



Industrie Service

Choose certainty.
Add value.

Validation Report

LH Sugar Factories Ltd

**VALIDATION OF THE CDM-PROJECT:
LHSF RE PROJECT**

REPORT NO. 1030119

17 May 2011

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
1030119	04-12-2009	08	17-05-2011	-

Subject: Validation of a CDM Project		
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body “climate and energy” Westendstr. 199 80686 Munich Germany		TÜV SÜD Contract Partner: TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 80686 Munich Germany
Project Participants: <div>1. LH Sugar Factories Ltd., Civil Lines, Pilibhit, Uttar Pradesh- 262001, India</div> <div>2. Agrinergy Ltd, Eagle Tower, Cheltenham, Montpellier Drive, GL50 1TA, UK</div>		Project Site(s): District Pilibhit, Uttar Pradesh, India GPS coordinates +28.618° Latitude +79.819 ° Longitudes
Project Title: LHSF RE Project		
Applied Methodology / Version: ACM0006/ Version 10.1		Scope(s): 1 Technical Area(s): 1.2
First PDD Version: <div>Date of issuance: 02-06-2007</div> <div>Version No.: 01</div> <div>Starting Date of GSP: 21-07-2007</div> <div>Starting Date of Repeat-GSP: 27-04-2008</div>		Final PDD version: <div>Date of issuance: 12-01-2011</div> <div>Version No.: 16</div>
Estimated Annual Emission Reduction:		72 992 tCO ₂ e
Assessment Team Leader: Nikunj Agarwal Assessment Team Members: Praveen Pyata Eswar Murty Sunil Kathuria Grugni, Luciano		Technical Reviewer: Thomas Kleiser Certification Body responsible: Thomas Kleiser

Summary of the Validation Opinion:

- ☒ 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 all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.
- ☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.

Abbreviations

ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	GreenHouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
LHSF	LH Sugar Factories Limited
MP	Monitoring Plan
NGO	Non Governmental Organisation



OM	Operational Margin
PDD	Project Design Document
PPA	Power Purchase Agreement
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
UPPCL	Uttar Pradesh Power Corporation Limited
VVM	Validation and Verification Manual

Table of Contents	Page
1 INTRODUCTION	6
1.1 Objective	6
1.2 Scope	6
2 METHODOLOGY	7
2.1 Appointment of the Assessment Team	8
2.2 Review of Documents	9
2.3 Follow-up Interviews.....	9
2.4 Further cross-check.....	9
2.5 Resolution of Clarification and Corrective Action Requests	10
2.6 Internal Quality Control.....	10
3 SUMMARY	11
3.1 Approval	11
3.2 Participation.....	11
3.3 Project design document.....	11
3.4 Project description	12
3.5 Baseline and monitoring methodology	13
3.6 Additionality	18
3.7 Monitoring plan.....	24
3.8 Sustainable development	25
3.9 Local stakeholder consultation	25
3.10 Environmental impacts	25
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	26
5 VALIDATION OPINION	27

Annex 1: Validation Protocol

Annex 2: Information Reference List

Annex 3: Appointment Certificates

1 INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed project activity rests at the CDM-EB and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title:

LHSF RE Project

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Decisions and specific guidance by the EB published under <http://cdm.unfccc.int>
- Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Baselines and monitoring methodologies (including GHG inventories)
- Management systems and auditing methods
- Environmental issues relevant to the sectoral scope applied for
- Applicable environmental and social impacts and aspects of CDM project activity
- Sector specific technologies and their applications
- Current technical and operational knowledge of the specific sectoral scope and information on best practice

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

Once TÜV SÜD receives a first PDD version, it is made publicly available at the UNFCCC webpage and at TÜV SÜD's webpage for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP could be repeated) and the final PDD will form the basis for the final evaluation as presented in this report. Information on the first and the final PDD version is presented on page 2.

The purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD cannot be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

2 METHODOLOGY

The project assessment applies standard auditing techniques to assess the correctness of the information provided by the project participants. The assessment is based on the “Clean Development Mechanism Validation and Verification Manual” version 01.2. The work starts with appointment of team covering the technical scope(s), sectoral scope(s) and relevant host country experience for evaluating the CDM project activity. Once the project is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified and finally preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB “climate and energy” before submission to the CDM-EB.

In order to ensure transparency, assumptions are clear and explicitly stated; the background material is clearly referenced. TÜV SÜD developed a methodology-specific protocol customised for the project. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team 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, as well as the results of the validation and any adjustments, if any, made to the project design.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below.

Validation Protocol Table 1: Conformity of Project activity and PDD				
Checklist Topic / Question	Reference	Comments	PDD in GSP	Final PDD
<i>The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further sub-divided. The lowest level constitutes a checklist question / criterion.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column</i>	<i>Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (☑), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification. Forward action request to highlight issues related to project implementation that require review during the first verification.</i>	<i>Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.</i>

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests	Ref. to table 1	Summary of project owner response	Validation team conclusion
<i>If the conclusions from table 1 are either a Corrective Action, a Clarification or a Forward action Request, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 1 where the issue is explained.</i>	<i>The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the discussion on and revision to project documentation together with the validation team's responses and final conclusions. The conclusions should be reflected in Table 1, under "Final PDD".</i>

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	Id. of CAR/CR	Explanation of the Conclusion for Denial
<i>If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.</i>	<i>Identifier of the Request.</i>	<i>This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion with a clear reference to the requirement which is not complied with.</i>

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

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body (CB) ensuring that the required skills are covered by the team. The CB TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Validator (GHG-V)
- Greenhouse Gas Validator Trainee (T)
- Experts (E)

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect	Host country experience
Nikunj Agrawal	ATL	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Praveen Pyata	VAL	-	-		<input checked="" type="checkbox"/>
Eswar Murty	VAL	<input checked="" type="checkbox"/>	-		<input checked="" type="checkbox"/>

Sunil Kathuria ¹	-	-	-		<input checked="" type="checkbox"/>
Grugni, Luciano	VAL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-	-

Technical Reviewer: Thomas Kleiser

2.2 Review of Documents

A first version of the PDD was submitted to the DOE in June 2007. The first PDD version submitted by the PP and additional background documents related to the project design and baseline were reviewed to verify the correctness, credibility and interpretation of the presented information, furthermore a cross check between information provided and information from other sources have been done as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

After 09.04.2008, ACM 0006 methodology version 5 applicable to first version of the PDD expired hence, a repeat GSP was conducted with ACM 0006 version 6.2. PDD Version 02 dated 25.04.2008 was submitted for repeat GSP. Expiry of version 6 of the methodology occurred on 26.10.2009 therefore the final PDD has been revised to adopt the contemporary version of ACM 0006 i.e version 10.1.

2.3 Follow-up Interviews

On 30th & 31st July 2007 TÜV SÜD performed interviews and physical site inspection with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in this context.

Name	Organisation
B. P.Dixit (Mr)	L. H. Sugar Factories Ltd.
A. K.Singh (Mr)	L. H. Sugar Factories Ltd.
Rajeev Kumar Agarwal (Mr)	L. H. Sugar Factories Ltd.
Navin Kumar (Mr)	L. H. Sugar Factories Ltd.
Mr. Robert Taylor	Agrinergy Ltd
Santosh Kumar Singh (Mr)	Agrinergy Ltd
Rakshya Thapa (Ms)	Agrinergy Ltd

2.4 Further cross-check

During the validation process, the team makes reference to available information related to similar projects or technologies as the CDM project activity. The documentation has also been reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

¹ no more with TUV SUD now; but covering scope and TA as auditor in former times

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD's conclusion on the project design. The CARs and CRs raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in the validation protocol in annex 1.

The final PDD version 16 that was submitted in January 2011 serves as the basis for the final assessment presented herewith. Changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM. These are an achievement of reduction of anthropogenic GHG emissions and to contribute to a sustainable development.

2.6 Internal Quality Control

As final step of a validation the final documentation, which includes the validation report and the protocol has to undergo an internal quality control by the CB "climate and energy". That means that each report has to be approved either by the Head of the CB or the deputy. In projects where either the Head of the CB or his/her Deputy is part of the assessment team approval can only be given by the either one not serving on the project.

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2.

3.1 Approval

The project participants are LH Sugar Factories Ltd. of India and Agrinergy Ltd. of United Kingdom of Great Britain. The host Party India and further participant Parties United Kingdom of Great Britain meet the requirements to participate in the CDM.

The DNA of the United Kingdom has issued a LoA (IRL37) on 25 April 2008 authorizing Agrinergy Ltd. as a project participant. The DNA of India has also issued a LoA (IRL37) on 17 March 2008 authorizing LH Sugar Factories Ltd. as a project participant. TÜV SÜD received these letters from the project participants directly and considers the provided letters as authentic.

The Indian LoA has further been double-checked with the CDM project webpage sponsored by the Ministry of Environment and Forests, MoEF (<http://cdmindia.nic.in/>), which further confirms the approval of this CDM project.

Furthermore, after checking the provided LoAs, TÜV SÜD confirms that both letters refer to the precise proposed CDM project activity title in line with the title in the PDD “LHSF RE Project”.

Both letters also indicate that each participating Party is a Party to the Kyoto Protocol, and that the participation in the project LHSF RE Project is voluntary. The Indian LoA also confirms that the proposed CDM project activity contributes to the sustainable development of India (host country). Based on the information given in these letters, TÜV SÜD considers the approval as unconditional with respect to these items.

Both LoAs have been issued by the respective Party's DNA, National CDM Authority of Ministry of Environment and Forests (MoEF), India and Department of Energy and Climate Change, International Climate Change Division, DEFRA, UK, respectively.

TÜV SÜD considers the requirements of the VVM (§§ 45-48) to be complied with.

The LoA does not refer to a specific version of the PDD or validation report.

3.2 Participation

The participants of the project activity have been approved by the corresponding Parties, which is confirmed by the issued LoAs.

The means of validation were equivalent to those described in section 3.1 in regard to the approval process of the project activity.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC.

The most recent version of the PDD form was used.

TÜV SÜD considers that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information has provided by the participants in the applying PDD sections. Completeness was assessed through the checklist included to Annex 1 of this report.

3.4 Project description

The following description of the project as per PDD could be verified during the on-site audit:

LH Sugar Factories Ltd. (LHSF) will implement the project by installing a new power and heat plant, next to an existing power and heat plant at their sugar factory located in Pilibhit, Uttar Pradesh, India. As a result of the proposed CDM project there will be increased power generation at the site because the efficiency of electricity generation is higher in the new power plant than in the existing plant. The increased power generation upto 21.78 MW during season and 24.08 MW during off-season (IRL66) will be exported to the UPPCL grid at Roopurkamlu substation. The differential power generation from the same turbine is attributable to its operability in full condensing mode during off-season and in extraction cum condensing mode during the season. While in pure condensing mode due less auxiliary power the same turbine can generate a higher output. The period of operation is considered to be 180 days during the season and 50 days in the offseason, during the remainder of the year the plant will be shutdown.

The existing power and heat plant

	Capacity	Operating pressure kg/cm ²	Operating temperature °C	Manufacturer	Type
Boilers	45 TPH	45	440	WIL	Bagasse fired
	45 TPH	21	340	Thermax	Bagasse fired
	20 TPH	21	340	Lipi	Bagasse fired
	80 TPH*	67	485	Walchandnagar Ind.	Bagasse fired
Turbines	3 MW	45	440	Triveni	Back pressure
	2.5 MW	21	325	APE Bellis	Back pressure
	1.5 MW	21	325	BHEL	Back pressure
	12 MW*	65	510	Triveni	Back pressure

* this is part of already registered small scale CDM project, reference number 0334

New power and heat plant that will be implemented as part of the project activity

	Capacity	Operating pressure kg/cm ²	Operating temperature °C	Manufacturer	Type
Boiler	120 TPH	67	510	Sitson	Bagasse fired, water tube
Turbine	26.75 MW	65	510	Triveni	Extraction-condensing.

Further more subsequent to the implementation of the project activity the pre-project equipment (part of existing plant) comprising of low pressure (21kg/cm²) configuration will not continue to operate.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity as confirmed by:

- Review of data and information (see annex 2). This was verified with other sources.
- An on-site visit has been performed and relevant stakeholder and personnel with knowledge of the project were interviewed.

- Finally information related to similar projects or technologies as the CDM project activity have been used to confirm the accuracy and completeness of the project description.

In conclusion, TÜV SÜD confirms that the project description, as included to the PDD is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology ACM0006, Version 10.1 has been demonstrated.

The PDD also meets the requirement of the applied methodology by referring to the latest approved versions of:

- ACM0002 – Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 12.1.
- Combined tool to identify the baseline scenario and demonstrate additionality, version 2.2.²
- Tool to calculate the emission factor for an electricity system, version 2.

The assessment was carried out for each applicability criteria and included among others the compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources which sustain that applicability conditions are complied with.

The Methodology specific protocol included to the Annex 1 documents the assessment process, including the steps taken. The results on the compliance check as well as the relevant evidence are explicitly presented in annex 1.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction have not been identified.

3.5.2 Project boundary

The project boundary was assessed in the context of physical site inspection, interviews and based on the secondary evidence received on the design of the project.

The spatial extent of the project boundary consists of the power plant at the project site and all other power plants connected physically to the electricity system that the CDM project power plant is con-

² As one of the alternative baseline scenarios of the project is P4: Generation of power to the grid, the approach of the PP to determine baseline and additionality using the 'Combined tool to identify the baseline scenario and demonstrate additionality' can be considered appropriate and same was also acceptable to the EB in another registered project i.e. "20 MW biomass based power project in Maharashtra, India" (3083).

nected to. The boundary was assessed to be excluding the sugar factory since the sugar factory does not require additional electricity or heat due to implementation of the project activity. This is also evident from the steam generation being retired - which is 65 TPH whilst the maximum extraction of steam from the new power plant is 70 TPH. There is also an existing electricity generation facility at the site already registered as a CDM project-0334 which exports 6MW of electricity (about 30% of total electricity generation of the pre-project set up).

Further the spatial extent of the project electricity system, including issues related to the calculation of the build margin (BM) and operating margin (OM), is as defined in the "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002). Therefore the project activity is appropriately identified under the Northern regional grid i.e North East West North Eastern (NEWNE) grid system of India.

The most relevant documentation assessed in order to confirm the project boundary are following:

- Contract for erection/ commissioning of 120 TPH boiler, dated 24th April 2006 (IRL 9)
- Purchase order for 120 TPH boiler, dated 24th April 2006 (IRL 15)
- Purchase Order for 26.75 MW turbine, dated 31st May 2006 (IRL 7)
- No objection certificate from Uttar Pradesh Pollution Control Board, dated 01st September 2006 (IRL 31)
- Power Purchase Agreement, dated 09th February 2007 (IRL 25)
- Baseline Carbon Dioxide Emission Database Version 4.0-
<http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>

The same have been validated during the validation process using standard audit techniques, further details of any observation are transparently presented in the annex 1.

Therefore, TÜV SÜD confirms that the identified boundary and the selected sources and gases as documented in the PDD are justified for the project activity.

3.5.3 Baseline identification

In the PDD the following baseline scenario has been defined:

Baseline scenario:

Power: P2 and P4
Biomass: B4
Heat: H5

Scenario: 11

Description of the situation

The project activity involves the installation of a new biomass residue fired power and heat plant, which is operated next to an existing biomass residue fired power and heat plant. The existing plant only fired with biomass residues. After the implementation of the project activity, the existing plant could continue to be operated (i.e. the plant(s) are fully operational and have a remaining technical

lifetime but is retired due to the installation of the new biomass residue fired plant. The efficiency of electricity generation is higher in the new plant than in the existing plant. The biomass residues would in the absence of the project activity be used in the existing plant at the project site. Consequently, the power generated by the new plant would in the absence of the project activity be generated (a) in the existing plant and – since power generation is more efficient in the project plant than in the existing plant – (b) partly in power plants in the grid. The heat generated by the project plant would in the absence of the project activity be generated in the existing power and heat plant.

The information presented in the PDD has been validated by a first document review of all the data. Further confirmation based on the on-site visit and a final step by cross checking the information with similar relevant projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was verified against credible sources, such as:

1. Power Purchase Agreement, dated 09th February 2007 (IRL 25).
2. Application made to UPPCB to permit increase in export capacity from 12 MW to 40 MW, dated 24th July 2006 (IRL 26)
3. Increase of generating capacity, permit of office of district sugar cane officer, Pilibit, dated 20th March 2007 (IRL 33)
4. Increase of generating capacity, permit of president district panchayat, 01st June 2007 (IRL 34)
5. Statement on surplus power generation at LHSF after its first CDM project (Ref. No. 0334) implementation (IRL 21)
6. Statement on cogeneration capability at LHSF after proposed project implementation (IRL 18)
7. Data on power generation from existing power turbines for period 2004-05 (IRL 23)
8. Manufacturers document supporting the efficiency of existing low pressure boilers (IRL 41)
9. Manufacturers document supporting the efficiency of existing high pressure boiler (IRL 42)
10. Manufacturers document supporting the lifetime of existing turbines (IRL 43)
11. Indian Boiler Regulations-1950- IBR:391A regarding lifetime of boilers (IRL 40)
12. News article of L.H. Sugar Mill increasing electricity generation capacity, dated 07th February 2007 (IRL 32)

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions on calculations TÜV SÜD considers that the identified baseline scenario is reasonable.

Taking the definition of the baseline scenario into account, TÜV SÜD confirms that all relevant CDM requirements, including relevant and / or sectoral policies and circumstances, have been identified correctly.

A verifiable description of the baseline scenario has been included to the PDD.

In regard to item 87 of VVM, TÜV SÜD confirms that:

1. All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
2. All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;

3. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
4. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
5. The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

Furthermore since the project uses biomass residues from a production process i.e. production of sugar, the implementation of the project does not result in an increase of the processing capacity of raw sugar cane input or even other substantial changes in process and product. It could be confirmed based on R-T-8(c)³ (IRL36) that the cane crushed/ sugar produced before and after power plant commissioning, i.e. May 2008 (IRL79), were respectively 1.437 million tons/0.138 million tons and 1.057 million tons/0.107 million tons.

3.5.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions and leakage and emission reductions. Corresponding calculations were carried out based on calculation spreadsheets. The parameters and equations presented in the PDD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology and respective tools. The equation comparison has been made explicitly following all the formulae presented in the calculation files.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked and confirmed.

Based on the information reviewed it can be confirmed that the sources used are correctly quoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation reviewed, further references and the result of the interviews.

The baseline methodology has been correctly applied following the requirements.

The estimated baseline emissions can be confirmed as the same have been replicated by the audit team using the information provided.

Detailed information on the verification of the parameters used in the equations can be found in Annex 1. The algorithms for the determination of the baseline emission are discussed in the following sections.

3.5.4.1 Baseline Emissions

The calculation of the baseline emissions followed the procedures described in the methodology ACM0006/Version 10.1/ ACM0002 Version 12.1.

Therefore baseline emissions are correctly calculated by multiplying the net quantity of increased electricity generated with biomass residues as a result of the project activity (EG_y) with the CO₂ baseline emission factor for the electricity displaced due to the project ($EF_{electricity,y}$).

³ RT8C means annual final manufacturing report in official format submitted to Government of India as a mandate by every sugar factory located in India.

The net quantity of increased electricity generated with biomass residues as a result of the project activity (EG_y) is calculated as per formula 15a of ACM0006/Version 10.1, as applicable for scenario 11.

The power generation capacity of the project plant is 26.75 MW i.e more than 15 MW, therefore $EF_{grid,y}$ is appropriately calculated as a combined margin (CM), following the guidance in the section "Baselines" in the "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002).

Therefore as per ACM0002 since the project activity is installation of a new grid-connected renewable power plant, the baseline scenario applicable is correctly identified as follows: Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

For this purpose it has been validated by audit team that the project participant applied all the 6 steps as part of the baseline methodology procedure of the tool as follows.

