been revised accordingly.</p>	<p>calculations take into account possible project emissions due to bagasse transport based on the initial estimations according to the EIA.</p>
<p>CR 1 <u>Clarification Request No. 1:</u> Analysing the power generation report for the period December 2004-May 2005 (Reference No.11) a difference between power provided (incl. Power import) and power consumed (incl. Power export). Please clarify.</p>	<p>B.2.5.</p>	<p>The generation and consumption figures are attached. The discrepancy in the figures is due to time lag between UPPCL and TEIL in noting figures. The export reading at UPPCL end has been taken every month at 12 Noon on last day and the generation was derived accordingly whereas TEIL records are provided for the calendar month (up to 6 am of the 1st day of particular month) and that's how the mismatch could have happened. TEIL has revised its monitoring plan so as to note the generation figures as per UPPCL timings.</p>	<p><input checked="" type="checkbox"/></p>
<p>CR 2 <u>Clarification Request No. 2:</u> Details regarding investment barriers should be provided. What are the conditions to receive funding from the Sugar Development Fund? In which way is CDM necessary to overcome these barriers?</p>	<p>B.2.7.</p>	<p>On 8th May 2002, an amendment to the Sugar Development Fund Act, 1982, was passed wherein a clause was inserted for making loans available to sugar industry implementing bagasse based co-generation power projects.</p> <p>The decision to implement the CDM project activity was taken in January 2003, till then the modalities and procedures for getting funding from SDF was not very clear and</p>	<p><input checked="" type="checkbox"/></p>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		not much disbursement had happened from this fund. Moreover, as per the annual report of Department of food and public distribution, 2004-05, loan disbursal for bagasse based cogeneration project till 30 th November, 2004 was only INR 238.5 millions representing only 0.88% of the total amount disbursed by the fund. This implies that either the sugar industry is reluctant to go ahead with the implementation of bagasse based co-generation power project or funding is not easily available from SDF. Still TEIL took a significant risk in going ahead with the implementation of the project activity.	
<p>CR 3</p> <p>A CDM team has been formed, which will be responsible for monitoring of all relevant data.</p> <p><u>Clarification Request No. 3:</u></p> <p>However the authority and overall responsibility of project management and its linkage to the existing company needs to be clearly defined.</p>	D.6.1.	An internal document “TEIL GHG Performance Monitoring, Measurement and Reporting of data”, defines the authority and overall responsibility for the project. Management structure has been included.	<input checked="" type="checkbox"/> In addition in response to the recent clarification of the EB (EB-23; paragraph 24) information on accuracy and uncertainty level of instruments have been included in table D 2.1.1 and D.2.1.3 for relevant equipments.
<p>CR 4</p> <p>Monitoring all datas relating to electricity generation as well as record keeping is the responsibility of the CDM team composed by trained and authorized staff.</p>	D.6.2.	The internal document “TEIL GHG Performance Monitoring, Measurement and Reporting of data”, defines the procedures including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of	<input checked="" type="checkbox"/>



Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>However the respective procedures are only partly defined.</p> <p><u>Clarification Request No. 4:</u></p> <p>Procedures for Monitoring & Measurements including role and responsibility should be specified and documented.</p>		<p>monitoring equipment and installations etc. for the project.</p>	
<p>CR 5</p> <p>Procedures for calibration of monitoring equipment for the power exported and imported has been defined within the PPA signed with UPPCL.</p> <p>In addition these procedures shall also be defined/documentated for other monitoring parameters and systematically integrated into management procedures.</p> <p><u>Clarification Request No. 5:</u></p> <p>Respective procedures including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of monitoring equipment and installations etc. needs to be submitted to DOE.</p>	<p>D.6.5.</p>	<p>The internal document "TEIL GHG Performance Monitoring, Measurement and Reporting of data", defines the procedures. including the documentation of responsibilities for data measurements, frequency of calibration, maintenance of monitoring equipment and installations etc. for the project.</p>	<p><input checked="" type="checkbox"/></p>
<p>CR 6</p> <p>No procedures have been defined.</p>	<p>D.6.11.</p>	<p>The internal document "TEIL GHG Performance Monitoring, Measurement and Reporting of data", defines the procedures.</p>	<p><input checked="" type="checkbox"/></p>




Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<u>Clarification Request No. 6:</u> Respective procedures covering internal audits, performance reviews and corrective actions should be defined and submitted to the audit team.			
CR 7 <u>Clarification Request No. 7:</u> According to the detailed project report of January 2003 (Reference List No. 7) the estimations of annual net electricity exports amount to 92,96 MU. The PDD estimates 94,94 MU/a. Please clarify.	E.3.1.	Figures of generation for cogeneration unit are taken from generation report of TEIL and emission reduction calculations are revised accordingly. The estimates have been adapted according to the detailed project report which represents the more conservative values.	<input checked="" type="checkbox"/>

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Annex 2: Information Reference List