1. The **step 1** requires project proponent to identify the relevant electric power system. Therefore project proponent identified the division of Indian power system into two grids, namely the Southern regional grid and Northern regional grid (NEWNE). Each grid covers several states. Subsequently it is identified that the NEWNE grid covers the state of Uttar Pradesh, where the project activity is located. Based on the fact that the transfers between the regions in India are significantly small and that the electricity is mostly produced and consumed within a given state, it is deemed appropriate to assume that the impacts of the project activity are mostly confined to the regional grid in which it is placed. Hence for the purpose of estimation of the baseline emission factor, the NEWNE grid has been chosen as the relevant electricity system and is acceptable.
2. The **step 2** requires the project proponent to select an operating margin (OM) method. Therefore the Simple OM method for the estimation of the baseline has been chosen which is deemed appropriate.
3. The **step 3** requires the project proponent to describe and calculate the operating margin emission factor according to the selected method i.e Simple OM. Therefore simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units. Subsequently choosing Option A, the simple OM emission factor is determined as per formula 1 of tool as **OM = 1.00**.
4. The **step 4** as part of the tool requires the project proponent to identify cohort of power units to be included in the build margin. Therefore the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently has been adopted. In terms of vintage of data, project participants went ahead to choose the option 1. This option does not entitle the project proponent to monitor the emission factor during the crediting period.
5. The **step 5** requires the project proponent to calculate the build margin emission factor. Therefore it is calculated using the formula 12 of tool as **BM = 0.60**.
6. The **step 6** requires the project proponent to calculate the combined margin emissions factor. Therefore it is calculated using the formula 13 of tool as **$EF_{grid,CM,y} = EF_{electricity,y} = 0.80 tCO_2/MWh$** .

The DOE also verified the calculation and the correctness of $EF_{grid,CM,y} = EF_{electricity,y} = 0.8 \text{ tCO}_2/\text{MWh}$ can therefore be confirmed after a cross check with the Central Electricity Authority's (CEA)⁴ published data at its web site given below:

<http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>.

3.5.5 Project emissions

As per the methodology and the characteristics of the project, project emissions need not to be considered. As a result, the annual emission reductions equal the annual baseline emissions.

3.5.6 Leakage

As per the methodology and the characteristics of the project, leakage emissions need not to be considered. As a result, the annual emission reductions equal the annual baseline emissions.

3.5.7 Emission Reductions

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked and confirmed.

Based on the information reviewed it can be confirmed that the sources used are correctly quoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation reviewed, further references and the result of the interviews.

The baseline methodology has been correctly applied following the requirements.

The estimation of the baseline emissions can be confirmed as the same have been replicated by the audit team using the information provided.

Detailed information on the verification of the parameters used in the equations can be found in the annex 1.

In summary, the calculation of the baseline emissions and the emission reductions, respectively, can be considered as correct.

3.6 Additionality

The additionality of the project has been presented in the PDD using following approach:

Combined tool to identify the baseline scenario and demonstrate additionality, Version 2.2, has been used. Only step 3 Investment analysis has been used. Information and data related to investment analysis have been discussed in details in chapter 3.6.3.

3.6.1 Prior consideration of the clean development mechanism

The starting date of the project activity is determined by the day on which the purchase order for the 120 TPH boiler was placed. In order to confirm the same the assessment team has reviewed following documents:

- Purchase order, dated 24.04.06 (IRL 15)

⁴ CEA is owned by Ministry of Power, Government of India. CEA regularly undertakes the study relating to the baseline data for the Power sector in India with a view to obtaining uniformity of approach in the country towards a common objective.

- Copy of the ledger balance for Sitson as evidence of the payments (IRL 73)

Additionally the assessment team cross checked this information during interaction with personnel of L. H. Sugar Factories Ltd. at Pilibhit.

The starting date of the project activity determined to be the date of purchase order for the boiler (24/04/2006) is the first real action with financial commitment. The same is before 02 August 2008 (EB49, Annex22) and also before the GSP (21/07/2007). The PPs have presented to the assessment team following documentation in order to evidence CDM consideration:

- Board Resolution dated 10 January 2006 (IRL64)

During the Board of Directors meeting on 10th January 2006, it was decided to add 120 TPH boiler and 26.75 MW turbine to the existing biomass based export facility at LHSF. Identifying financial barrier to be crucial, the Board on the same day also considered applying for CDM benefits while implementing the cogeneration project, which could eventually enable sale of 20-22 MW⁵ power to the regional grid. The original documentation presented has been reviewed and cross checked based on interviews. The document can be considered appropriate to confirm the prior consideration. Additionally in order to confirm that the PPs have taken real actions to continuing the activity as CDM, following timeline has been reviewed against the respective documents presented in the table below:

Activity/ Event	Year	Document	Auditor Conclusion
PDD of "LHSF Bagasse Project" submitted to DoE for validation	September 2005	Link 1 below*	This action relates to another CDM project initiated prior to the current one by LH Sugar Factories Ltd. This indicates prior awareness of CDM by the PP and hence could be accepted.
CDM Consideration decision by the Board of Directors to undertake the current project as a CDM project activity.	10 January 2006	IRL64	The letter evidences the PP's intention for implementing the project as CDM project in order to overcome barriers. The provided document is authentic and credible.
Registration of "LHSF Bagasse Project (334)" as a CDM project by PP indicating the awareness of CDM prior to the start date.	05 th May 2006	Link 2 below**	This action relates to another CDM project initiated prior to the current one by LH Sugar Factories Ltd. This also indicates prior awareness of CDM by the PP and hence could be accepted.
Invitation from LHSF to CDM	11 th May 2006	IRL46	The letter evidences PP's se-

⁵ Although the Board has initially approved export of 20-22 MW power to grid later there was a change based on actual quotations received from suppliers. It was noted that one supplier could supply a turbine with higher out put of 26.75 MW at the same boiler and steam configuration. Therefore finally it was decided to purchase 26.75 MW turbine from Triveni Engineering and Industries Ltd. that actually enabled export of 21.78 MW- during season and 24.08 MW during the off-season.

consultant to provide proposal on 2 nd CDM project i.e the current one			riousness to apply for CDM and hence is a real action. The provided document is authentic and credible.
Agreement of terms on CDM development	22 nd Nov 2006	IRL58	The agreement evidences PP's seriousness in approach to apply for CDM and hence is a real action. The provided document is authentic and credible.
Site visit conducted by consultant and PDD preparation	Jan - Mar 2007	IRL58	Site visit conducted as per the agreement indicates PP's seriousness in approach to apply for CDM and hence is a real action.
DOEs invited to quote for validation	2 nd May 2007	IRL59	-
Signing of term sheet for sale of CERs	05 th July 2007	IRL56	The term sheet for CER sales shows PP's need to achieve financial support for project through CDM and hence is a real action. The provided document is authentic and credible.
First GSP period	21 st July to 19 th August, 2007	IRL2	-
Repeat GSP period	April 27 to May 26, 2008	IRL2	-

* Link 1: <http://cdm.unfccc.int/UserManagement/FileStorage/QMB4ZWUBJ9TSP2LJXH7QAP7H08S3IA>

** Link 2: <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1142621143.43>

It was confirmed from on site audit and also in later document reviews that no fuel other than bagasse will be used in the project activity. During the three financial years between 2003 and 2006 the only biomass fuel (bagasse) consumed in the power and heat plant was found to be 155,476; 194,388 and 283,948 Tons respectively. Similarly based the annual net electricity generation during these three years which was 15,722; 20,299 and 37,205 respectively, the 3 year historic average net generation of existing power and heat plant was calculated to be 24,408.63 MWh. The same approach is considered appropriate for the project situation.

The documentation submitted as evidence justifies these events and demonstrates that the project proponent considered CDM since the inception of the project and continuing and real actions were in place to secure CDM status for the project in parallel with its implementation.

This confirms that the project complies with the requirements to demonstrate the prior consideration of the CDM.

3.6.2 Identifications of alternatives

The only output of the project is exportable power up to 83,934 MWh.

The list of alternatives to supply the outputs mentioned above, which is presented in the PDD includes the project activity undertaken without being registered as CDM project. The rest of the alternatives presented do include all plausible scenarios taking into account the local and sectoral situations for the outputs mentioned. Hence the list of alternatives is considered to be complete.

3.6.3 Investment analysis

The PP uses the investment analysis to demonstrate the additionality.

The financial returns of the proposed project are insufficient to justify the investment.

The parameters used in the financial calculations have been validated based on a review of the sources presented in the PDD; the same were confirmed during on-site audit. It can be seen that the parameters are plausible and can be considered acceptable under the project situation.

The following is presented as part of **Step 3: Investment analysis**

The benchmark project IRR computed to be 14.3% has been chosen as the benchmark financial indicator. This in turn is taken as a combination of commercial lending rates (i.e 10.25% lowest for January 2006, which is obtained from Reserve Bank of India, IRL 78) and guarantees for India (i.e 4.05% for January 2006, which is derived from country risk premiums published⁶ (IRL 67) by A. Damodaran, Stern School of Business at New York University). It can be confirmed that the parameters used for benchmark are standard for the Indian market, considering the specific characteristics of the project type, and are not linked to the subjective profitability expectation or risk profile of the project proponent. Furthermore the discount rate and benchmark are derived from commercial lending rates and guarantees specific for the country; hence the financial indicator chosen is deemed to be the most suitable and conservative for the project type and decision context.

Though a company internal benchmark would be more suitable since the project activity can only be implemented by the project participant the same would not be realistic due to the following reasons:

1. Data on the main stock market indices- the unrealistic cost of debt and equity due to hike in Indian stock markets during 2005-2006 (IRL68)
2. Project owner is not a listed company in India and hence application of sectoral betas and returns would not be appropriate (IRL69)

The project IRR without and with CDM revenues is arrived at 12.47% and 17.45% respectively.

The key input values for project IRR were verified/cross-checked for the appropriateness as follows:

Key input value	Source verified	Crosscheck	Audit teams
-----------------	-----------------	------------	-------------

⁶ Widely used by CDM projects in India and also a credible source, recognized amongst investors and bankers. With reference to paragraph 112 b (VVM, v1.2) the risk premium used is a country risk premium as values for specific project types are not available, this approach should be appropriate for this project.

			opinion
Investment cost	Equipment purchase orders (IRL7, 8, 9, 11, 12, 14, 15)	Copy of the ledger balance for Sitson and Triveni (IRL73)	Considered appropriate
Quantity of electricity exported	Billable electricity- PPA (IRL25) and Historical data on grid connection cut off's and plant stoppages (IRL70)	Equipment purchase orders (IRL7, 15, 66)	Considered appropriate
O & M costs	Assessment by an independent sector expert (IRL62)	NA	Considered appropriate
Tariff ⁷	PPA (IRL25)	Tariff order issued by UPERC (IRL71)	Considered appropriate
Interest rate on working capital	Prevailing rate of interest of ICICI bank (IRL51)	Prevailing rate of interest of UTI bank (IRL52)	Considered appropriate
UPEB maintenance cost	PPA (IRL25)	Tariff order issued by UPERC (IRL71)	Considered appropriate
Fuel price	Invoices of bagasse sale (IRL50)	Annual Report (IRL 54)	Considered appropriate
Plant Load Factor	Third party sector expert (IRL65)	NA*	Considered appropriate
Taxes	Income Tax Act, 1961 (IRL72)	NA*	Considered appropriate
Prevailing inflation rate	Reserve Bank of India (IRL 77)	NA*	Considered appropriate

* The cross check for the PLF in values in the above table are NA as the DOE can confirm that the value used meets the guidance for the determination of a PLF for a project activity. The cross check is NA for income tax and the inflation rate as these are referred from primary sources – the income tax was taken from the Income Tax Act and the inflation from the Reserve Bank of India. As these are the primary sources of data for both the input values, there is no need to crosscheck these, it is a matter of verifying that the correct figure from the primary source has been used which is the case.

The parameters (such as market return, beta value, equity/debt ratio, period and source of data, etc.) that would be used to determine the WACC benchmark, are not included in the above table since, WACC has not been considered as the benchmark. The benchmark chosen is detailed above and the two values used to determine the benchmark are clearly mentioned.

On site the additionality has been discussed principally with: Mr. B. P. Dixit and Mr. Robert Taylor, Agrinergy Ltd., Consultant for the proposed CDM project activity. Furthermore some documents have been reviewed on-site (for details see annex 2).

The financial calculation has been checked, all the calculation files were checked and no mistakes have been found. Hence it can be confirmed that the calculations are correct.

Sensitivity analysis: The Guidelines on assessment of investment analysis (version 3) requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the crit-

⁷ LHSF proposed (decided) the plant in 2006-07 and hence the rates in the tariff order for that year would be applicable to the project.

ical assumptions to a reasonable variation ($\pm 10\%$). The project developer has identified Tariff, biomass cost, O&M costs, administration costs and investment costs as the most critical parameters. Accordingly, sensitivity analysis has been conducted which reveals that even under more favorable conditions for all parameters except tariff increase, the IRR would not cross the benchmark value of 14.30% as given in the following table:

Parameters	Project IRR (%)	Benchmark (%)	Comment
Tariff increased by 10%	14.32%	14.30%	The project IRR crosses the benchmark by 0.02% however it is unlikely ⁸ that such a scenario will actually prevail due to the prevailing escalation rate in tariff policy as evidenced in the tariff order (IRL71).
Biomass price decreased by 10%	13.19%	14.30%	Still under benchmark
O&M costs decreased by 10%	13.13%	14.30%	Still under benchmark
Administration costs decreased by 10%	13.06%	14.30%	Still under benchmark
Investment costs decreased by 10%	14.23%	14.30%	Still under benchmark. The real investment (IRL7, 8, 9, 11, 12, 14, 15, 73) incurred is Rs. 750 million which actually is greater than the one assumed in IRR calculations i.e. Rs. 730 million. Hence this is conservative.

3.6.4 Barrier analysis

The project participants have not used barrier analysis.

3.6.5 Common practice analysis

The region for the common practice analysis has been defined as the state of Uttar Pradesh where the proposed project activity is located: The project activity's technology can be found in different country regions, where different situations can appear. Hence the region has been defined taken into account the kind of technology and the industry type. The assessment team has reviewed the approach presented in the PDD and can confirm that the relevant parameters as location, infrastructure, economical situation and development has been taken into account in order to define the region to be used for the common practice. Also the electricity tariff rate is state-specific and hence the

⁸ There is no indication in the PPA regarding the escalation in the tariff from year 6 onwards, therefore PP has maintained it constant. However, a sensitivity analysis considering $\pm 10\%$ is undertaken for this variable. The maximum increase in the tariff, where defined by the tariff order is Rs 0.05/kWh per year, amounts to merely 1.7% escalation in tariff from year 4 to year 5. Therefore maximum escalation at $\pm 10\%$ covers the possibility of future higher escalations.

tariff rate relevant to the project corresponds to that prevailing in the state of Uttar Pradesh. Hence the presented region can be considered appropriate for the common practice analysis.

The assessment team has reviewed official sources as follows:

1. List⁹ of Cane Sugar Factories with co-generation power export to grid in Uttar Pradesh state as on 30/06/2006 (IRL57)
2. CDM contracts of Upper Ganges, DSCL Loni and DSCL Hariawan co-generation projects, whose GSP was not initiated. (IRL81)
3. Tariff order issued by UPERC regarding project applicable tariff, dated 25/08/2005 (IRL71)
4. UPERC Practice Directions for Captive Power Generation applicable from July 2000, <http://www.uperc.org/olduperc/captivedir.htm> (IRL82)
5. <https://cdm.unfccc.int/Projects>

Out of 42 similar projects identified by PP for common practice analysis thirty seven bagasse based co-generation projects in the state were found to be in the process of considering CDM benefits in their implementation. Furthermore thirty one of them were already listed for GSP as part of CDM cycle. The following essential distinction between the group of five other projects not considering CDM and the current CDM project, has been confirmed:

- These five projects differ based on the Government policy (IRL82) under which they were implemented. The Power Purchase Agreement for the current project activity is done after implementation of a new power policy effective from 2006. The UPERC practice directions for captive power generation applicable to five similar projects from July 2000 specified a higher tariff of Rs 2.25/kWh with 5% escalation. It can be noted, as discussed already in chapter 3.6.3 above the project applicable tariff based on tariff order (IRL71) is much higher for the equivalent years. Therefore it can be confirmed that the group of five other projects not considering CDM did not face similar investment barrier as the project.

Hence it can be confirmed that the proposed CDM activity is not a common practice in the defined region.

3.7 Monitoring plan

The monitoring plan presented in the PDD complies with the requirement of the methodology. The assessment team has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant for the project activity have been found in the plan.

The procedures have been reviewed by the assessment team through document review and/or interviews with the relevant personnel; this information together with a physical inspection allows the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The major parameters to be monitored have been discussed with the PPs especially regarding the location of the meters, the data management and in general the quality assurance and quality control procedures to be implemented in the context of the project.

⁹ all operational similar plants at time of investment decision were considered in the common practice analysis

CO₂ emission reductions due to the project activity are directly linked to the net quantity of increased electricity generation as a result of the project activity (incremental to baseline generation), and therefore the monitoring plan will involve real measurements of achieved emission reductions.

The main monitored parameters are net quantity of electricity generated ($EG_{\text{project plant},y}$), net quantity of electricity generated in all power and heat plants at the project site ($EG_{\text{total},y}$), Quantity of biomass ($BF_{k,y}$). The moisture content for each batch of biomass of homogeneous quality will be measured and weighted average will be reported for each monitoring period.

The key measurement instruments are the energy meters that will be calibrated annually as per the manufacturer's specifications. Information on location of meters, procedures, accuracy levels of measurement, back up systems as well as cross check measures are included in the final PDD. Gross generation meters will be of 0.5 accuracy class and situated in the in the control room. $EG_{\text{aux, project plant},y}$ meters will be of 0.5 accuracy class and situated in the power house. $EG_{\text{aux, total},y}$ meters will be of 0.5 accuracy class and situated in the power house. Quantity of biomass will be monitored using belt weigher located in boiler operational control room and net calorific value will be measured by an external laboratory. Calibrated weigh scale and oven will be used for moisture content of biomass. Recording frequency and archiving methods are considered being reasonable and appropriate as well. As the main monitoring parameter $EG_{\text{project plant},y}$ also is a key parameter for invoicing of power supply, delivery of high quality data can be ensured.

Hence it is expected that the PPs will be able to implement the monitoring plan and the emission reductions achieved can be reported ex-post and verified.

3.8 Sustainable development

The LoA of the Host country clearly presents a statement that the project contributes to the sustainable development of the host Party.

3.9 Local stakeholder consultation

The relevant local stakeholders have been invited via invitation letters. The evidence of these invitations has been indicated in the IRL63. The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders and using the local expertise it can be confirmed that the communication method used to invite the stakeholders can be considered appropriate. The summary of comments presented in the PDD has been cross checked with the documentation of the stakeholder consultation and it is found to be complete.

The relevant comments presented by the local stakeholders have been taken due account by the PPs, the same has been cross checked with the information obtained during the interviews.

Hence the local stakeholder consultation has been adequately performed according to the CDM requirements.

3.10 Environmental impacts

The project participants undertook an environmental impact assessment study and a periodic environmental clearance (consent to operate) from local government i.e. Government of Uttar Pradesh. The assessment team made a document review of the information presented in the Environmental impact assessment report (IRL47). The Environmental clearances from Government of Uttar Pradesh (IRL26, IRL31 and IRL35) confirm the correctness of the approach used by the PPs. Hence the PPs followed the requirements of the host country regarding the environmental impacts.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

webpage: GSP: http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=3492&Ebene1_ID=26&Ebene2_ID=1064&mode=1 Repeat GSP: http://www.netinform.net/KE/Wegweiser/Guide2_3.aspx?ID=4676&Ebene1_ID=26&Ebene2_ID=1473&mode=0	
Starting date of the global stakeholder consultation process: GSP: 2007-07-21 Repeat GSP: 2008-04-27	
Comment submitted by: None	Issues raised: -
Response by TÜV SÜD: -	

5 VALIDATION OPINION

TÜV SÜD has performed validation in accordance with the VVM, version 01.2, (EB51, Annex 3) of the following proposed CDM project activity:

LHSF RE Project

Standard auditing techniques have been used for the validation of the project. Methodology specific protocol customised for the project has been prepared to carry out the audit and present the outcome in a transparent and comprehensive manner.

The review of the project design documentation, the subsequent follow-up interviews and the further cross check of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology 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 in a measurable and verifiable manner as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed following the VVM requirements. 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, 17-05-2011



Thomas Kleiser

Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Munich, 17-05-2011



Nikunj Agrawal

Assessment Team Leader

Validation of the CDM Project:
LHSF RE Project



Industrie Service

Annex 1: Validation Protocol

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

Table 1a Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	2	Yes, the title enables to clearly identify the project activity.	√	√
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	2	Yes, the PDD submitted for re-GSP is of version 02 dated 25/04/2008.	√	√
A.1.3.	Is this consistent with the time line of the project's history?	2	No, the time line of the project history is not consistent with the date mentioned in PDD. <u>Clarification Request No.1</u> The starting date of the project activity is given as 24/04/2006 and the commissioning of the project activity was in March 2008. Please submit the chronological list of all the documents related to the project activity since its inception till date.	CR	√
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	2	The description is partly delivering an overview of the project activities. <u>Corrective Action Request No.1</u> Please clarify why the CDM process was started in May 2007 by appointing a validator though the implementation of the project started way back in April 2006. <u>Corrective Action Request No.2</u>	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>The PDD should clearly define the crushing capacities in the pre and post project scenarios. It should clearly define the equipments and project boundaries which are part of the registered project. Please provide the single line diagrams from the cogenerations systems in the pre and post project scenario.</p> <p><u>Corrective Action Request No.3</u> Please provide the amounts of bagasse generated and that would be used in the project activity</p> <p><u>Corrective Action Request No.4</u> The PDD should explain clearly the electricity generated and the export to the grid. Also mention the connection point with the grid.</p>		
A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	7,9,1 1,12, 15,1 7,22, 31,3 5	The purchase orders for the boilers, turbines and auxillary equipments, current status of commissioning activity and licenses are available to demonstrate that project description is in compliance with actual situation.	√	√
A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD?	2, 7,9,1 1,12, 15,1 7,22, 31,3 5	<p>See A2.2.</p> <p><u>Corrective Action Request No.5</u> The PDD does not provide clear status of the equipments in the post project scenario. Some of the equipments which are planned to be decommissioned will actually stay as standby as per information gathered during the site visit. Please clarify in transparent manner the configuration of power and thermal equipments in pre and post project scenarios.</p>	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.2.4. Is all information presented consistent with details provided by further chapters of the PDD?	2	Yes, the information is consistent with details provided by further chapters of the PDD	√	√
A.3. Project participants				
A.3.1. Is the form required for the indication of project participants correctly applied?	2	Yes, the form has been applied correctly and the project participant from non-Annex I country is L H Sugar Factories Ltd and from Annex I country is Agrinergy Ltd.	√	√
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	37	Yes, the participation of listed entities was confirmed by National CDM Authority, India and DEFRA, U.K. The letters of approval from the host countries and the modalities of communication were submitted to the DOE.	√	√
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	2	Yes, the information on project participants is consistent with Annex 1.	√	√
A.4. Technical description of the project activity				
A.4.1. Location of the project activity				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1,2	The information partly provides the location of the project activity. <u>Corrective Action Request No.6</u> The PDD should define the GPS co-ordinates for the location of the project activity. Include them in section A.4.1.4 of the PDD. The coordinates of the district included are very vague and do not	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		serve the actual purpose. In addition the crediting period will extend up to 2018 considering the 7 year crediting period. Please revise in section A.4.4 of the PDD. <u>Corrective Action Request No.7</u> Please include map of the district/state in which the project is located for clear identification of the site.		
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	35	Consent to establish from the Uttar Pradesh State Pollution Control Board (UPSPCB) was made available to the audit team, which proves that LHSF has the right to implement the project at site.	√	√
A.4.2. Category(ies) of project activity				
A.4.2.1. To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	3	The Project activity belongs to Category 1: Energy Industries (renewable/non renewable sources) and it is indicated correctly.	√	√
A.4.3. Technology to be employed by the project activity				
A.4.3.1. Does the technical design of the project activity reflect current good practices?	1,2	The technical design reflects current good practices since project uses high pressure boiler configuration which is relatively new in Indian Sugar Industry. <u>Corrective Action Request No.8</u> Please provide a brief description of the technology employed in the project activity. <u>Corrective Action Request No.9</u> In the single line diagram for the cogeneration systems, clearly indicate the interconnection point with the grid	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<u>Corrective Action Request No.10</u> How is it justified that in the off-season 23 MW are exported (1 MW more than in the on-season)? Explanation in the PDD should be provided. What is the evidence and also calculation of 22 MW used for "season" referring to section A.4.3 of PDD and also the spreadsheet?		
A.4.3.2. Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	1,2	<u>Corrective Action Request No.11</u> It is stated in section A.4.3 of the PDD that the efficiency of heat generation in the project plant is smaller or the same compared to the existing cogeneration plant. However this is not mentioned in the applied methodology, version 09, scenario 11 (page 14). Actually the thermal efficiency in the project plant is bigger than in the baseline scenario as demonstrated on page 21 of this PDD. Therefore please clarify.	CAR	√
A.4.3.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	1,2,18	The company has requisite experience of running cogeneration units .In addition the initial training will be provided by the equipment suppliers during the initial operation of the project.	√	√
A.4.3.4. Is the technology implemented by the project activity environmentally safe?	1,2	<u>Corrective Action Request No.12</u> The PDD should include a description of how the technology employed is environmentally safe and sound	CAR	√
A.4.3.5. Is the information provided in compliance with actual situation or planning?	1	Yes	√	√
A.4.3.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than	1	The technical design reflects current good practices since project uses high pressure boiler configuration which is relatively new in Indian Sugar Industry.	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
any commonly used technologies in the host country?				
A.4.3.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1	No, the project technology is not likely to be substituted by other technologies within the project crediting period.	√	√
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1,18	The company has requisite experience of running cogeneration units .In addition the initial training will be provided by the equipment suppliers during the initial operation of the project.	√	√
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	2	<u>Clarification Request No.2</u> Please provide the demand and requirements for training and maintenance of the key equipments used in the project activity	CR	√
A.4.3.10. Is a schedule available for the implementation of the project and are there any risks for delays?	1,2	<u>Clarification Request No.3</u> Please provide the schedule for implementation of the project and mention whether there are any delays	CR	√
A.4.4. Estimated amount of emission reductions over the chosen crediting period				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	2,3	Yes, the form has been correctly applied. <u>Corrective Action Request No.13</u> Referring to table included in section A.4.4 and B.6.4, start of the crediting period in 2009 is not possible anymore. Please revise. Also check C.1.1 for this.	CAR	√
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	2	Yes, they are consistent with the other data presented in the PDD.	√	√
A.4.5. Public funding of the project activity				

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.5.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	29	Yes, the project has obtained loans from Indian Nationalized Banks for the project	√	√
A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	2	Yes, the information is consistent with the details given in the remaining chapters of the PDD.	√	√
B. Application of a baseline and monitoring methodology				
B.1. Title and reference of the approved baseline and monitoring methodology				
B.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	2,3,4,5	<p>Yes, the reference number and version number of the methodology are given as Version 10.1 of ACM0006.</p> <p>The section also refers to- Version 10 of ACM0002 - Consolidated methodology for grid-connected electricity generation from renewable sources Version 02.2-Combined Tool to identify the baseline scenario and demonstrate additionality, and Version 02-Tool to calculate the emission factor of an electricity system.</p> <p><u>Corrective Action Request No.14</u> Include the title and reference to the methodology for ACM0006 in the section. Further more version of ACM0002 should be updated.</p>	CAR	√
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	4	The applied Version 10.1 is not the most recent version however requests for registration can be submitted until 17 May 2011.	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD										
B.2. Justification of the choice of the methodology and why it is applicable to the project activity														
B.2.1. Is the applied methodology considered the most appropriate one?	4	Yes, the applied methodology, Version 10.1 of ACM0006 is the most appropriate for the project activity	√	√										
B.2.2. Is the project activity clear according to the PDD?	2,4	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Greenfield project?</td><td>No</td></tr><tr><td>Power capacity expansion project?</td><td>Yes</td></tr><tr><td>Energy efficiency improvement project?</td><td>No</td></tr><tr><td>Fuel switch project?</td><td>No</td></tr></table> <p>The PP will install the project by putting up a new power and heat plant, next to an existing power and heat plant at their sugar factory located in Pilibhit, Uttar Pradesh, India.</p>	Applicability checklist	Yes / No	Greenfield project?	No	Power capacity expansion project?	Yes	Energy efficiency improvement project?	No	Fuel switch project?	No	√	√
Applicability checklist	Yes / No													
Greenfield project?	No													
Power capacity expansion project?	Yes													
Energy efficiency improvement project?	No													
Fuel switch project?	No													
B.2.3. Applicability Criterion 1: No other biomass types than biomass residues are used and these residues are the predominant fuel.	2,4	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>IRL7, 15, 36 and 66</p>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Evidences provided in the PDD?	Yes	Compliance verified?	Yes	√	√
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	Yes													
Compliance provable?	Yes													
Evidences provided in the PDD?	Yes													
Compliance verified?	Yes													
B.2.4. Criterion 2: For projects that use biomass residues from a production process (e.g. production	2,4	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>No</td></tr></table>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	No	CAR	√						
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	No													

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD						
of sugar or wood panel boards), the implementation of the project shall not result in an increase of the processing capacity of raw input (e.g. sugar, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process		<table><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>No</td></tr><tr><td>Compliance verified?</td><td>No</td></tr></table> <p>It could be confirmed based on R-T-8(c) (IRL36) that the sugar cane crushed/ sugar produced for two years before power plant commissioning in May 2008 (IRL79), were respectively 1.437 million tons/0.138 million tons and 1.057 million tons/0.107 million tons. Even during the year 2008-09 the sugar cane crushed was recorded to be 0.627 million tons with a total sugar production of 0.056 million tons. This confirms that the implementation of the project has not resulted in an increase of the processing capacity of raw input or in other substantial changes in sugar process.</p> <p><u>Corrective Action Request No.15</u></p> <p>a) Referring to section B.2 of the PDD it is stated that during the 2007-2008 season the factory plans to increase its crushing capacity to 10,000 TCD. What about the plans for the seasons 2008-2009 / 2009-2010 and so on? Further since 2007/2008 is already over. Please revise the sentence.</p> <p>b) Similarly it is also stated in the same section that the actual length of this will depend on the running hours of the plant and the length of the sugar crushing season. Referring to this what could be the maximum number of days between the end of the season and the start of the new season.</p> <p>c) "What is the evidence and also calculation of 22 MW used for "season" referring to section A.4.3 of PDD and also the spreadsheet?" The submitted supply order document indicates an Electrical output (MWe) of 26.75 during off-season. How exactly occurs increased power generation up to 22 MW during season and 23 MW during off-season shall be explained, in the PDD, also preferably in a spreadsheet. Furthermore the key decision dated 10th January 2006, of the board of director's of LHSF only</p>	Compliance provable?	Yes	Evidences provided in the PDD?	No	Compliance verified?	No		
Compliance provable?	Yes									
Evidences provided in the PDD?	No									
Compliance verified?	No									

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD										
		<p>approved 20-22 MW power to the grid. Why is this contradiction about 22-23 MW?</p> <p><u>Corrective Action Request No.16</u> PDD should be revised as per combined tool of additionality, which is referred by Version 10.1 of the applied methodology.</p> <p><u>Corrective Action Request No.17</u> PDD should clearly state and justify whether any other fuel than bagasse will be used in the project activity. Furthermore the PDD informs about the sugar cane crushed during 2006-2007 season and 2007-2008 season, but what about the subsequent years (2008 to the end of the crediting period). Real figures (until 2009) and afterwards estimations should be presented in the PDD.</p>												
B.2.5. Criterion 3: The biomass residues used by the project facility should not be stored for more than one year;	2,4	<table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Evidences provided in the PDD?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>IRL18. 20 and 21</p> <p><u>Clarification Request No.4</u> Mention what kind of storage facilities available for the bagasse in the plant? How much bagasse can be stored at a time?</p>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Evidences provided in the PDD?	Yes	Compliance verified?	Yes	CR	√
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	Yes													
Compliance provable?	Yes													
Evidences provided in the PDD?	Yes													
Compliance verified?	Yes													
B.2.6. Criterion 4: No significant energy quantities, <i>except from transportation or mechanical treat-</i>	2,4	<table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr></table>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	√	√						
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	Yes													

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD										
ment of the biomass residues, are required to prepare the biomass residues for fuel combustion		Compliance provable?	Yes												
		Evidences provided in the PDD?	Yes												
		Compliance verified?	Yes												
		IRL7, 15, 36 and 66													
B.3. Description of the sources and gases included in the project boundary															
B.3.1. Source: Grid electricity generation Gas(es): CO2 Type: Baseline Emissions	1,2,4	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table> <p>The project activity will export power to the grid and hence lead to reduction in baseline emissions at the grid.</p>		Boundary checklist	Yes / No	Source and gas(es) discussed in the PDD?	Yes	Inclusion / exclusion justified?	Yes	Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes	√	√
Boundary checklist	Yes / No														
Source and gas(es) discussed in the PDD?	Yes														
Inclusion / exclusion justified?	Yes														
Explanation / Justification sufficient?	Yes														
Consistency with monitoring plan?	Yes														
B.3.2. Source: Heat generation Gas(es): CO2 Type: Baseline Emissions	1,2,4	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table> <p>The project activity does not reduce baseline emissions from heat generation.</p>		Boundary checklist	Yes / No	Source and gas(es) discussed in the PDD?	Yes	Inclusion / exclusion justified?	Yes	Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes	√	√
Boundary checklist	Yes / No														
Source and gas(es) discussed in the PDD?	Yes														
Inclusion / exclusion justified?	Yes														
Explanation / Justification sufficient?	Yes														
Consistency with monitoring plan?	Yes														
B.3.3. Source: Uncontrolled burning or decay of surplus biomass residues Gas(es): CH4	1,2,4	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr></table>		Boundary checklist	Yes / No	Source and gas(es) discussed in the PDD?	Yes	Inclusion / exclusion justified?	Yes	√	√				
Boundary checklist	Yes / No														
Source and gas(es) discussed in the PDD?	Yes														
Inclusion / exclusion justified?	Yes														

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
Type: Baseline Emissions		Explanation / Justification sufficient?	Yes		
		Consistency with monitoring plan?	Yes		
		The project activity does not reduce baseline emissions from un-controlled burning or biomass decay.			
B.3.4. Source: On-site fossil fuel or electricity consumption Gas(es): CO2 Type: Project Emissions	1,2,4	Boundary checklist	Yes / No	CAR	√
		Source and gas(es) discussed in the PDD?	NA		
		Inclusion / exclusion justified?	NA		
		Explanation / Justification sufficient?	NA		
		Consistency with monitoring plan?	NA		
		There is no provision of firing fossil fuels in the boiler.			
		<u>Corrective Action Request No.18</u> Referring to the table included in section B.3 of the PDD: a)Project Activity: On-site fossil fuel consumption due to the project activity- What about electricity consumption since the methodology indicates this possibility? a)Does the effluent treatment plant involves (partly) anaerobic conditions and does this waste water result from treatment of biomass? If yes PE (CH4) needs to be considered. Please Clarify in PDD (also clarify this in section D.1 of PDD).			

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS		PDD in GSP	Final PDD	
B.3.5.	Source: Off-site transportation of biomass residues Gas(es): CO2 Type: Project Emissions	1,2,4	Boundary checklist	Yes / No		√	√
			Source and gas(es) discussed in the PDD?	Yes			
			Inclusion / exclusion justified?	Yes			
			Explanation / Justification sufficient?	Yes			
			Consistency with monitoring plan?	Yes			
B.3.6.	Source: Combustion of biomass residues for electricity or heat Gas(es): CH4 Type: Project Emissions	1,2,4	Boundary checklist	Yes / No		√	√
			Source and gas(es) discussed in the PDD?	Yes			
			Inclusion / exclusion justified?	Yes			
			Explanation / Justification sufficient?	Yes			
			Consistency with monitoring plan?	Yes			
B.3.7.	Is the spatial extension of project boundary clearly described?	2,4,5	The project boundary is clearly defined in the PDD. <u>Corrective Action Request No.19</u> Please include the diagram for the project boundary clearly showing the key equipments		CAR	√	
B.3.8.	Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD?	1,2,4	Yes, boundaries defined in the PDD have been verified at site.		√	√	
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario							
B.4.1.	Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed by the	2,4,5	Realistic and credible alternatives should be determined:		√	√	
			Completely discussed and reasoned in PDD?	Yes / No			
			how power would be generated in the ab-	Yes			

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD																			
PDD? Why can this list be considered as being complete?		<table><tr><td colspan="2">sence of the CDM project activity;</td><td></td></tr><tr><td colspan="2">what would happen to the biomass residues in the absence of the project activity; and</td><td>Yes</td></tr><tr><td colspan="2">in case of cogeneration projects: how the heat would be generated in the absence of the project activity</td><td>Yes</td></tr></table>			sence of the CDM project activity;			what would happen to the biomass residues in the absence of the project activity; and		Yes	in case of cogeneration projects: how the heat would be generated in the absence of the project activity		Yes												
sence of the CDM project activity;																									
what would happen to the biomass residues in the absence of the project activity; and		Yes																							
in case of cogeneration projects: how the heat would be generated in the absence of the project activity		Yes																							
B.4.2. Is the project activity categorized and is that retraceable?	2,4,5	For power generation, the realistic and credible alternatives may include <table><tr><th colspan="2">Categories</th><th>Yes / No</th></tr><tr><td>P1</td><td>The proposed project activity not undertaken as a CDM project activity</td><td>Yes</td></tr><tr><td>P2</td><td>The continuation of power generation in an existing biomass residue fired power and heat plant at the project site, in the same configuration, without retrofitting and, fired with the same type of biomass residues as (co-)fired in the project activity.</td><td>Yes</td></tr><tr><td>P3</td><td>The generation of power in an existing captive power and heat plant, using only fossil fuels</td><td>No</td></tr><tr><td>P4</td><td>The generation of power in the grid</td><td>Yes</td></tr><tr><td>P5</td><td>The (installation of a new biomass residue fired power and heat plant), fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project plant and therefore with a</td><td>No</td></tr></table>			Categories		Yes / No	P1	The proposed project activity not undertaken as a CDM project activity	Yes	P2	The continuation of power generation in an existing biomass residue fired power and heat plant at the project site, in the same configuration, without retrofitting and, fired with the same type of biomass residues as (co-)fired in the project activity.	Yes	P3	The generation of power in an existing captive power and heat plant, using only fossil fuels	No	P4	The generation of power in the grid	Yes	P5	The (installation of a new biomass residue fired power and heat plant), fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project plant and therefore with a	No		CR, CAR	√
Categories		Yes / No																							
P1	The proposed project activity not undertaken as a CDM project activity	Yes																							
P2	The continuation of power generation in an existing biomass residue fired power and heat plant at the project site, in the same configuration, without retrofitting and, fired with the same type of biomass residues as (co-)fired in the project activity.	Yes																							
P3	The generation of power in an existing captive power and heat plant, using only fossil fuels	No																							
P4	The generation of power in the grid	Yes																							
P5	The (installation of a new biomass residue fired power and heat plant), fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project plant and therefore with a	No																							

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD
			lower power output than in the project case.			
		P6	The installation of a new biomass residue fired power and heat plant that is fired with the same type but with a higher annual amount of biomass residues as the project activity and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project activity. Therefore, the power output is the same as in the project case	No		
		P7	The retrofitting of an existing biomass residue fired power and heat plant, fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project plant and therefore with a lower power output than in the project case.	No		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD
		P8	The retrofitting of an existing biomass residue fired power and heat plant that is fired with the same type but with a higher annual amount of biomass residues as the project activity and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project activity.	No		
		P9	The installation of a new fossil fuel fired captive power and heat plant at the project site	No		
		P10	The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) cogeneration plant with the same rated power capacity as the project activity power and heat plant, but that is fired with a different type and/or quantity of fuels (biomass residues and/or fossil fuels). The annual amount of biomass residue used in the baseline scenario is lower than that used in the project activity	No		
		P11	The generation of power in an existing fossil fuel fired cogeneration plant co-fired with biomass residues, at the project site	No		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																														
		<div>For heat generation, realistic and credible alternative(s) may include,</div> <table><tr><th colspan="2">Categories</th><th>Yes / No</th></tr><tr><td>H1</td><td>The proposed project activity not undertaken as a CDM project activity</td><td>Yes</td></tr><tr><td>H2</td><td>The proposed project activity (installation of a power and heat plant), fired with the same type of biomass residues but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector)</td><td>No</td></tr><tr><td>H3</td><td>The generation of heat in an existing captive power and heat plant, using only fossil fuels</td><td>No</td></tr><tr><td>H4</td><td>The generation of heat in boilers using the same type of biomass residues</td><td>No</td></tr><tr><td>H5</td><td>The continuation of heat generation in an existing biomass residue fired power and heat plant at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as in the project activity.</td><td>Yes</td></tr><tr><td>H6</td><td>The generation of heat in boilers using fossil fuels</td><td>No</td></tr><tr><td>H7</td><td>The use of heat from external sources, such as district heat</td><td>No</td></tr><tr><td>H8</td><td>Other heat generation technologies (e.g. heat pumps or solar energy)</td><td>No</td></tr><tr><td>H9</td><td>The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) power and heat plant with</td><td>No</td></tr></table>	Categories		Yes / No	H1	The proposed project activity not undertaken as a CDM project activity	Yes	H2	The proposed project activity (installation of a power and heat plant), fired with the same type of biomass residues but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector)	No	H3	The generation of heat in an existing captive power and heat plant, using only fossil fuels	No	H4	The generation of heat in boilers using the same type of biomass residues	No	H5	The continuation of heat generation in an existing biomass residue fired power and heat plant at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as in the project activity.	Yes	H6	The generation of heat in boilers using fossil fuels	No	H7	The use of heat from external sources, such as district heat	No	H8	Other heat generation technologies (e.g. heat pumps or solar energy)	No	H9	The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) power and heat plant with	No		
Categories		Yes / No																																
H1	The proposed project activity not undertaken as a CDM project activity	Yes																																
H2	The proposed project activity (installation of a power and heat plant), fired with the same type of biomass residues but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industry sector)	No																																
H3	The generation of heat in an existing captive power and heat plant, using only fossil fuels	No																																
H4	The generation of heat in boilers using the same type of biomass residues	No																																
H5	The continuation of heat generation in an existing biomass residue fired power and heat plant at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as in the project activity.	Yes																																
H6	The generation of heat in boilers using fossil fuels	No																																
H7	The use of heat from external sources, such as district heat	No																																
H8	Other heat generation technologies (e.g. heat pumps or solar energy)	No																																
H9	The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) power and heat plant with	No																																