Final Report 2006-08-23	Validation of the “Deoband Bagasse Based Co-generaation Power project” by Triveni Engineering & Industries Limited Information Reference List	Page 1 of 2	 Industrie Service
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Reference No.	Document or Type of Information
1	On-site interviews at the offices and at the sites of Triveni Engineering & Industries Limited were conducted on 14 th , 15 th October & 8 th November 2005 by auditing team of TÜV South Asia Validation team on-site: Sunil Kathuria TÜV South Asia (TUV Sud Group) Prabhat Kumar TUV South Asia (TUV Sud Group) Interviewed persons: Mr. Sameer Sinha Triveni Engineering & Industries Limited, Vice president –Corporate Planning Mr. B.V R Reddy Triveni Engineering & Industries Limited, Assistant General Manager Mr. G Ravichander Triveni Engineering & Industries Limited, Deputy Chief Engineer Mechanical Mr.V.V.TrinadhRao Triveni Engineering & Industries Limited, Deputy Chief Engineer Electrical Mr. S.Mukharjee Triveni Engineering & Industries Limited, Deputy Chief Engineer Instrumentation
2	Draft Project Design Document Version 01 issued by Triveni Engineering & Industries Limited dated 04/10/2005, submitted November 2005
3	UNFCCC homepage, http://www.unfccc.int
4	ACM0006, version 03 issued by CDM-Executive Board Dated 19.05.2006
5	Host Country approval issued by Ministry Of Environment & Forest dated 28 th October 2005, submitted November 2005
6	Power Purchase Agreement between Triveni Engineering & Industries Limited & UP power Corporation Limited Dated 29.10.2003, submitted November 2005
7	Excerpts from Detailed project Report issued by Avant Grade Engineers & Consultants (P) Limited January 2003, submitted November 2005
8	Purchase order for 22MW Turbine Generator Set issued by Triveni Engineering & Industries Limited, dated 10.02.2004, submitted November 2005
9	Purchase order for Boiler Spares issued by Triveni Engineering & Industries Limited dated 06.05.2004, submitted November 2005
10	Engagement letter of CDM Consultant issued by Triveni Engineering & Industries Limited dated 22.01.2003, submitted November 2005
11	Power Generation report for the period December 2004-May 2005, issued by Triveni Engineering & Industries Limited, dated May 2005, submitted November 2005
12	No Objection Certificate for erection of Chimney issued by Airport Authority Of India Dated 15.04.2004 , submitted November 2005

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Reference No.	Document or Type of Information
13	Consent to establish issued by Utter Pradesh State Pollution Control Board dated 27.11.2003, submitted November 2005
14	Test report of the waste water issued by Sriram Institute for Industrial research dated 13.04.2005, submitted November 2005
15	Test report of the Ash Sample issued by AES Testing & Research laboratory dated 09.03.2005, submitted November 2005
16	Organisation Chart for the Cogeneration Unit issued by Triveni Engineering & Industries Limited dated 1 st October 2005 , submitted November 2005
17	Stake Holder Comment issued by Waqf Darul Uloom Deoband, UP Dated 12.06.2003 submitted November 2005
18	Stake Holder Comment issued by State Minister Uttar Pradesh Dated 14.06.2003 submitted November 2005
19	Stake Holder Comment issued by Nagar Congress Committee Deoband , Dated 12.06.2003 submitted November 2005
20	Stake Holder Comment issued by Muslim Fund Trust Deoband ,Dated 14.06.2003 submitted November 2005
21	Stake Holder Comment issued by Madani Technical Institute , Deoband, Dated 12.06.2003 submitted November 2005
22	Stake Holder Comment issued by Gram Panchyat Rankhandi Deoband ,Dated 17.06.2003 submitted November 2005
23	Stake Holder Comment issued by Gram Panchyat Noorpur Deoband ,Dated 12.06.2003 submitted November 2005
24	Stake Holder Comment issued by Sukhbeer Singh Pundeer EX-MLA Deoband ,Dated 12.06.2003 submitted November 2005
25	Stake Holder Comment issued by Darul Uloom Deoband, UP Dated 12.06.2003 submitted November 2005
26	Stake Holder Comment issued by Ram Shankar Yadav Dated 12.06.2003 submitted November 2005
27	Copy of the First Monthly purchased Bill for the period 06.12.2004-31.12.2004 jointly issued by Triveni Engineering & Industries Limited & Executive Engineer-Transmission UPPCL Dated 10.01.2005
28	Permission to operate Boiler issued by Deputy Director of Boiler Uttar Pradesh Dated 28.09.2005 Submitted November 2005
29	Sample of Daily Power report issued by Triveni Engineering & Industries Limited Dated 11.11.2005, Submitted November 2005
30	Meter Calibration report issued by Secure Meters Private Limited Dated 11.11.2005 Submitted November 2005
31	Information on Credit Facility issued by Indian overseas bank dated 08.05.2003 Submitted November 2005
32	Information on the project loan issued by ICICI Bank dated 04.08.2003, Submitted November 2005
33	Approval of Loan under Sugar Development fund issued by Ministry of Consumer Affairs, Food & Public Distribution Government of India dated 25.02.2004
34	Triveni Engg. & Indus. Ltd, Sugar Unit Deoband, Electrical data of existing equipment for 2002-2005, submitted 06.07.2006
35	Final Project Design Document Version 04 issued by Triveni Engineering & Industries Limited dated 1st August 2006
36	Confirmation on boiler inspection of boilers No 6-9 by Thermo Fab engineers and Saifi Hind Manufacturing Works of 21.04.2006