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS				PDD in GSP	Final PDD
			the same rated power capacity as the project activity power and heat plant, but that is fired with a different type and/or quantity of fuels (biomass residues and/or fossil fuels). The annual amount of biomass residue used in the baseline scenario is lower than that used in the project activity				
		H10	The generation of power in an existing fossil fuel fired cogeneration plant co-fired with biomass residues, at the project site	No			
		For the use of biomass residues , the realistic and credible alternative(s) may include, <i>inter alia</i> :					

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD
		Categories		Yes / No		
		B1	The biomass residues are dumped or left to decay under mainly aerobic conditions. This applies, for example, to dumping and decay of biomass residues on fields.	No		
		B2	The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to deep landfills with more than 5 meters. This does not apply to biomass residues that are stock-piled or left to decay on fields.	No		
		B3	The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes.	No		
		B4	The biomass residues are used for heat and/or electricity generation at the project site	Yes		
		B5	The biomass residues are used for power generation, including cogeneration, in other existing or new grid-connected power and heat plant plants	No		
		B6	The biomass residues are used for heat generation in other existing or new boilers at other sites	No		
		B7	The biomass residues are used for other energy purposes, such as the generation of biofuels	No		
		B8	The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in processes (e.g. in the pulp and paper industry)	No		
		Clarification Request No.5				

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>It is not clear why the alternative any of B5 to B8 cannot be bio-mass baseline when the biomass is being sold for last three years. In the absence of current project activity bagasse will continue to be sold to the Paper manufacturing Industry.</p> <p><u>Corrective Action Request No.20</u> Referring to section B.4 of PDD- Please revise to include:</p> <ul style="list-style-type: none"> a) 11 power baseline alternatives b) 10 heat baseline alternatives 		
B.4.3. What kind of scenario combination has been applied according to table 1 of methodology?	2,4,5	<p>Scenario 11 has been applied for the project activity.</p> <p><u>Clarification Request No.6</u> In the calculation of efficiency of heat generation in the baseline and project scenarios, please provide the basis for the values of 60% and 80% efficiencies mentioned in the PDD.</p> <p><u>Clarification Request No.7</u> Please submit the detailed calculations with back up evidences to demonstrate the following as defined in scenario 11 of ACM0006</p> <ul style="list-style-type: none"> • efficiency of heat generation is same or smaller than the existing cogeneration plants • efficiency of Electricity generation is higher in the new Power Plant than the existing cogeneration plants <p>Additionally please clarify why the thermal efficiency in the project should be higher than baseline scenario as defined in section B5 of the PDD.</p>	CAR	√
B.4.4. Does chosen scenario meet engineered	2,4,5	See above in B.4.2 and B.4.3.	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
project activity?					
B.4.5.	Have applicable regulatory or legal requirements been identified?	22,2 7.40	Yes, all the applicable and legal requirements have been identified.	√	√
B.4.6.	Does project identify correctly and excludes those options not in line with regulatory or legal requirements?	2,4	Yes	√	√
B.4.7.	In case of scenarios 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16 and 17, a power plant was already operated and, in case of scenarios 1, 2, 3, 4, 7, 8, 10, 11, 12, 13, 14, 15, 16 and 17, heat may already have been generated at the project site prior to the implementation of the project activity. Hence, the lifetime and age of baseline components need to be considered.	2,4,5	<p><u>Clarification Request No.8</u></p> <p>Scenario 11 does allow for decommissioning of existing power generation equipment in spite of the fact that they continued to have residual life. Please provide information on residual life time.</p> <p><u>Corrective Action Request No.21</u></p> <p>Please determine and include in PDD the age and the average technical lifetime of the existing power and heat generating equipments as per the scenario 11 of methodology.</p>	CR CAR	√
B.4.8.	Does the PDD explain the specific situation of the project activity and demonstrate that the project activity and the most plausible baseline scenario correspond to the "description of the situation" in Table 2 and to the combination of baseline scenarios for power, heat and biomass use?	2,4,5	Based on the specific situation of the project activity it has been demonstrated in PDD (B.4) that the project activity and the most plausible baseline scenario corresponds to the Scenario 11 of Table 2. The combination of baseline scenarios for power, heat and biomass use is properly explained.	√	√
B.4.9.	Does the PDD document: for each power plant that was operating at the project site during the most recent three years prior to	2,4,5	Information on bagasse consumed in the power and heat plant has been provided in the PDD (Annex 3). It can be noted that the measurement of bagasse was conducted for the entire existing	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
the start of the project activity: the type and capacity of the power plant, types and quantities of fuels that have been used in the power plant during the most recent three years prior to the start of the project activity and whether the plant continues operation after the start of the project activity?			power plant and it is only with the implementation of the project that individual belt weighers for the project activity have been installed.		
B.4.10.	Does the PDD document: for each boiler or other heat generation equipment that was operating at the project site during the most recent three years prior to the start of the project activity: the type and capacity of the boiler, types and quantities of fuels have been used in the boiler during the most recent three years prior to the start of the project activity and whether the boiler continues operation after the start of the project activity?	2,4,5	Information on bagasse consumed in the power and heat plant has been provided in the PDD (Annex 3). It can be noted that the measurement of bagasse was conducted for the entire existing power plant and it is only with the implementation of the project that individual belt weighers for the project activity have been installed.	√	√
B.4.11.	Does the PDD document: for each boiler or power plant installed under the project activity: the type and capacity of boilers and/or power plants and which types and quantities of fuels are planned to be used?	2,4,5	The necessary information on each boiler and power plant installed under the project activity has been provided in the PDD (Annex 3).	√	√
B.4.12.	Does the PDD document: for each new boiler or power plant that would be installed in the absence of the project activity?	2,4,5	In the absence of the project activity the power would be generated in the existing power plant and the biomass residues would in the absence of the project activity be used in the existing plant at	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
ty: the type and capacity of the new boilers and/or power plants and which types and quantities of fuels would be used?		the project site. The heat generated by the project plant would in the absence of the project activity be generated in the existing power and heat plants. Therefore the case of installation of new boiler or power plant installed in the absence of the project activity, can be ruled out.		
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):				
B.5.1. If the starting date of the project activity is before the date of validation, is evidence available to prove that incentive from the CDM was seriously considered in the decision to proceed with the project activity?	2,5	The starting date of the project activity is before the date of validation. <u>Clarification Request No.9</u> It is not clear from the description as to when the CDM was considered in the decision to proceed with the project activity. Provide minutes of Board meeting, other relevant documents) to prove that CDM was considered in the decision to proceed with project activity.	CR	√
B.5.2. <i>Step 2a of combined tool to identify baseline scenario and demonstrate additionality:</i> Is a complete list of barriers developed that prevent the different alternatives to occur.	2,5	Tool for the demonstration and assessment of additionality has been used. Investment analysis and Common practice analysis are used in first and second GSP PDD. <u>Corrective Action Request No.22</u> The applied methodology requires the use of Combined Tool, why the same is not used. Please clarify.	CAR	√
B.5.3. Is transparent and documented evidence provided on the existence and significance of these barriers?	2,5	<u>Clarification Request No.10</u> It is not clear why this statement is made in PDD in section B.5 "A Plausible baseline option is the continuation of low pressure boiler and existing PRDS used to utilize this steam for the process operations of the sugar plant.	CR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			<u>Clarification Request No.11</u> Please provide documentary evidence (plant records, financial statements) to demonstrate the technological barriers discussed.		
B.5.4.	Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers? Is this alternative the project activity?	2,5	It is mentioned that the execution of the alternative, 'Implementation of the project activity without CDM' would not be prevented by the technological barrier identified	√	√
B.5.5.	Is it appropriately explained how the registration of the project activity will help to alleviate the identified barriers?	2,5	See B5.4	√	√
B.5.6.	Is there more than one alternative scenario including the project activity that is not prevented by the identified barriers?	2,5	The alternative other than the Implementation of the project activity without CDM' is the Continuation of project practice at site	√	√
B.5.7.	If there is more than one alternative scenario including project activity that is not prevented by identified barriers, has an investment comparison analysis been done as per step 3 of the tool?	2,5	Yes, an investment analysis has been undertaken as per the step 3 of the additionality tool.	√	√
B.5.8.	Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	2,5	The financial indicator chosen is the project IRR which is clearly indicated. <u>Corrective Action Request No.23</u> Referring to section B.5 of the PDD: a) The main input parameters (like investment costs, quantity of electricity exported, O&M costs, tariff, other significant costs like interest rate on working capital, UPEB maintenance costs)	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>nance cost, fuel price) should be illustrated in a more transparent way, preferably in a Table, including the value applied in the IRR calculation and the data source for each of the parameters.</p> <p>b) It is not clear on what basis the mentioned value of Rs 20m/year for administrative costs is assumed. Please clarify.</p> <p>c) Are the 5% UPEB maintenance cost mentioned in the PPA and is an increase for the UPEB in the PPA foreseen? Please clarify.</p> <p>d) "The Additionality Tool" does not mention anything about fuel prices being more than 20%; it is the Guidelines on the assessment of Investment analysis. Please correct.</p> <p>e) Referring to discussion under Step 4. Common practice analysis- it should be explained why 15 MW was chosen as limit to exclude all units from further consideration with less than 15 MW.</p> <p>f) Reference listed as part of footnote 8 is very old (2005- 06). A more updated data source should be considered in the evaluation of common practice.</p> <p>g) Referring to footnote 9- how is it possible to know that the other 2 projects of Balrampur Chini also applied as CDM projects when reference is not available anymore? Clarify this information.</p>		
B.5.9. Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	2,5	<p><u>Clarification Request No.12</u></p> <p>Clarification is requested on the following issues.</p>	CR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>1. The Additionality Tool (Note: Additionality Tool explains this in more detail than the Combined Tool) mentions in paragraph (6) that discount rates and benchmarks shall be derived from:</p> <ul style="list-style-type: none"> a) Government bond rates increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data. (or) b) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned) based on bankers views and private equity investors/fund's required return on comparable projects. <p>2. The 3% which the project activity applied is actually a risk premium which could be applied in the case of government bonds. It is not clear why the 3% (OECD risk classification – the information at the indicated internet link [footnote 6 in PDD]) does actually not mention %, thus it is not clear whether PP talks about 3%) can be understood as guarantee.</p> <p><u>Corrective Action Request No.24</u> The sources from some input parameters are missing in the PDD (and are partly only indicated in the excel calculation tool): a)Investment Rs 750m and incurred Rs 730m: DPR, invoices,</p>		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>purchase agreements??</p> <p>b)O&M cost - same percentage taken as in the other CDM project? Only Rs 30m/ year is mentioned</p> <p>c)Administrative costs</p> <p>d)UPEB maintenance based on the PPA?</p> <p>e)Fuel cost - based on which source?</p> <p>f) Quantity of electricity exported: information is missing how it was calculated/ on what it is based on?</p> <p><u>Corrective Action Request No.25</u></p> <p>The first of the 20 years (2008) of the IRR calculation only considers electricity generation for 45 days (instead of 180 days), however considers full O&M cost, full UPEB maintenance cost and full interest on working capital. How does this reflect a conservative approach? Besides, if considering only 45 days of the 1st year, the investment analysis is not conducted for full 20 years what should be the case (according to the operational lifetime and Guidelines for investment analysis).</p> <p><u>Corrective Action Request No.26</u></p> <p>Regarding the excel file:</p> <p>a)The difference of EGproject plant and other plant is stated to be 91,240 MWh. Where as the investment analysis mentions another figure (actual export 77,705 MWh). Please explain this inconsistency.</p> <p>b)In worksheet "Historic Data" in columns K, L, M there are some figures and it is not clear for what those figures stand for. Should be clarified.</p> <p>c)Where does the 4.9279 for NCV biomass (MWh/tones)</p>		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>come from? No source is indicated in worksheet "Historic data" (cell C18). Should be clarified.</p> <p>d)What is the source for the thermal efficiencies (68% and 70%)? Not clear according to the excel file. Should be clarified.</p> <p>e)In worksheet "project costs": what does ED, CST/UPTT stand for? Please clarify in the excel calculation tool.</p> <p>f) What does RT8C mean (in worksheet "Assumptions")? Abbreviations like that should be explained in an abbreviation list in the document where they are used.</p>		
B.5.10. Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	2,5	<p><u>Clarification Request No.13</u></p> <p>Please provide the detailed IRR calculations in the excel sheet indicating all assumption and sources of data used with verifiable supporting documentary evidences to completely verify the additionally requirements of the project.</p> <p><u>Clarification Request No.14</u></p> <p>Please clarify the use of auxillary equipment in the project activity.</p>	CR	√
B.5.11. Has a sensitivity analysis been carried out	2,5	<p>Yes, the sensitivity analysis has been carried out based on PPA tariff.</p> <p><u>Corrective Action Request No.27</u></p> <p>Investment costs should also be included in sensitivity analysis, as the same consist of more than 20% of total project costs.</p> <p><u>Clarification Request No.15</u></p> <p>a)If fuel prices are included in the sensitivity analysis, why</p>	CAR, CR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p>then not O&M costs and administration costs (more or less the same scale) are included in the sensitivity analysis? Please clarify.</p> <p>b)How is the increase in O&M costs, administrative costs and UPEB maintenance costs justified? Administrative costs are actually fixed costs and operation costs shouldn't vary too much neither over the lifetime of the project.</p> <p>c)It is not clear why biomass residues (bagasse) used as fuel is considered as a cost, once the biomass would have been combusted in the baseline scenario anyway and bagasse comes from the adjacent sugar factory (which belongs to the same company?!? Please explain.</p>		
B.5.12. If baseline scenario with lowest emissions has been chosen, has appropriate justification been given?	2	Not applicable.	√	√
B.5.13. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD?	2,57	<p>Yes the other activities happening in the country has been identified, but the information is incomplete.</p> <p><u>Corrective Action Request No.28</u></p> <p>Please provide the name of the Five plants which are being proposed and give details of registration if any.</p> <p><u>Clarification Request No.16</u></p> <p>Provide supporting documents to show that only 4.6% of the sugar mills in India are employing bagasse based cogeneration systems.</p> <p><u>Clarification Request No.17</u></p> <p>Provide the latest document published by 'The Sugar technolo-</p>	CAR CR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		gists Association of India'		
B.5.14. If similar activities are occurring, have essential distinctions between project activity and similar activities been explained?	2	Yes, it is explained. <u>Corrective Action Request No.29</u> The common practice analysis is evidenced by a quite old data source; a more updated data source should be considered for demonstrating common practice analysis.	CAR	√
B.6. Emissions reductions				
B.6.1. Explanation of methodological choices/				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	2,4	Yes, the PDD defines the methodology procedures to estimate the Emission reductions. <u>Corrective Action Request No.30</u> Referring to section B.6.1: a) In Table for Consideration of heat emissions- the Bagasse values (kg/hr) are not consistent with excel file. b) Referring to Tool to calculate the emission factor for an electricity system. The application of the 6 steps as per the Tool should be explained in this section.	CAR	√
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	2,4	Yes, options selected to define the project emissions and baseline Emissions have been defined in the PDD. <u>Corrective Action Request No.31</u> Since the baseline scenario P4 is applied, the CO2 emission factor for the electricity displaced due to the project activity is to be calculated as combined margin, following the 'Consolidated baseline methodology for grid connected electricity generation from re-	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		newable sources (ACM0002). Mention this accordingly in the PDD.		
B.6.1.3. Which conservativeness factor has been chosen and how is this choice justified	2,4	The ex ante emission factor of the Northern grid has been chosen, and it is justified since the project will export power to the same.	√	√
B.6.1.4. Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2,4	The project activity is not anticipated to use fossil fuels hence there is no consideration of the project emissions as the same is taken as zero.	√	√
B.6.1.5. Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2,4	Yes	√	√
B.6.1.6. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2,4	The leakage emissions are considered as zero	√	√
B.6.1.7. Are the formulae required for the determination of emission reductions correctly presented?	2,4	Yes	√	√
B.6.2. Data and parameters that are available at validation <i>The Emission reduction is estimated by the formula $ER_y = ER_{heat, y} + ER_{electricity, y} + BE_{biomass, y} - PE_y - L_y$</i> <i>$ER_y$ = Emissions reductions of the project activity during the year y (tCO2/yr)</i> <i>$ER_{electricity, y}$ = Emission reductions due to displacement of electricity during the year y (tCO2/yr)</i>				

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
$ER_{heat,y}$ = Emission reductions due to displacement of heat during the year y (tCO2/yr) $BE_{biomass,y}$ = Baseline emissions due to natural decay or burning of anthropogenic sources of biomass residues during the year y (tCO2e/yr) PE_y = Project emissions during the year y (tCO2/yr) L_y = Leakage emissions during the year y (tCO2/yr) Depending on the project not all variables are relevant. Only relevant variables shall be considered following. Parameters that are not relevant shall be addressed as not relevant.				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	2,4	<p><u>Corrective Action Request No.32</u> The list of parameters is not complete as required by the methodology. Please include all parameters as required (see below B.6.2.6 to B.6.2.18 in addition please submit the evidence and source how each value has been applied, clearly substantiating it with the evidence for each one of them.</p> <p><u>Corrective Action Request No.33</u> Referring to section B.6.2: a)The Value applied for EGhistoric,3yr is not consistent with excel file b)The Value applied for ε el,existing plant is not consistent with excel file c)Parameters related to the calculation of the emissions factor (like electricity generation, electricity coefficient, fuel consumption) should be indicated in this section as per the Tool to calculate the emissions factor for an electricity system.</p>	CAR	√
B.6.2.2. Does the quantity of biomass residues refer to the dry weight?	2,4	<p><u>Corrective Action Request No.34</u> Please describe in transparent manner in the PDD how the con-</p>	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																		
		version from wet to dry basis of biomass residue shall be done.																				
B.6.2.3. Parameter Title: Global warming potential for CH ₄ GWP _{CH4}	2.4	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	NA																					
Data unit correctly expressed?	NA																					
Appropriate description of parameter?	NA																					
Source clearly referenced?	NA																					
Correct value provided?	NA																					
Has this value been verified?	NA																					
Choice of data correctly justified?	NA																					
Measurement method correctly described?	NA																					
B.6.2.4. Parameter Title: Net quantity of electricity generated during the three most recent years in the fossil fuel fired captive power plant identified as baseline plant (P3) EG _{CP,historic,3y}	2.4	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	NA																					
Data unit correctly expressed?	NA																					
Appropriate description of parameter?	NA																					
Source clearly referenced?	NA																					
Correct value provided?	NA																					
Has this value been verified?	NA																					
Choice of data correctly justified?	NA																					
Measurement method correctly described?	NA																					
B.6.2.5. Parameter Title: Net quantity of electricity generated during the most recent three years in all power and heat plants at the project site, generated from firing the same type(s) of bio-mass residues as in the project plant	2.4	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	CAR	√						
Data Checklist	Yes / No																					
Title in line with methodology?	NA																					
Data unit correctly expressed?	NA																					
Appropriate description of parameter?	NA																					
Source clearly referenced?	NA																					
Correct value provided?	NA																					

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD
EG _{historic,3y}		Has this value been verified?	NA			
		Choice of data correctly justified?	NA			
		Measurement method correctly described?	NA			
B.6.2.6. Parameter Title: Quantity of fossil fuel type i combusted during the most recent three years in the captive power plant FF _{CP,historic,3y}	2.4	Data Checklist		Yes / No	√	√
		Title in line with methodology?		NA		
		Data unit correctly expressed?		NA		
		Appropriate description of parameter?		NA		
		Source clearly referenced?		NA		
		Correct value provided?		NA		
		Has this value been verified?		NA		
		Choice of data correctly justified?		NA		
		Measurement method correctly described?		NA		
B.6.2.7. Parameter Title: Average net efficiency of heat generation in the project plant prior to project implementation ε _{th_pre project}	2.4	Data Checklist		Yes / No	√	√
		Title in line with methodology?		NA		
		Data unit correctly expressed?		NA		
		Appropriate description of parameter?		NA		
		Source clearly referenced?		NA		
		Correct value provided?		NA		
		Has this value been verified?		NA		
		Choice of data correctly justified?		NA		
		Measurement method correctly described?		NA		
B.6.2.8. Parameter Title: Average net efficiency of electricity generation in the project plant prior to project implementation	2.4	Data Checklist		Yes / No	√	√
		Title in line with methodology?		NA		
		Data unit correctly expressed?		NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
$\epsilon_{el_pre\ project}$		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		
B.6.2.9. Parameter Title: Average net efficiency of electricity generation in biomass residue fired power plants in the grid that fire the same type of biomass residues as the project plant. $\epsilon_{el_grid\ plants}$	2.4	Data Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		
B.6.2.10. Parameter Title: Average net energy efficiency of power / heat generation in the reference power / cogeneration plant that would use the biomass residues fired in the project plant in the absence of the project activity ϵ_{el} , reference plant / $\epsilon_{th_reference\ plant}$	2.4	Data Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		
B.6.2.11. Parameter Title: Average net efficiency of electricity / heat	2.4	Data Checklist	Yes / No	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
generation in the existing power / cogeneration plant(s) fired with the same type of biomass residue at the project site $\epsilon_{el_existing\ plant} / \epsilon_{th_existing\ plant}$		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	No		
		Has this value been verified?	No		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
		See CAR 32			
B.6.2.12. Parameter Title: Net quantity of heat generated during the most recent three years in all cogeneration plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant $Q_{historic\ 3y}$	2.4	Data Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		
B.6.2.13. Parameter Title: Net quantity of heat generated during the most recent three years in all boilers at the project site, generated from firing the same type(s) of biomass residues as in the project plant $Q_{biomass\ historic\ 3y}$	2.4	Data Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD																		
		<table><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>		Measurement method correctly described?	NA																		
Measurement method correctly described?	NA																						
B.6.2.14. Parameter Title: Quantity of biomass residue type k that has been fired in boilers for heat generation during the most recent three years at the project site BF _k , Boiler, historic 3y	2.4	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>		Data Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	√	√
Data Checklist	Yes / No																						
Title in line with methodology?	NA																						
Data unit correctly expressed?	NA																						
Appropriate description of parameter?	NA																						
Source clearly referenced?	NA																						
Correct value provided?	NA																						
Has this value been verified?	NA																						
Choice of data correctly justified?	NA																						
Measurement method correctly described?	NA																						
B.6.2.15. Parameter Title: Energy efficiency of the biomass residue fired boiler that would be used in the absence of the project activity ε _{boiler biomass}	2.4	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>		Data Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	√	√
Data Checklist	Yes / No																						
Title in line with methodology?	NA																						
Data unit correctly expressed?	NA																						
Appropriate description of parameter?	NA																						
Source clearly referenced?	NA																						
Correct value provided?	NA																						
Has this value been verified?	NA																						
Choice of data correctly justified?	NA																						
Measurement method correctly described?	NA																						
B.6.2.16. Parameter Title: Quantity of biomass residue type k used as fuel in all installations (power plants, boilers, etc) at the project site during the most recent three years prior to the im-	2.4	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr></table>		Data Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	√	√										
Data Checklist	Yes / No																						
Title in line with methodology?	NA																						
Data unit correctly expressed?	NA																						
Appropriate description of parameter?	NA																						

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
plementation of the project activity BF _{historic, k, 3y}		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		
B.6.2.17. Parameter Title: Moisture content of each biomass residue type k or i	2.4	Data Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		
B.6.2.18. Parameter Title: Net calorific values of fossil fuel type i NCV _i	2.4	Data Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided?	NA		
		Has this value been verified?	NA		
		Choice of data correctly justified?	NA		
		Measurement method correctly described?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.3. Ex-ante calculation of emission reductions				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	2	Yes.	√	√
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	2	These are not documented in transparent manner because the values applied could not be verified. See above in B.6.2.5	CAR	√
B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	2	See above in B.6.3.2. <u>Corrective Action Request No.35</u> Referring to section B.6.3: a) Please resolve inconsistency in the applied values of EG_{historic,3yr} and ε_{el,existing plant} and their corresponding values in excel file. b) Please resolve inconsistency in the applied values of EG_y and ER_{electricity, y} and their corresponding values in excel file and other chapters of the PDD.	CAR	√
B.6.3.4. Are calculation tools used? If so is the data used in the tools consistent with the stated in the PDD?	2,65	See above in B.6.3.2	CAR	√
B.6.4. Summary of the ex-ante estimation of emission reductions				
B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	2	The project activity will lead to reduction in green house gas emissions compared to the baseline scenario.	√	√
B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	2,3	Yes, the form has been correctly applied.	√	√
B.6.4.3. Is the projection in line with the envisioned	3	Yes.	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
time schedule for the project's implementation and the indicated crediting period?		The project was commissioned in the beginning of 2008.		
B.6.4.4. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	2	Yes, data is consistent within the PDD.	√	√
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.7.1. Data and parameters monitored				
B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	2,4	<p>Yes. The list of parameter presented is complete however PDD does not specify the monitoring frequencies of the parameters mentioned in section B.7.1 of the PDD.</p> <p><u>Corrective Action Request No.36</u> Please provide the accuracy and frequency of calibration of measuring equipments used in project activity. In addition please define the QA procedures (internal audit plan) to be adopted for all the monitored data clearly defining roles and responsibilities for calibration, maintenance, data adjustments. The procedure should also include how data shall be stored and how uncertainties related with data shall overcome. Also mention monitoring frequencies of all parameters.</p> <p><u>Clarification Request No.18</u> Please provide a diagram of the project activity along with the existing plants, which illustrates all steam flows and turbines in the system. Also state whether any steam is diverted from other boilers to project plant.</p>	CAR/C R	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																								
B.7.1.2. Parameter Title: Quantity of biomass residue type k combusted in the project plant during the year y BF _{k,y}	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table> <p><u>Corrective Action Request No.37</u> It is not clear how this parameter (BF_{k,y}) shall be actually measured as this parameters is having contradictory statements. Under the same parameter it is written that bagasse used by the project activity would be measured on weigh belt conveyor while in the next section it is mentioned that that it would be calculated from measured quantity of cane. Please clarify and revise PDD accordingly. If the amount of bagasse is measured please confirm, and then include parameters of moisture contents in the monitoring plan.</p>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	No	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	No	QA/QC procedures described?	No	QA/QC procedures appropriate?	No	CAR	√
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	No																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	No																											
QA/QC procedures described?	No																											
QA/QC procedures appropriate?	No																											

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																								
B.7.1.3. Parameter Title: Moisture content of the biomass residues % water content	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table> <p><u>Corrective Action Request No.38</u> The Parameter should be 'Moisture content of biomass residues' where as it is given as 'Moisture content of bagasse' in the table. Also mention correct value and measurement accuracy.</p>	Monitoring Checklist	Yes / No	Title in line with methodology?	No	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	No	Has this value been verified?	No	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	No	QA/QC procedures described?	NA	QA/QC procedures appropriate?	NA	CAR	√
Monitoring Checklist	Yes / No																											
Title in line with methodology?	No																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	No																											
Has this value been verified?	No																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	No																											
QA/QC procedures described?	NA																											
QA/QC procedures appropriate?	NA																											
B.7.1.4. Parameter Title: CH4 emission factor for the combustion of biomass residues in the project plant EF _{CH4,BF}	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	√	√								
Monitoring Checklist	Yes / No																											
Title in line with methodology?	NA																											
Data unit correctly expressed?	NA																											
Appropriate description of parameter?	NA																											
Source clearly referenced?	NA																											
Correct value provided for estimation?	NA																											
Has this value been verified?	NA																											
Measurement method correctly described?	NA																											

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.5. Parameter Title: Average round trip distance (from and to) between biomass fuel supply sites and the project site AVD _y	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable since there is no transportation of biomass from other sites to project site.			
B.7.1.6. Parameter Title: Number of truck trips for the transportation of biomass. N _y	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable since there is no transportation of biomass from other sites to project site.			
B.7.1.7. Parameter Title: Average truck load of the trucks used for transportation of biomass. TL _y	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable since there is no transportation of biomass from other sites to project site.			
B.7.1.8. Parameter Title:	2,4			√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
Average CO2 emission factor for the trucks during the year y EF _{km,CO2,y}		Monitoring Checklist	Yes / No		
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable since there is no transportation of biomass from other sites to project site.			
B.7.1.9. Parameter Title: Mass or volume unit FC _{TR,i,y}	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD																								
		QA/QC procedures described?	NA																										
		QA/QC procedures appropriate?	NA																										
		This is not applicable since there is no transportation of biomass from other sites to project site.																											
B.7.1.10. Paramater Title: CO ₂ emission factor of the fossil fuel type i. EF _{CO2,FF,i}	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table> <p>This is not applicable since there is no transportation of biomass from other sites to project site.</p>		Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	Correct reference to standards?	NA	Indication of accuracy provided?	NA	QA/QC procedures described?	NA	QA/QC procedures appropriate?	NA	√	√
Monitoring Checklist	Yes / No																												
Title in line with methodology?	NA																												
Data unit correctly expressed?	NA																												
Appropriate description of parameter?	NA																												
Source clearly referenced?	NA																												
Correct value provided for estimation?	NA																												
Has this value been verified?	NA																												
Measurement method correctly described?	NA																												
Correct reference to standards?	NA																												
Indication of accuracy provided?	NA																												
QA/QC procedures described?	NA																												
QA/QC procedures appropriate?	NA																												
B.7.1.11. Parameter Title: CO ₂ emission factor of the fossil fuel type i used for heat generation in the absence the project activity EF _{CO2,BL,heat,i}	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr></table>		Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	√	√												
Monitoring Checklist	Yes / No																												
Title in line with methodology?	NA																												
Data unit correctly expressed?	NA																												
Appropriate description of parameter?	NA																												
Source clearly referenced?	NA																												
Correct value provided for estimation?	NA																												

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable.			
B.7.1.12. Parameter Title: Quantity of fossil fuel type i combusted in the biomass residue fired power plant during the year y $FF_{\text{project plant},i,y}$	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable.			
B.7.1.13. Parameter Title:	2,4	Monitoring Checklist	Yes / No	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
Quantity of fossil fuel type i combusted at the project site for other purposes that are attributable to the project activity during the year y FF _{project site,i,y}		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		This is not applicable			
B.7.1.14. Parameter Title: Quantity of steam diverted from other boilers to the project plant.	2,4	Monitoring Checklist		√	√
		Yes / No			
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																								
B.7.1.15. Parameter Title: Average net efficiency of steam generation in the plant(s) from where steam is diverted to the project plant	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	Correct reference to standards?	NA	Indication of accuracy provided?	NA	QA/QC procedures described?	NA	QA/QC procedures appropriate?	NA	√	√
Monitoring Checklist	Yes / No																											
Title in line with methodology?	NA																											
Data unit correctly expressed?	NA																											
Appropriate description of parameter?	NA																											
Source clearly referenced?	NA																											
Correct value provided for estimation?	NA																											
Has this value been verified?	NA																											
Measurement method correctly described?	NA																											
Correct reference to standards?	NA																											
Indication of accuracy provided?	NA																											
QA/QC procedures described?	NA																											
QA/QC procedures appropriate?	NA																											
B.7.1.16. Parameter Title: Net quantity of electricity generated in the project plant during the year y EG _{project plant,y}	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	No	Appropriate description of parameter?	No	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	No	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	CAR	√						
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	No																											
Appropriate description of parameter?	No																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	No																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD																								
		Indication of accuracy provided?	Yes																										
		QA/QC procedures described?	No																										
		QA/QC procedures appropriate?	No																										
		<u>Corrective Action Request No.39</u> The data unit should be MWh/yr. The description of the parameter, value and QA/QC procedures are not complete.																											
B.7.1.17. Parameter Title: Net quantity of electricity generated in the fossil fuel fired captive power plant during the year y EG _{CP,y}	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>NA</td></tr><tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr></table> This is not applicable since there is no fossil fuel based plant	Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	Correct reference to standards?	NA	Indication of accuracy provided?	NA	QA/QC procedures described?	NA	QA/QC procedures appropriate?	NA		√	√
Monitoring Checklist	Yes / No																												
Title in line with methodology?	NA																												
Data unit correctly expressed?	NA																												
Appropriate description of parameter?	NA																												
Source clearly referenced?	NA																												
Correct value provided for estimation?	NA																												
Has this value been verified?	NA																												
Measurement method correctly described?	NA																												
Correct reference to standards?	NA																												
Indication of accuracy provided?	NA																												
QA/QC procedures described?	NA																												
QA/QC procedures appropriate?	NA																												
B.7.1.18. Parameter Title: Net quantity of electricity generated in all power units at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including	2,4	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes		CAR	√																
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	Yes																												

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD	
the new power unit installed as part of the project activity and any previously existing units, during the year y EG _{total,y}		Source clearly referenced?	Yes			
		Correct value provided for estimation?	Yes			
		Has this value been verified?	Yes			
		Measurement method correctly described?	Yes			
		Correct reference to standards?	Yes			
		Indication of accuracy provided?	No			
		QA/QC procedures described?	Yes			
		QA/QC procedures appropriate?	Yes			
		See CAR 35.				
B.7.1.19. Parameter Title: Net quantity of heat generated from firing biomass in the project plant Q _{project plant,y}	2,4	Monitoring Checklist		Yes / No	√	√
		Title in line with methodology?		NA		
		Data unit correctly expressed?		NA		
		Appropriate description of parameter?		NA		
		Source clearly referenced?		NA		
		Correct value provided for estimation?		NA		
		Has this value been verified?		NA		
		Measurement method correctly described?		NA		
		Correct reference to standards?		NA		
		Indication of accuracy provided?		NA		
		QA/QC procedures described?		NA		
		QA/QC procedures appropriate?		NA		
		Since the heat generation is not accounted for this parameter is not applicable.				

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
B.7.1.20. Parameter Title: Net quantity of heat generated in all cogeneration units at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including the cogeneration unit installed as part of the project activity and any previously existing units, during the year y $Q_{total,y}$	2,4	Monitoring Checklist		√	√
		Yes / No			
		Title in line with methodology?			
		NA			
		Data unit correctly expressed?			
		NA			
		Appropriate description of parameter?			
		NA			
		Source clearly referenced?			
		NA			
		Correct value provided for estimation?			
		NA			
		Has this value been verified?			
		NA			
B.7.1.21. Parameter Title: Net calorific value of the fossil fuel type i NCV_i	2,4	Monitoring Checklist		√	√
		Yes / No			
		Title in line with methodology?			
		NA			
		Data unit correctly expressed?			
		NA			
		Appropriate description of parameter?			
		NA			
		Source clearly referenced?			
		NA			
		Correct value provided for estimation?			
		NA			
		Has this value been verified?			
		NA			

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
		Since the heat generation is not accounted for this parameter is not applicable.			
B.7.1.22. Parameter Title: Net calorific value of biomass residue type k NCV _k	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
B.7.1.23. Parameter Title: CH4 emission factor for uncontrolled burning of the biomass residue type k during the year y EF _{burning,CH4,k,y}	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.24. Parameter Title: Average net energy efficiency of heat generation in the boiler that would generate heat in the absence of the project activity ε boiler	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.25. Incremental quantity of biomass residue type k used as a result of the project	2,4	Monitoring Checklist	Yes / No	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
activity in the project plant during the year y (tons of dry matter or liter) BF _{PJ,K,Y}		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.26. Parameter Title: Demonstration that the biomass residue type k from a specific source would continue not to be collected or utilized, e.g. by an assessment whether a market has emerged for that type of biomass residue (if yes, leakage is assumed not be ruled out) or by showing that it would still not be feasible to utilize the biomass residues for any purposes.	2,4			√	√
		Monitoring Checklist	Yes / No		
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.7.1.27. Parameter Title: Quantity of biomass residues of type k that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region	2,4	Monitoring Checklist	√	√
		Yes / No		
		Title in line with methodology?		
		NA		
		Data unit correctly expressed?		
		NA		
		Appropriate description of parameter?		
		NA		
		Source clearly referenced?		
		NA		
		Correct value provided for estimation?		
B.7.1.28. Parameter Title: Quantity of available biomass residues of type k in the region	2,4	Monitoring Checklist	√	√
		Yes / No		
		Title in line with methodology?		
		NA		
		Data unit correctly expressed?		
		NA		
		Appropriate description of parameter?		
		NA		
		Source clearly referenced?		
		NA		
		Correct value provided for estimation?		
		NA		
		Has this value been verified?		
		NA		
		Measurement method correctly described?		
		NA		
		Correct reference to standards?		
		NA		
		Indication of accuracy provided?		
		NA		
		QA/QC procedures described?		
		NA		
		QA/QC procedures appropriate?		
		NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																								
B.7.1.29. Parameter Title: Availability of a surplus of biomass residue type k (which can not be sold or utilized) at the ultimate supplier to the project and a representative sample of other suppliers in the defined geographical region.	2,4	<table> <tr> <th>Monitoring Checklist</th> <th>Yes / No</th> </tr> <tr><td>Title in line with methodology?</td><td>NA</td></tr> <tr><td>Data unit correctly expressed?</td><td>NA</td></tr> <tr><td>Appropriate description of parameter?</td><td>NA</td></tr> <tr><td>Source clearly referenced?</td><td>NA</td></tr> <tr><td>Correct value provided for estimation?</td><td>NA</td></tr> <tr><td>Has this value been verified?</td><td>NA</td></tr> <tr><td>Measurement method correctly described?</td><td>NA</td></tr> <tr><td>Correct reference to standards?</td><td>NA</td></tr> <tr><td>Indication of accuracy provided?</td><td>NA</td></tr> <tr><td>QA/QC procedures described?</td><td>NA</td></tr> <tr><td>QA/QC procedures appropriate?</td><td>NA</td></tr> </table>	Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	Correct reference to standards?	NA	Indication of accuracy provided?	NA	QA/QC procedures described?	NA	QA/QC procedures appropriate?	NA	√	√
Monitoring Checklist	Yes / No																											
Title in line with methodology?	NA																											
Data unit correctly expressed?	NA																											
Appropriate description of parameter?	NA																											
Source clearly referenced?	NA																											
Correct value provided for estimation?	NA																											
Has this value been verified?	NA																											
Measurement method correctly described?	NA																											
Correct reference to standards?	NA																											
Indication of accuracy provided?	NA																											
QA/QC procedures described?	NA																											
QA/QC procedures appropriate?	NA																											
B.7.1.30. Parameter Title: On-site electricity consumption attributable to the project activity during the year y EC _{PJ,y}	2,4	<table> <tr> <th>Monitoring Checklist</th> <th>Yes / No</th> </tr> <tr><td>Title in line with methodology?</td><td>NA</td></tr> <tr><td>Data unit correctly expressed?</td><td>NA</td></tr> <tr><td>Appropriate description of parameter?</td><td>NA</td></tr> <tr><td>Source clearly referenced?</td><td>NA</td></tr> <tr><td>Correct value provided for estimation?</td><td>NA</td></tr> <tr><td>Has this value been verified?</td><td>NA</td></tr> <tr><td>Measurement method correctly described?</td><td>NA</td></tr> </table>	Monitoring Checklist	Yes / No	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	√	√								
Monitoring Checklist	Yes / No																											
Title in line with methodology?	NA																											
Data unit correctly expressed?	NA																											
Appropriate description of parameter?	NA																											
Source clearly referenced?	NA																											
Correct value provided for estimation?	NA																											
Has this value been verified?	NA																											
Measurement method correctly described?	NA																											

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.31. Parameter Title: Use the latest approved version of ACM0002 to calculate the grid emission factor. If the power generation capacity of the project plant is less or equal to 15 MW, project participants may use the average CO2 emission factor of the electricity system, as referred to in option (d) in step 1 of the baseline determination in ACM0002. $EF_{grid,y}$	2,4,5	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	Yes		
		QA/QC procedures described?	Yes		
		QA/QC procedures appropriate?	Yes		
B.7.1.32. Parameter Title: Quantity of biomass residue type k combusted in all power plants at the project site during the year y Source of data: On-site measurements $BF_{all\ plants,k,y}$	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PDD in GSP	Final PDD
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.33. Parameter Title: CO2 emission factor of the most carbon intensive fuel used in the country EF _{CO2,LE}	2,4	Monitoring Checklist	Yes / No	√	√
		Title in line with methodology?	NA		
		Data unit correctly expressed?	NA		
		Appropriate description of parameter?	NA		
		Source clearly referenced?	NA		
		Correct value provided for estimation?	NA		
		Has this value been verified?	NA		
		Measurement method correctly described?	NA		
		Correct reference to standards?	NA		
		Indication of accuracy provided?	NA		
		QA/QC procedures described?	NA		
		QA/QC procedures appropriate?	NA		
B.7.1.34. Parameter Title: CO2 emission factor for the fossil fuel	2,4	Monitoring Checklist	Yes / No	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD
used in the captive power plant EF _{CP,CO2}		Title in line with methodology?	NA			
		Data unit correctly expressed?	NA			
		Appropriate description of parameter?	NA			
		Source clearly referenced?	NA			
		Correct value provided for estimation?	NA			
		Has this value been verified?	NA			
		Measurement method correctly described?	NA			
		Correct reference to standards?	NA			
		Indication of accuracy provided?	NA			
		QA/QC procedures described?	NA			
		QA/QC procedures appropriate?	NA			
B.7.2. Description of the monitoring plan						
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation?	2,16	Yes, the operational and management structure is defined in the PDD <u>Corrective Action Request No.40</u> This section states the auxiliary consumption of the plant will be measured but the same is not included in the monitoring plan .Please include. <u>Corrective Action Request No.41</u> It is mentioned that the electricity generation records will be maintained in log books on eight hourly bases for the both new and existing power plant, which is quite contradictory with description stated in section A.2 that the turbine generators of 2.5 MW and 1.5 MW could continue to operate but are retired due to the installation of new biomass residue fired plant. Please modify it in the			CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		PDD.		
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	2	The responsibilities have been defined	√	√
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	2	Yes, the monitoring plan provides current good practices. See above in B.7.1.2	√	√
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	2	Yes	√	√
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
B.8.1. Is there any indication of a date when the baseline was determined?	2	Yes, the date for baseline determination has been indicated as 9th March 2007.	√	√
B.8.2. Is this consistent with the time line of the PDD history?	2	Yes, it is consistent with PDD history.	√	√
B.8.3. Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	1,2	Yes both the project owners Ben Atkinson, Agrinergy Ltd, and Mr. B P Dixit, LHSF, project participant, are responsible for the baseline determination	√	√
B.8.4. Is information provided whether this person / entity is also considered a project	1,2	Yes, LHSF is also the project participant.	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
participant?				
C. Duration of the project activity / crediting period				
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	2, 15, 40	Yes, the starting date of the project is given as 24/04/2006 and the operational lifetime as 20 years	√	√
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	2	Renewable 7 year crediting period has been chosen.	√	√
D. Environmental impacts				
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
D.1.1. Has the analysis of the environmental impacts of the project activity been sufficiently described?	2	<p>The analysis of environmental impacts in pre and post project scenario is given.</p> <p><u>Corrective Action Request No.42</u></p> <p>Please describe in details about impacts in the pre and post Project Scenario and also during commissioning, explaining how the same will be mitigated.</p>	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			<u>Clarification Request No.19</u> Please submit the summary of EIA report		
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	2	EIA is not required for the project activity as per Indian Government regulations however an EIA has been done voluntarily.	√	√
D.1.3.	Will the project create any adverse environmental effects?	2,13,35	Project is not likely to create any adverse environmental effects.	√	√
D.1.4.	Were transboundary environmental impacts identified in the analysis?	2	No	√	√
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
D.2.1.	Have the identified environmental impacts been addressed in the project design sufficiently?	2	No significant environmental impacts have been identified.	√	√
D.2.2.	Does the project comply with environmental legislation in the host country?	2	Yes	√	√
E. Stakeholders' comments					
E.1. Brief description how comments by local stakeholders have been invited and compiled					
E.1.1.	Have relevant stakeholders been consulted?	2	<u>Corrective Action Request No.43</u> PDD does not identify the stakeholders consulted and it does not include a summary of the comments received. Please include this	CAR	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			information in the PDD.		
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	60,63	Letters were sent out and advertisements were placed in the local news papers to invite comments from the stakeholders.	√	√
E.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?	2	Stakeholder consultation is not required by law.	√	√
E.1.4.	Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	2	See above in E.1.1	√	√
E.2. Summary of the comments received					
E.2.1.	Is a summary of the received stakeholder comments provided?	2	See above in E.1.1	√	√
E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	2	No adverse comments were received.	√	√
F. Annexes 1 – 4					
Annex 1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	2	Yes, the information is consistent with the details given under section A.3	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
F.1.2.	Is the information on all private participants and directly involved Parties presented?	2	Yes	√	√
Annex 2: Information regarding public funding					
F.1.3.	Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	2	Yes, the information provided is consistent with the actual situation.	√	√
F.1.4.	If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	2	Not applicable	√	√
Annex 3: Baseline information					
F.1.5.	If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	2	Information on historic generations, bagasse consumption, power plant and electrical efficiency of the existing plant are given.	√	√
F.1.6.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	2	Yes	√	√
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	2	Yes	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
Annex 4: Monitoring information					
F.1.8.	If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	2	Yes, additional monitoring information with respect to calibration of meters, maintenance of log books and handling emergency situations are provided.	√	√
F.1.9.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	2	Yes	√	√
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	2	Yes	√	√

Table 1b: Checklist with all relevant parts of the Tool to calculate the EF for an electricity system.					
F.1.10.1.	Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	2,4, 6, 76	No. <u>Corrective Action Request No.44</u> The tool was not applicable at the time of 1 st GSP and version 1 was adopted at the time of repeat GSP. However the PP needs to update with the latest version of the tool for the final PDD.	CAR	√
F.1.10.2.	Is the relevant electric power system identified and justified? (step 1)	2,4, 6, 76	Yes. NEWNE grid has been chosen as the relevant electricity system and is acceptable.	√	√
F.1.10.3.	Is the choice of options to determine the operating margin justified in a suitable and transparent manner? (step 2)	2,4, 6, 76	Yes. Simple OM method for the estimation of the baseline has been chosen.	√	√

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

F.1.10.4. Are the formulae required for the determination of the operating margin factor correctly presented, enabling a complete identification of parameter to be used and / or monitored? (step 3)	2,4,6, 76	Yes. Simple OM emission factor is calculated as the generation-weighted average CO ₂ emissions per unit net electricity generation (tCO ₂ /MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units. Subsequently choosing Option A, the simple OM emission factor is determined as per formula 1 of tool as 1.00.	√	√
F.1.10.5. Is the cohort of power units to be included in the build margin appropriately identified (step 4)	2,4,6, 76	Yes. The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently has been adopted. In terms of vintage of data, project participants went ahead to choose the option 1. This option does not entitle the project proponent to monitor the emission factor during the crediting period.	√	√
F.1.10.6. Are the formulae required for the determination of the build margin factor correctly presented, enabling a complete identification of parameter to be used and / or monitored? (step 5)	2,4,6, 76	Yes. The build margin emission factor has been correctly calculated using the formula 12 of tool as 0.60.	√	√
F.1.10.7. In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?	2,4,6, 76	Not Applicable.	√	√
F.1.10.8. In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?	2,4,6, 76	Not Applicable.	√	√
F.1.11. <i>Data and parameters that need to be monitored or need to be calculated only once for the crediting period and thus are available at validation, depending on the data vintage chosen</i>				

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

F.1.11.1. Is the list of parameters presented in chapter B.6.2/B.7.1 considered to be complete with regard to the requirements of the applied methodology?	2,4, 6, 76	Yes.	√	√																		
F.1.11.2. Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	2,4, 6, 76	Yes.	√	√																		
F.1.11.3. Is the calculation of the OM and BM factors documented electronically in a spreadsheet attached to the CDM-PDD including all data used for calculation as per the tool (page 17,18)?	2,4, 6, 76	Yes.	√	√																		
Fill in the required amount of sub checklists for monitoring parameter and comment any line answered with “No”																						
F.1.11.4. Parameter Title: FC _{i,m,y} ; FC _{i,y} ; FC _{i,j,y} ; FC _{i,n,y} ; FC _{i,n,h} amount of fossil fuel type i consumed by power plant/unit <i>m,j,k</i> or <i>n</i> (or in the project electricity system in case of FC _{i,y}) in year <i>y</i> or hour <i>h</i> (mass or volume unit)	2,4, 6, 76	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
F.1.11.5. Parameter Title: NCV _{i,y} Net calorific value of fossil fuel type i in year <i>y</i> (GJ/mass or volume unit)	2,4, 6, 76	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	√	√												
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

		<table><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes								
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
F.1.11.6. Parameter Title: EF _{CO2,i,y} ; EF _{CO2,m,i,y} CO ₂ emission factor of fossil fuel type i in the year y	2,4, 6, 76	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
F.1.11.7. Parameter Title: EG _{m,y} ; EG _y ; EG _{j,y} ; EG _{k,y} ; EG _{n,h} Net electricity generated and delivered to the grid by power plant/unit <i>m,j,k</i> or <i>n</i> (or in the project electricity system in case of EG _y) in year <i>y</i> or hour <i>h</i> (mass or volume unit)	2,4, 6, 76	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 70



Industrie Service

F.1.11.8. Applicable for the dispatch data OM Parameter Title: $EG_{PJ,h}$ Electricity displaced by the project activity in hour h of year y	2,4, 6, 76	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
F.1.11.9. Parameter Title: $\eta_{m,y}$ average net energy conversion efficiency of power unit m in year y	2,4, 6, 76	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	√	√
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
<u>Open Issue 1</u> A letter of Approval from the host party confirming that the project contributes to the sustainable development in the country needs to be submitted to the audit team.	-	The copies of the HCA are attached.	The Host country approval letter is submitted. Issue is closed. <input checked="" type="checkbox"/>
<u>Open Issue 2</u> A letter of modalities of communications needs to be submitted	-	The Modalities of Communication is attached.	The letter of modalities of communication is submitted. Issue is closed. <input checked="" type="checkbox"/>

Table 1 is applicable to ACM0006 ver. 10.1

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.1.</u></p> <p>Please clarify why the CDM process was started in May 2007 by appointing a validator though the implementation of the project started way back in April 2006.</p> <p>Table 1 is applicable to ACM0006 ver. 10.1</p>	<p>A.2. 1</p> <p>The project was always envisaged as a CDM and this is evidenced through the earlier small scale bagasse based registered CDM project. Version 3 of the methodology required clarification on whether it was applicable to cogeneration and hence a PDD was not submitted immediately. The consultants for the project activity made the site visit in January 2007 and a draft PDD was ready in March for submission to the Indian DNA. The DOEs were contacted for the validation quotes in April 2007. Given that the commissioning date of the project activity was around Feb 2008 this gave sufficient time to the project proponents to undertake formalities for the CDM project development.</p> <p><u>Further response by the Project proponent</u></p> <p>The schedule from the supplier has been already submitted to substantiate the timing on supply of key equipments and their commissioning. As far CDM process is concerned, we have already given the schedule as per the above explanation and it is evident that project has taken time and this is a primarily due to delay in signing the contract with the project proponent and the consultant for the development of the project. The main reason for this were the terms of the contract and once these were agreed in principle the consultant went ahead with the development of the project in terms of collecting the raw data by going to the site in January 2007 and making a draft PDD by March 2007. For the information of the DOE, the contract was signed on paper on 9th July 2007. This obviously shows that there were delays. This is however confidential but the same can be confirmed by the project proponent if the need be.</p>	<p>The response is not giving a clear indication of the delay in CDM process. This should be substantiated by clear documentary evidences right from the project starting date. The whole argument must be in line with the chronological list that shall be included in section B.5 of PDD.</p> <p><u>Further response by the Audit Team</u></p> <p>The schedule of implementation from the equipment supplier substantiates the activities done as per the technology, whereas the CAR 1 is to enquire about delay in CDM process. A chronology of events right from the start date until the appointment of the Validator should be included in section B.5 of the PDD to demonstrate the delay in the project activity (this shall be supported by evidence).</p>
---	---	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

	<p><u>Response by project proponent (Nov 2008)</u></p> <p>A chronology of events has now been included in section B5 to highlight the events that took place with regard to the development of the project as a CDM. It should also be recognized that LHSF had already registered one CDM project on bagasse cogeneration which started operation in December 2005.</p> <p><u>Response by project proponent</u></p> <p>The start date has now been included in the chronology.</p>	<p><u>Further response by the Audit Team</u></p> <p>A chronology of events included in section B5 is missing the start date of proposed project.</p> <p><u>Final response by audit team</u></p> <p>Based on the reliable information provided the delay in appointing the validator for the proposed CDM project is justified. Though the implementation of the project started in April 2006 the project proponent already owns a CDM project registered on 5th May 2006 which has its implementation started prior to April 2006. This indicates project proponents' awareness of the CDM prior to the project activity start date, and also that the benefits of the CDM were a decisive factor in the decision to proceed with the project.</p>
--	---	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Clarification Request No.1</u> The starting date of the project activity is given as 24/04/2006 and the commissioning of the project activity was in March 2008. Please submit the chronological list of all the documents related to the project activity since its inception till date.	A 1.3	The purchase orders justifying the start date of the project have been already submitted at the time of site visit, these were checked by Mr Kathuria. However, copies of schedule drawn by the equipment supplier is now submitted to the DOE for reference. <u>Further response by the Project proponent</u> As indicated the documents have been submitted and we would like to know if this is closed or not.	Documents have been submitted to the audit team. <u>Final response by the Audit Team</u> The documents required have been submitted to the audit team and hence the issue remains closed. <input checked="" type="checkbox"/>
--	----------	--	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.2.</u></p> <p>The PDD should clearly define the crushing capacities in the pre and post project scenarios. It should clearly define the equipments and project boundaries which are part of the registered project. Please provide the single line diagrams from the cogenerations systems in the pre and post project scenario.</p>	<p>A.2. 1</p>	<p>The factory has been expanding its crushing capacity at regular intervals and at the time of commissioning of the project activity this is supposed to be at 10,000 TCD. The factory crushed at 7,300 TCD during 2006-2007 season. The description of the equipments has been further clarified in the PDD. The relevant project boundary has been mentioned in the project activity.</p> <p>The diagram as requested is attached</p> <p><u>Further response by the Project proponent</u></p> <p>The capacities have been detailed in section B.2 paragraph 3. Single line diagram was already submitted as also indicated by the response from the DOE. We have further included the data from the spreadsheet (which has been already reviewed by the DOE – CR5) on "LH Biomass scenario" in the Annex 3 of the PDD.</p> <p><u>Response by project proponent (Nov 2008)</u></p> <p>A single line diagram is attached in the Annex 3 of the revised PDD.</p>	<p>Separate diagram is submitted to audit team. But where in the PDD is it clearly defined the crushing capacities in the pre and post project scenarios. Include the single line diagram for the cogeneration systems in the pre and post project scenario in PDD.</p> <p><u>Further response by the Audit Team</u></p> <p>The information provided in section B.2 is acceptable. Please include the single line diagram in the PDD to close this issue.</p> <p><u>Final response by audit team</u></p> <p>The single line diagram has been verified in PDD and accepted.</p> <p><input checked="" type="checkbox"/></p>
--	-------------------	--	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.3.</u> Please provide the amounts of bagasse generated and that would be used in the project activity.</p>	<p>A.2. 1</p>	<p>Please refer to the attached spreadsheets. <u>Further response by the Project proponent</u> Please refer to the section B.7.1 on bagasse consumption in the project activity and for bagasse generation figure please refer to Annex 3.</p>	<p>This needs to be included in the PDD. <u>Final response by the Audit Team</u> The information is included in the PDD. Therefore the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.4.</u> The PDD should explain clearly the electricity generated and the export to the grid. Also mention the connection point with the grid.</p>	<p>A.2. 1</p>	<p>The electricity generated is given in section B.6.3. The plant will export 21.78 MW during season and 24.08 MW during off-season which is now mentioned in the PDD. The grid connection is at the site and the electricity is exported via the nearest substation as mentioned in the PDD. <u>Further response by the Project proponent</u> Please refer to section A.4.3 for further details on substation.</p>	<p>Mention the nearest substation and its distance from project site in the PDD. <u>Final response by the Audit Team</u> The final PDD explain transparently the details of electricity generated and export to the grid. The name of the substation is mentioned and so the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.5.</u></p> <p>The PDD does not provide clearly status of the equipments in the post project scenario. Some of the equipments which are planned to be decommissioned will actually stay as standby as per information gathered during the site visit. Please clarify in transparent manner the configuration of power and thermal equipments in pre and post project scenarios.</p>	<p>A.2. 3</p>	<p>The pre and post project scenarios have been detailed in the revised PDD.</p> <p><u>Further response by the Project proponent</u></p> <p>CAR2 has been further detailed.</p>	<p>The details of configuration of thermal and power equipments in the pre and post project scenarios have been discussed in the revised PDD. Closure of this issue is subject to closure of CAR 2.</p> <p><u>Final response by the Audit Team</u></p> <p>The issue has been resolved.</p> <p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.6.</u></p> <p>The PDD should define the GPS co-ordinates for the location of the project activity. Include them in section A.4.1.4 of the PDD. The coordinates of the district included are very vague and do not serve the actual purpose. In addition the crediting period will extend up to 2018 considering the 7 year crediting period. Please revise in section A.4.4 of the PDD.</p>	<p>A.4. 1.1</p>	<p>The geographical coordinates have been now given in the PDD and the crediting period has also been revised.</p> <p><u>Further response by the Project proponent</u></p> <p>+28.618 Latitude +79.819 Longitude</p> <p>This has been incorporated into the PDD.</p>	<p>Yes, it is revised. However please indicate GPS coordinates accurately to be in decimal format with +/- sign and not with N/E/S/W specifier in order to allow the exact identification of the site as per UNFCCC.</p> <p><u>Final response by the Audit Team</u></p> <p>The issue is now resolved.</p> <p><input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.7.</u> Please include map of the district/state in which the project is located for clear identification of the site.	A.4. 1.1	The MAP is now attached.	A map is now included in the PDD. Hence the issue remains closed. <input checked="" type="checkbox"/>
<u>Corrective Action Request No.8.</u> Please provide a brief description of the technology employed in the project activity.	A.4. 3.1	The technology employed is detailed in section A.2. <u>Further response by the Project proponent</u> This has been now included in section A.4.3 as well.	Provide information on technology employed in the project activity in section A.4.3 of PDD as well. <u>Final response by the Audit Team</u> The information on technology employed is provided and hence the issue remains closed. <input checked="" type="checkbox"/>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.9.</u></p> <p>In the single line diagram for the cogeneration systems, clearly indicate the interconnection point with the grid.</p>	<p>A.4. 3.1</p>	<p>Please refer to response to CAR2.</p> <p><u>Further response by the Project proponent</u></p> <p>The line diagram as such does not contain the interconnection point with the grid. However, the connection point is within the factory as they already have a grid based export from the earlier small scale CDM project activity. The same connection point will be used to export electricity at 132 kV via the Roopurkamlu substation.</p> <p><u>Further response by project proponent (Nov 2008)</u></p> <p>A single line diagram is attached in the Annex 3 of the revised PDD.</p>	<p>Where is the diagram and interconnection point with the grid in the PDD?</p> <p><u>Further response by the Audit Team</u></p> <p>Please see our response to CAR2.</p> <p><u>Final response by audit team</u></p> <p>The single line diagram has been verified in PDD and accepted.</p> <p>☑</p>
<p><u>Corrective Action Request No.10.</u></p> <p>How is it justified that in the off-season 23 MW are exported (1 MW more than in the on-season)? Explanation in the PDD should be provided. What is the evidence and also calculation of 22 MW used for "season" referring to section A.4.3 of PDD and also the spreadsheet?</p>	<p>A.4. 3.1</p>	<p>In the off-season the turbine operates in full condensing mode whilst during the season the turbine operates in an extraction and condensing mode. The pure condensing mode consumes less power and hence the turbine generates a higher output.</p>	<p>The justification by the PP regarding variations in exported power is acceptable. The evidence (page 22) and also calculation of 21.78 MW used for "season" have been now submitted to the audit team.</p> <p>The revision to PDD has been verified and accepted.</p> <p>Hence the issue remains closed.</p> <p>☑</p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.11.</u> It is stated in section A.4.3 of the PDD that the efficiency of heat generation in the project plant is smaller or the same compared to the existing cogeneration plant. However this is not mentioned in the applied methodology, Version 10.1, scenario 11 (page 14). Actually the thermal efficiency in the project plant is bigger than in the baseline scenario as demonstrated on page 21 of this PDD. Therefore please clarify.	A.4. 3.2	This has been removed from the PDD.	The revision has been verified and accepted. Hence the issue remains closed. <input checked="" type="checkbox"/>
<u>Corrective Action Request No.12.</u> The PDD should include a description of how the technology employed is environmentally safe and sound.	A 4.3. 4	An EIA has been conducted for the factory and this details the safety standards of the project activity. This has also been mentioned in the PDD.	PDD now includes a description of how the technology employed is environmentally safe and sound. Hence the issue remains closed. <input checked="" type="checkbox"/>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.2</u></p> <p>Please provide the demand and requirements for training and maintenance of the key equipments used in the project activity.</p>	<p>A 4.3. 9</p>	<p>The requirement for the training and maintenance of the equipments is fulfilled by the relevant supplier as per the normal industry practice and as per the supply contract.</p> <p><u>Further response by the Project proponent</u></p> <p>The relevant documents on training are attached for your reference.</p>	<p>Please provide the demand and requirements for training and maintenance of the key equipments used in the project activity.</p> <p><u>Final response by the Audit Team</u></p> <p>The documents provided can be accepted and hence this issue remains closed.</p> <p>☑</p>
<p><u>Clarification Request No.3</u></p> <p>Please provide the schedule for implementation of the project and mention whether there are any delays.</p>	<p>A.4. 3.1 0</p>	<p>The schedule is as per the response given in the CR1 above. The delays were in the delivery of the turbine generator from the supplier.</p> <p><u>Further response by the Project proponent</u></p> <p>There is no separate project implementation schedule. The implementation schedule is as per the schedule given by the supplier submitted to the DOE. The implementation is dependent on the supplier and therefore the schedule given by the supplier is the primary document. The DOE may also refer to the CAR 1 for further details.</p>	<p>Documents have been submitted to the audit team and have been verified. Therefore the issue remains closed.</p> <p>☑</p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.13.</u> Referring to table included in section A.4.4 and B.6.4, start of the crediting period in 2009 is not possible anymore. Please revise. Also check C.1.1 for this.</p>	<p>A.4. 4.1</p>	<p>This has been revised.</p>	<p>The revision has been verified and accepted. Therefore the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.14.</u> Include the title and reference to the methodology for ACM0006 in the section. Further more version of ACM0002 should be updated.</p>	<p>B.1. 1</p>	<p>Please refer to section B.1. <u>Further response by the Project proponent</u> The title has been included in the revised PDD <u>Response by project proponent (Nov 2008)</u> The title now refers to the name and number of the methodology. Also version of ACM 0002 is updated.</p>	<p>Where is the title? <u>Further response by the Audit Team</u> Indicate the title of the methodology correctly. <u>Final response by audit team</u> PDD is revised. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.15.</u></p> <p>a) Referring to section B.2 of the PDD it is stated that during the 2007-2008 season the factory plans to increase its crushing capacity to 10,000 TCD. What about the plans for the seasons 2008-2009 / 2009-2010 and so on? Further since 2007/2008 is already over. Please revise the sentence.</p> <p>b) Similarly it is also stated in the same section that the actual length of this will depend on the running hours of the plant and the length of the sugar crushing season. Referring to this what could be the maximum number of days between the end of the season and the start of the new season.</p> <p>c) "What is the evidence and also calculation of 22 MW used for "season" referring to section A.4.3 of PDD and also the spreadsheet?" The submitted supply order document indicates an Electrical output (MWe) of 26.75 during off-season. How exactly occurs increased power generation up to 22 MW during season and 23 MW during off-season shall be explained, in the PDD, also preferably in a spreadsheet. Furthermore the key decision dated 10th January 2006, of the board of director's of LHSF only approved 20-22 MW power to the grid. Why is this contradiction about 22-23 MW?</p>	<p>B.2. 4</p>	<p>a) There was no increase in capacity in 2008/09 and 2009/10. There are no further plans to increase the capacity.</p> <p>b) Referring to the most recent data on the plant a season of 91 days occurred in 2008/09 so the length between the end of one season and the start of the next would therefore be 274.</p> <p>c) The justification of the 22MW has been provided but to substantiate this we have provided the actual running of the turbine in the 2008/09 which shows an average generating capacity of less than 17MW. The board had approved only 20-22 MW power to the grid as initially the TG set rating was considered 24-25 MW because normally the manufacturer was making the TG sets of sizes 24-25 MW. Ultimately only Triveni offered 26.75 MW whilst the other manufacturers, like Siemens, had offered 24 MW in their offer. The final order was placed with M/s. Triveni for supply of 26.75 TG set and this was the reason why there has been a power increase against the initial decision.</p> <p><u>PP's response 2</u></p> <p>The basis of the 22MW of exports is taken from the "Supply order" document that has been provided. On page 22 of the supply order there is the performance data relating to the turbine, case 3 represents the season set up with the extraction steam and exhaust flow – this yields a capacity of 24.2MW. In line with the earlier assumptions provided in the spreadsheet we have used an auxiliary consumption of 10% which has been provided by the power plant supplier.</p>	<p>The revision regarding a & b has been verified and accepted.</p> <p>Regarding c: The question is about the value 22 MW used for "season", the basis of it should be explained transparently. Also please confirm in the PDD that the plant does not expect to export 17MW of power to the grid.</p> <p>While it is stated that the offer for 24MW that was actually planned was readily available from the supplier, it shall be clearly explained what exactly influenced the PP to change its earlier decision and choose 26.75MW.</p> <p><u>Final response by audit team</u></p> <p>The justification is reasonable. Hence the issue remains closed.</p> <p>☑</p>
--	-------------------	--	--

Table 1 is applicable to ACM0006 ver. 10.1

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

		<p>Deducting this auxiliary consumption (2.42MW) yields and export capacity of 21.8MW and we have used 22MW in our analysis.</p> <p>The reason for the change in the turbine capacity revolves around the comparative operational parameters of the Siemens and Triveni turbine. The Siemens quote for a 24MW turbine assumes a steam flow of 116 tph in the season (to match the sugar factory) and hence as the Triveni turbine offered a higher output 26.75MW on the same steam flow the decision was made to purchase the Triveni turbine as it offered a higher electrical output on the same boiler capacity. The Siemens quotation is enclosed.</p> <p>As outlined in section A 4.3 of the PDD (page 5) the export figures for the season and off season as outlined, 21.78 MW and 24.08 MW respectively, and not 17MW.</p>	
<p><u>Corrective Action Request No.16.</u></p> <p>PDD should be revised as per combined tool of additionality, which is referred by version 10.1 of the applied methodology.</p>	<p>B. 2.4</p>	<p>The PDD has now been revised to follow the combined tool to identify the baseline scenario and demonstration of additionality.</p>	<p>PDD is revised. Hence the issue remains closed.</p> <p>☑</p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.17.</u> PDD should clearly state and justify whether any other fuel than bagasse will be used in the project activity. Furthermore the PDD informs about the sugar cane crushed during 2006-2007 season and 2007-2008 season, but what about the subsequent years (2008 to the end of the crediting period). Real figures (until 2009) and afterwards estimations should be presented in the PDD.</p>	<p>B.2. 4</p>	<p>As discussed during the site visit, no fuel other than bagasse will be used in the project activity. Further it has also been clarified that the boiler in the project activity is designed to use only bagasse. Therefore, no other fuel than bagasse will be utilized in the project activity. The sugar cane crushed in the future is extremely difficult to predict. During the 2008/09 year the factory crushed 627,532 tonnes of cane against 1,057,064 in the year 2007/08. This supporting information for this data has been provided from the RT8C.</p>	<p>It can be confirmed that the boiler in the project activity is designed to only fire bagasse. The justification by the PP stated can be considered appropriate since it reflects a phenomenon of sugar cane production that is common for the country. Relevant data of bagasse has been presented in the PDD Annex 3. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No.4</u> Mention what kind of storage facilities available for the bagasse in the plant? How much bagasse can be stored at a time?</p>	<p>B 2.5</p>	<p>The factory has a storage yard capacity of 80,000 tonnes Normally at a time the factory can store about 30,000 tonnes. Storage time is not more than 6-7 months.</p>	<p>The response indicated is accepted. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.18.</u> Referring to the table included in section B.3 of the PDD:</p> <ul style="list-style-type: none"> a) Project Activity: On-site fossil fuel consumption due to the project activity- What about electricity consumption since the methodology indicates this possibility? b) Does the effluent treatment plant involves (partly) anaerobic conditions and does this waste water result from treatment of biomass? If yes PE (CH₄) needs to be considered. Please Clarify in PDD (also clarify this in section D.1 of PDD). 	<p>B.3. 4</p>	<ul style="list-style-type: none"> a) There is no expected to be any electricity consumption aside from that from other power plants at the site which are renewable. Therefore this source can be ruled out. Text to clarify this has been added into the table in section B3 under the sources of emissions arising from the project activity (under the heading "On-site fossil fuel consumption") b) The effluent treatment plant does not involve anaerobic conditions and therefore there are no methane emissions associated with the project activity. 	<p>The revision has been verified and accepted. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.19.</u> Please include the diagram for the project boundary clearly showing the key equipments</p>	<p>B 3.7</p>	<p>The diagram has now been included in the PDD.</p> <p><u>Further response by the Project proponent</u></p> <p>Please refer to the revised PDD in section B.3</p>	<p>Where is the diagram in the PDD?</p> <p><u>Further response by the Audit Team</u></p> <p>The diagram is included in the revised PDD and hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.5</u></p> <p>It is not clear why the alternative any of B5 to B8 can be biomass baseline when the biomass is being sold for last three years. In the absence of current project activity bagasse will continue to be sold to the Paper manufacturing Industry.</p>	<p>B.4. 2</p>	<p>B5, B6, B7 and B8 can not be realistic representation of biomass scenario as the biomass residue will only be used for heat and/or electricity generation at the project site and this equates to B4.</p> <p>The bagasse has been sold historically but from the 2007-2008 season this would not have been the case as even in the absence of the project activity the factory would not sell the bagasse as there is no surplus. The factory has been continuously expanding and the extra demand for heat would be met by a lower efficiency boiler which would consume more bagasse for unit generation of steam. This is the realistic baseline scenario for the project activity. This analysis has been further supported by the attached bagasse balance for the 2006-2007 season, the baseline scenario and the project scenario.</p>	<p>It has been verified from the bagasse balance for 2006-2007 season, 2007-2008 and project scenario that the extra demand for heat due to expansion would be met by a lower efficiency boiler in the absence of project activity. Hence the issue remains closed.</p> <p>☑</p>
<p><u>Corrective Action Request No.20.</u></p> <p>Referring to section B.4 of PDD- Please revise to include:</p> <ul style="list-style-type: none">a) 11 power baseline alternativesb) 10 heat baseline alternatives	<p>B.4. 2</p>	<p>This has been revised</p>	<p>The revision has been verified and accepted. Hence the issue remains closed.</p> <p>☑</p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.6</u> In the calculation of efficiency of heat generation in the baseline and project scenarios, please provide the basis for the values of 60% and 80% efficiencies mentioned in the PDD.</p>	<p>B 6.1</p>	<p>We have made these assumptions on a conservative side as the methodology permits assumptions of an efficiency of 100% as a conservative default value. With 100% efficiency we still get $\varepsilon_{th, projectplant} > \varepsilon_{th, referenceplant}$ and therefore it is fine to assume a ERheat = 0.</p> <p><u>Response by project proponent (Nov 2008)</u> The efficiency figures have been revised now and the supporting evidences from the manufacturers are attached for reference. The efficiency has now been taken as 68% for the low pressure system and 70% for the high pressure system for the sake of demonstrating the efficiencies. However the project activity still believes that the efficiency for the high pressure system will be higher in actual operation and that the figures provided by the manufacturer are overly conservative (low).</p> <p><u>Response by project proponent</u> The efficiencies of 70% and 68% are taken from the manufacturer's specifications, scanned copies of these have been provided.</p>	<p>Therefore the issue is still pending!</p> <p><u>Further response by the Audit Team</u> Although emission reductions are not claimed for heat energy, provide clear description in the PDD as to how the values of 60% and 80% thermal efficiencies are assumed?</p> <p><u>Final response by the Audit Team</u> PDD is revised as per manufacturer's specifications. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
--	------------------	---	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.7</u></p> <p>Please submit the detailed calculations with back up evidences to demonstrate the following as defined in scenario 11 of ACM0006</p> <ul style="list-style-type: none"> • efficiency of heat generation is same or smaller than the existing cogeneration plants • efficiency of Electricity generation is higher in the new Power Plant than the existing cogeneration plants <p>Additionally please clarify why the thermal efficiency in the project should be higher than baseline scenario as defined in section B5 of the PDD.</p>	<p>B.4.3</p> <p>The calculations are attached to clarify the issues raised. The thermal efficiency is higher in the project compared to the baseline scenario due to the installation of high pressure and temperature boiler. In the baseline, low pressure and temperature boilers would continue to operate which have a lower thermal efficiency.</p> <p><u>Response by project proponent</u></p> <p>As mentioned the project activity is the installation of high pressure boiler and a condensing cum extraction turbine generator. This system is efficient as this type of turbine consumes less steam and energy extraction from steam is better. Efficiency of heat generation is presented in the spreadsheet under the sheet ERheat. This shows that the steam to bagasse is higher for the new project (0.7) relative to the baseline (0.68) and therefore is more efficient.</p> <p>The efficiency of electricity generation is also higher. If we look at the existing system, the efficiency is 0.02375 while for the project it is 0.0913 which is higher in line with the methodology. Detailed analysis is provided in the attached spreadsheets.</p>	<p>What about efficiency of electricity generation?</p> <p><u>Final response by audit team</u></p> <p>The spread sheet has been verified to check that the efficiency of heat generation in project plant is higher than that in the existing cogeneration plants. Spread sheet has been verified and it is accepted that efficiency of electricity generation is also higher in the new power plant than the existing cogeneration plants. Hence the issue remains closed.</p> <p>☑</p>
---	---	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.8</u></p> <p>Scenario 11 does allow for decommissioning of existing power generation equipment in spite of the fact that they continued to have residual life. Please provide information on residual life of the existing equipments.</p>	<p>B 4.7</p>	<p>As mentioned in the PDD, the existing equipments could continue to operate but are retired due to the installation of new biomass residue fired power plant.</p> <p><u>Further response by the Project proponent</u></p> <p>Please refer to the response on CAR 15 below. The evidences have been already provided as also mentioned by the DOE in its response.</p>	<p>Decommissioning of the existing equipment in the project activity is mentioned in the PDD. However please provide information in the form of evidence on residual life of the existing equipments.</p> <p><u>Further response by the Audit Team</u></p> <p>The information on residual lifetime of the existing equipments is provided along with the supporting documents. The issue is now resolved.</p> <p>☑</p>
--	------------------	--	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.21.</u> Please determine and include in PDD the age and the average technical lifetime of the existing power and heat generating equipments as per scenario 11 of the methodology.	B.4. 7	<p>The details regarding remaining technical lifetime of the existing equipments have been attached.</p> <p><u>Further response by the Project proponent</u></p> <p>The details on technical lifetime of turbines and boilers are now included in the PDD. Please refer to the Annex 3 in the PDD.</p>	<p>Technical lifetime of turbines and boilers is attached but needs to be included in the PDD. This issue is still open.</p> <p><u>Further response by the Audit Team</u></p> <p>The details are included and hence the issue remains closed.</p> <p>☑</p>
--	-----------	---	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.9</u></p> <p>It is not clear from the description as to when the CDM was considered in the decision to proceed with the project activity. Provide relevant documents to prove that CDM was considered in the decision to proceed with project activity.</p>	<p>B.5.1</p> <p>The project proponents have already registered a small scale bagasse based project activity as a CDM which was registered on 5th May 2006. The proposal for the current project as CDM follows from the previously registered CDM project. Therefore, the project proponents were already aware about CDM and this is the reason why the current project is also proposed as CDM. This is a sufficient evidence for CDM consideration.</p> <p><u>Further response by the Project proponent</u></p> <p>Please refer to the response to CAR 1.</p> <p><u>Response of project proponent (Nov 2008)</u></p> <p>The timeline has now been provided in the PDD in section B 5.</p> <p><u>Response of project proponent</u></p> <p>The timeline now provides the evidence that the CDM was seriously considered in the decision to develop the project and that CDM was actively pursued during the development of the project.</p>	<p>Include the chronological list of all the activities (supported by submitted documents) related to the project activity since its inception till date in PDD section B.5.1.</p> <p><u>Further response by the Audit Team</u></p> <p>Please provide appropriate response. It needs to be transparently demonstrated in the PDD that the CDM was seriously considered in the decision to implement the project activity.</p> <p>As per Annex 22 of EB 49 if evidence to support the serious prior consideration of the CDM as indicated above is not available the DOE shall determine that the CDM was not considered in the decision to implement the project activity.</p> <p><u>Final response by audit team</u></p> <p>Based on the reliable information provided the delay in appointing the validator for the proposed CDM project is justified.</p>
---	--	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

			<p>During the Board of Directors meeting on 10th January 2006, it was decided to add 120 TPH boiler and 26.75 MW to the existing biomass based export facility at LHSF. Identifying financial barrier to be crucial, the Board on the same day also considered applying for CDM benefits while implementing the cogeneration project, which could eventually enable sale of 20-22 MW power to the regional grid. Though the actual implementation of the project started in April 2006 the project proponent already owned a CDM project registered on 5th May 2006 which has its implementation started prior to April 2006. This indicates project proponents' awareness of the CDM prior to the project activity start date, and also that the benefits of the CDM were a decisive factor in the decision to proceed with the project.</p> <p>☑</p>
--	--	--	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.22.</u></p> <p>The applied methodology requires the use of Combined Tool, why the same is not used. Please clarify.</p>	<p>B.5. 2</p>	<p>Although the methodology requires use of 'Combined tool to identify the baseline scenario and demonstrate additionality'. One of the alternative baseline scenarios of the project is however P4: Generation of power to the grid. Since the combined tool also states that "Methodologies using this tool are only applicable if all potential alternative scenarios to the proposed project activity are available options to project participants". Regarding this a clarification has been sought, AM_CLA_0120: https://cdm.unfccc.int/UserManagement/FileStorage/AM_C_LAR_WTBGR4GLADG40BXRMFHX6WEGF3MQW In line with the clarification on version 6.2 of the methodology, there has been no change in the later versions (7, 8 and 9) with respect to the use of the tool. Hence, the original approach is retained and the baseline and additionality are determined using the 'Combined tool to identify the baseline scenario and demonstrate additionality'.</p>	<p>The approach of the PP to determine baseline and additionality using the 'Combined tool to identify the baseline scenario and demonstrate additionality' can be considered appropriate and same was also acceptable to the EB in another registered project i.e. "20 MW biomass based power project in Maharashtra, India" (3083). Therefore the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No.10</u></p> <p>It is not clear why this statement is made in PDD in section B.5 "A Plausible baseline option is the continuation of low pressure boiler and existing PRDS used to utilize this steam for the process operations of the sugar plant.</p>	<p>B.5. 3</p>	<p>This statement represents a plausible baseline situation in the absence of the project activity. The factory could continue to operate low pressure boilers to generate steam for the process operations.</p>	<p>The said statement represents plausible baseline situation in the absence of the project activity. However the same is modified by project proponent for better clarity in PDD. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Clarification Request No.11</u> Please provide documentary evidence (plant records, financial statements) to demonstrate the technological barriers discussed.	B.5. 3	This was incorrectly mentioned in the PDD. The PDD has now been revised.	The technological barrier was removed. The revision to the PDD is verified and accepted. Therefore the issue remains closed. <input checked="" type="checkbox"/>
---	-----------	--	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p>Corrective Action Request No.23. Referring to section B.5 of the PDD:</p> <ul style="list-style-type: none"> a) The main input parameters (like investment costs, quantity of electricity exported, O&M costs, tariff, other significant costs like interest rate on working capital, UPEB maintenance cost, fuel price) should be illustrated in a more transparent way, preferably in a Table, including the value applied in the IRR calculation and the data source for each of the parameters. b) It is not clear on what basis the mentioned value of Rs 20m/year for administrative costs is assumed. Please clarify. c) Are the 5% UPEB maintenance cost mentioned in the PPA and is an increase for the UPEB in the PPA foreseen? Please clarify. d) "The Additionality Tool" does not mention anything about fuel prices being more than 20%; it is the Guidelines on the assessment of Investment analysis. Please correct. e) Referring to discussion under Step 4. Common practice analysis- it should be explained why 15 MW was chosen as limit to exclude all units from further consideration with less than 15 MW. f) Reference listed as part of footnote 8 is very old (2005- 06). A more updated data source should be considered in the evaluation of common practice. g) Referring to footnote 9- how is it possible to know that the other 2 projects of Balrampur Chini also applied as CDM projects when reference is not available anymore? Clarify this information. 	<p>B.5. 8</p>	<ul style="list-style-type: none"> a) The data has been included in a table in the PDD b) Administrative costs taken as 10% of the annual revenues from project is supported through a 3rd party evidence – IRL62 c) UPEB costs are revised to be 1.5% of grid connection costs. d) This has been corrected. e) Projects that are less than 15MW are normally incidental cogeneration (i.e. supplying backpressure steam without a condenser) and hence operate in a different investment climate as the condensing component of the project activity significantly increases the investment costs and also highlights the fact that the unit is more focused on power generation (steam to the condenser is only used for electricity generation). f) Please see response to CAR 4 g) The two other projects of Balrampur Chini are shown on the CDM India (Indian DNA) webpage - http://www.cdmindia.nic.in/cdmindia/project.select.js and this link has been included in the PDD in footnote 9. 	<p>The justification provided and necessary revisions by the PP for all the points (a) to (g) has been verified and accepted. Therefore the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
--	-------------------	--	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p>Clarification Request No.12</p> <p>Clarification is requested on the following issues.</p> <ol style="list-style-type: none"> The Additionality Tool (Note: Additionality Tool explains this in more detail than the Combined Tool) mentions in paragraph (6) that discount rates and benchmarks shall be derived from: <ol style="list-style-type: none"> Government bond rates increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data. (or) Estimates of the cost of financing and required return on capital (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned) based on bankers views and private equity investors/fund's required return on comparable projects. The 3% which the project activity applied is actually a risk premium which could be applied in the case of government bonds. It is not clear why the 3% (OECD risk classification – the information at the indicated internet link [footnote 6 in PDD]) does actually not mention %, thus it is not clear whether PP talks about 3%) can be understood as guarantee. 	<p>B.5.9</p> <ol style="list-style-type: none"> We have chosen to follow 2nd option but as the project is financed by a mix of debt and equity any commercial lending rates used as a benchmark will not reflect the returns required on equity. It is for this reason that a guarantee in the form of a country risk premium has been added. This is in line with the guidance which states "commercial lending rates and guarantees required for the country". We agree that the OECD country risk premium is confusing in its application and have therefore replaced this with the Damodaran country risk premium for India which is 4.05% to reflect the returns required on equity. The benchmark is now 14.3%. <p>The Damodaran data can be accessed at http://www.stern.nyu.edu/~adamodar/pc/archives/ctryprem06.xls</p> <p>Response of project proponent</p> <p>The exact link is accessible from the Damodaram site http://pages.stern.nyu.edu/~adamodar/, then follow the link on the left hand side entitled "Updated data", then under the table half way down the page entitle "Data sets", follow the link within the table against "Discount rate estimation, Risk premium for other markets" select the link for the 2005 data which then lists all the risk premiums for countries and you will see 4.05% against India. The risk premium has been taken for 2005 (and not 2006) as this was in force at the project start date. The excel sheet of this data has been provided".</p>	<p>Regarding PP's response B it is still not clear to DOE how were the 4.05% calculated. According to the excel file (from the web link mentioned) it is not clear; Please inform.</p> <p>Final response by audit team</p> <p>The justification by the PP stated can be considered appropriate. Therefore the issue remains closed.</p> <p>☑</p>
---	---	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.24.</u> The sources from some input parameters are missing in the PDD (and are partly only indicated in the excel calculation tool):</p> <ul style="list-style-type: none"> a) Investment Rs 750m and incurred Rs 730m: DPR, invoices, purchase agreements?? b) O&M cost - same percentage taken as in the other CDM project? Only Rs 30m/ year is mentioned c) Administrative costs d) UPEB maintenance based on the PPA? e) Fuel cost - based on which source? f) Quantity of electricity exported: information is missing how it was calculated/ on what it is based on? 	<p>B.5. 9</p>	<ul style="list-style-type: none"> a) The investment is Rs730m and this has been supported through a full breakup of the costs and the main equipment orders. The Rs750m has not been used in the financial analysis. b) O&M cost taken as 4.1% of the project cost is supported through 3rd party evidence IRL62 c) Administrative cost taken as 10% of the annual revenues from project is supported through 3rd party evidence IRL62 d) UPEB maintenance is based on the investment costs of the switchyard and the transmission lines as detailed in the investment costs worksheet. There is no detail on the level of these costs in the PPA but the responsibility remains with the project. e) Fuel cost is based on receipts IRL50 f) The electricity exported is calculated based on the capacity of the turbine in Cell C19 of the Assumptions tab of the worksheet and then adjusted for losses when determining the revenue. 	<p>The justification provided by the PP for all the points (a) to (f) has been verified and accepted. Therefore the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
---	-------------------	---	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.25.</u> The first of the 20 years (2008) of the IRR calculation only considers electricity generation for 45 days (instead of 180 days), however considers full O&M cost, full UPEB maintenance cost and full interest on working capital. How does this reflect a conservative approach? Besides, if considering only 45 days of the 1 st year, the investment analysis is not conducted for full 20 years what should be the case (according to the operational lifetime and Guidelines for investment analysis).	B.5. 9	The first year has considered full O&M and UPEB maintenance as these costs will be incurred – maintenance will have to be carried out. The costs that are proportional to the running time, i.e. administration and fuel cost, are however apportioned. The analysis is concluded for 21 years with a full year of operation in year 21 therefore the analysis is conservative as it should only be for (180-45) days in year 21.	The justification has been verified and accepted. Therefore the issue remains closed. <input checked="" type="checkbox"/>
--	-----------	--	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.26.</u> Regarding the excel file:</p> <ul style="list-style-type: none"> a) The difference of EGproject plant and other plant is stated to be 91,240 MWh. Where as the investment analysis mentions another figure (actual export 77,705 MWh). Please explain this inconsistency. b) In worksheet "Historic Data" in columns K, L, M there are some figures and it is not clear for what those figures stand for. Should be clarified. c) Where does the 4.9279 for NCV biomass (MWh/tones) come from? No source is indicated in worksheet "Historic data" (cell C18). Should be clarified. d) What is the source for the thermal efficiencies (68% and 70%)? Not clear according to the excel file. Should be clarified. e) In worksheet "project costs": what does ED, CST/UPTT stand for? Please clarify in the excel calculation tool. f) What does RT8C mean (in worksheet "Assumptions")? Abbreviations like that should be explained in an abbreviation list in the document where they are used. 	<p>B.5. 9</p>	<ul style="list-style-type: none"> a) The difference arises due to the method of calculation. The meth assumes total generation less historic as export but actually the export figure will be based on the specifications of the turbine. The revenues are then determined from the generation less the losses. b) Columns K, L, M have been deleted c) The derivation of the 4.9279 has now been provided. It has been taken from the Handbook of Sugar Cane Engineering for dry bagasse and the source has been provided. d) This is from the purchase orders of the boilers which have been provided at the time of validation. e) ED is excise duty and the CST/UPTT is the sales tax. These have now been renamed in the worksheet. f) RT8C is the name of the sugar manufacturing report that all mills have to complete as part of national legislation. A copy of this latest report is provided. There is no expansion on the abbreviation; a copy of the RT8C has been previously submitted against which this can be checked. 	<p>The justification provided and necessary revisions by the PP for all the points (a) to (f) has been verified and accepted. Therefore the issue remains closed. <input checked="" type="checkbox"/></p>
--	-------------------	---	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.13</u></p> <p>Please provide the detailed IRR calculations in the excel sheet indicating all assumption and sources of data used with verifiable supporting documentary evidences to completely verify the additionality requirements of the project.</p>	<p>B.5. 10</p>	<p>The calculation spreadsheets are attached for your reference. In regards to the supporting evidences, all the documents were provided during the site visit to Mr Kathuria.</p> <p><u>Further response by the Project proponent</u></p> <p>The year has been now indicated in the PDD. Please refer to the revised PDD.</p>	<p>All the assumptions, sources of data as requested in CR are verified. The excel sheet of calculations is submitted.</p> <p>However in the statement "PLRs are reported on the Reserve Bank of India website¹, the rate reported on 8th April " indicate the year in PDD.</p> <p><u>Further response by the Audit Team</u></p> <p>The year is indicated and the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
<p><u>Clarification Request No.14</u></p> <p>Please clarify the use of auxillary equipment in the project activity.</p>	<p>B 5.1 0</p>	<p>The list of auxiliary equipments is attached.</p>	<p>Details of auxiliary equipment have been verified by audit team. Hence the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.27.</u> Investment costs should also be included in sensitivity analysis, as the same consist of more than 20% of total project costs.	B.5. 11	Investment costs have been subjected to sensitivity analysis but the investment cost used is based on the actual value as detailed in section B5.	The revision has been verified and accepted. Hence the issue remains closed. <input checked="" type="checkbox"/>
--	------------	---	---

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p>Clarification Request No.15</p> <p>a) If fuel prices are included in the sensitivity analysis, why then not O&M costs and administration costs (more or less the same scale) are included in the sensitivity analysis? Please clarify.</p> <p>b) How is the increase in O&M costs, administrative costs and UPEB maintenance costs justified? Administrative costs are actually fixed costs and operation costs shouldn't vary too much neither over the lifetime of the project.</p> <p>c) It is not clear why biomass residues (bagasse) used as fuel is considered as a cost, once the biomass would have been combusted in the baseline scenario anyway and bagasse comes from the adjacent sugar factory (which belongs to the same company?!? Please explain.</p>	<p>B.5. 11</p>	<p>a) O&M costs and administration costs have now been subjected to sensitivity analysis.</p> <p>b) The O&M, administrative and UPEB are all costs that are subject to escalation, there is no contract for the provision of these on a fixed fee basis. It is therefore reasonable to escalate these and this has been done at a rate lower than the prevailing rate of inflation. The rate of inflation in India has been taken from the RBI website, point 10 of the following document which highlights a rate of 5-5.5% – http://rbidocs.rbi.org.in/rbiadmin/Scripts/BS_PressReleaseDisplay.aspx?prid=13392. Our rate of escalation is 4%.</p> <p>c) The biomass residues used as a fuel cost relate to the direct costs of running the power plant and therefore arise as a result of the project activity. The fuel costs are limited only to this aspect of the consumption.</p> <p>Further response by the Project proponent</p> <p>Regarding point (b): Inflation is assumed as the most suitable indicator for the escalation in the costs.</p> <p>Regarding point (c): In terms of the direct costs of running the power plant, these relate to the fuel required to operate and run the power plant, if the project was not implemented then these costs would not arise and hence these have been included.</p>	<p>a) PDD now incorporates O&M costs and administration costs under sensitivity analysis.</p> <p>b) Inflation should not be considered in the IRR calculation; please revise IRR calculation;</p> <p>c) Not clear what is meant with "direct costs of running the power plant"? More details should be provided.</p> <p>Final response by audit team</p> <p>The justification by the PP stated can be considered appropriate.</p> <p>Hence the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
---	--------------------	--	--

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.28.</u></p> <p>Please provide the name of the Five plants which are being proposed and give details of registration if any.</p>	<p>B 5.1 3</p>	<p>The reference has been provided in the revised PDD on page 19.</p>	<p>This CAR is referring to the PDD version 01, dated 02/06/2007 which was under GSP during 21 Jul 07 - 19 Aug 07. However with reference to the current PDD version provide reference to four plants of similar scale those that have been active in pursuing CDM, in the region. This needs to be included in the PDD.</p> <p><u>Further response by the Audit Team</u></p> <p>The reference to the plants has been provided in the PDD and so the issue remains closed.</p> <p>☑</p>
<p><u>Clarification Request No.16</u></p> <p>Provide supporting documents to demonstrate- 4.6% penetration of the potential in terms of the number of sugar mills employing such systems.</p>	<p>B 5.1 3</p>	<p>4.6% is calculated based on the data given ($24/517 * 100$). These numbers are based on the links as provided in the PDD. Please also refer to the response to CR15 below.</p>	<p>The response can be accepted and so the issue remains closed.</p> <p>☑</p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.17</u></p> <p>Provide the latest document published by 'The Sugar technologists Association of India'</p>	<p>B 5.1 3</p>	<p>The start date of the project activity is 24/4/2006. which is also the time when the project was considered. Therefore we have refereed to the documents by the "The Sugar technologists Association of India" available at that time and the version at that time was 2004-2005 and the same was submitted during the site visit.</p>	<p>The document has been submitted and hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.29.</u></p> <p>The common practice analysis is evidenced by a quite old data source; a more updated data source should be considered for demonstrating common practice analysis.</p>	<p>B.5. 14</p>	<p>The common practice is taken from a publication listing factories in 2005/06 which is the year prior to the start date and hence is up to date relative to this date.</p> <p><u>Further response by the Project proponent</u></p> <p>We have provided another source for determining common practise that examines the installation of cogeneration plants that is more up to date.</p>	<p>This answer is not acceptable as the Additionality Tool says the following: "provide an analysis of any other activities that are operational and that are similar to the proposed project activity". The Additionality Tool does not mention anything of comparing only with project activities prior to the starting date or investment decision date;</p> <p><u>Final response by audit team</u></p> <p>The justification and revision by the PP stated can be considered appropriate. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.30.</u></p> <p>Referring to section B.6.1:</p> <ul style="list-style-type: none"> a) In Table for Consideration of heat emissions- the Bagasse values (kg/hr) are not consistent with excel file. b) Referring to Tool to calculate the emission factor for an electricity system. The application of the 6 steps as per the Tool should be explained in this section. 	<p>B.6. 1.1</p>	<ul style="list-style-type: none"> a) The bagasse values have now been made consistent. b) The 6 steps of the tool to calculate the emission factor for an electricity system have been included. 	<p>The revision has been verified and accepted. Hence the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.31.</u></p> <p>Since the baseline scenario P4 is applied, the CO₂ emission factor for the electricity displaced due to the project activity is to be calculated as combined margin, following the 'Consolidated baseline methodology for grid connected electricity generation from renewable sources (ACM0002). Mention this accordingly in the PDD.</p>	<p>B 6.1. 2</p>	<p>The emission factor has been taken from the CEA which has been calculated by CEA following the guidance from the UNFCCC.</p> <p><u>Further response by the Project proponent</u></p> <p>The reference has now been given in the revised PDD in section B.6.2.</p> <p>The latest data has now been used in the determination of the CEF, version 4 of the published CEA data.</p>	<p>Project proponent's response is accepted. However reference to latest version of CEA data is needed in the PDD.</p> <p><u>Further response by the Audit Team</u></p> <p>Please check the latest CEA data that was published in 2007.</p> <p><u>Final response by audit team</u></p> <p>The revisions have been verified and accepted.</p> <p><input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.32.</u> The list of parameters is not complete as required by the methodology. Please include all parameters as required (see below B.6.2.6 to B.6.2.18) in addition please submit the evidence and source how each value has been applied clearly substantiating it with the evidence for each one of them.</p>	<p>B 6.1. 2</p>	<p>All the necessary parameters are added in B.6 of PDD along with the source and justification and source submission.</p>	<p>PDD section B.6 has been revised to include the list of complete parameters. PP's responses to issues in B.6.2.6 to B.6.2.18 were also assessed and considered complete. Therefore the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.33.</u> Referring to section B.6.2: a) The Value applied for EGhistoric,3yr is not consistent with excel file b) The Value applied for ε el,existing plant is not consistent with excel file. c) Parameters related to the calculation of the emissions factor (like electricity generation, electricity coefficient, fuel consumption) should be indicated in this section as per the Tool to calculate the emissions factor for an electricity system.</p>	<p>B.6. 2.1</p>	<p>a) The value of EGhistoric,3yr is now consistent. b) The value of ε el, existing plant is now consistent. c) The summary of the parameters have been included and the full reference to the calculation provided by the CEA have been referenced.</p>	<p>The revision has been verified and accepted. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.34.</u> Please describe in transparent manner in the PDD how the conversion from wet to dry basis of biomass residue shall be done.</p>	<p>B 6.2. 2</p>	<p>It is mentioned in the PDD that the wet weight will be adjusted by incorporating the moisture % which will be measured for each batch of biomass of homogeneous quality. A weighted average will be reported for each monitoring period as required by version 10.1. of ACM0006.</p>	<p>PDD has been revised to describe the conversion from wet to dry basis of biomass. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.35.</u> Referring to section B.6.3:</p> <ul style="list-style-type: none"> a) Please resolve inconsistency in the applied values of EGhistoric,3yr and ε el,existing plant and their corresponding values in excel file. b) Please resolve inconsistency in the applied values of EGy and ERelectricity, y and their corresponding values in excel file and other chapters of the PDD. 	B.6. 3.3	<ul style="list-style-type: none"> a) The inconsistency in the applied values of EGhistoric,3yr and ε el,existing plant have been resolved. b) The inconsistency in the applied value of EGy and ERelectricity, y have been resolved. 	<p>The revision has been verified and accepted. PDD has been revised. Hence the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.36.</u> Please provide the accuracy and frequency of calibration of measuring equipments used in project activity. In addition please define the QA procedures (internal audit plan) to be adopted for all the monitored data clearly defining roles and responsibilities for calibration, maintenance, data adjustments. The procedure should also include how data shall be stored and how uncertainties related with data shall overcome. Also mention monitoring frequencies of all parameters.</p>	B.7. 1.1	<p>The calibrations will be done once a year by a accredited body. The QA/QC procedures are further outlined in Annex 4 which details monitoring of data and responsibilities of concerned personnel. The data shall be stored both electronically and in hard format. The plant has been given a detailed monitoring plan and this will ensure regular monitoring and implementation of corrective actions in case of discrepancies. The recording frequency has now been mentioned.</p>	<p>PDD has been revised. Hence the issue remains closed.</p> <p><input checked="" type="checkbox"/></p>
<p><u>Clarification Request No.18</u> Please provide a diagram of the project activity along with the existing plants, which illustrates all steam flows and turbines in the system. Also state whether any steam is diverted from other boilers to project plant.</p>	B.7. 1.1	<p>The diagram has been attached. There would not be any diversion of steam from existing boilers to the project plant.</p>	<p>The diagram is submitted.</p> <p><input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Corrective Action Request No.37.</u> It is not clear how this parameter ($BF_{k,y}$) shall be actually measured as this parameters is having contradictory statements .Under the same parameter is it written that bagasse used by the project activity would be measured on weigh belt conveyor while in the next section it is mentioned that that it would be calculated from measured quantity of cane. Please clarify and revise PDD accordingly. If the amount of bagasse is measured please confirm, and then include parameters of moisture contents in the monitoring plan.</p>	<p>B.7. 1.2</p>	<p>The bagasse consumed in the project activity will be monitored using a belt weigher which will measure the amount of bagasse being fed into the boiler. This represents the parameter $BF_{k,y}$ Further as a QA/QC it has been mentioned that this parameter can be cross checked as described in the PDD. The parameter for the moisture content of the bagasse has been included in the PDD.</p>	<p>This issue is related to the PDD version 01, dated 02/06/2007 which was under GSP during 21 Jul 07 - 19 Aug 07. The project proponent revised the current version PDD to include cross check of bagasse consumed by calculation from measured quantity of cane. This is accepted as a QA/QC measure. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.38.</u> The Parameter should be 'Moisture content of biomass residues' where as it is given as 'Moisture content of bagasse' in the table. Also mention correct value and measurement accuracy.</p>	<p>B 7.1. 3</p>	<p>This has now been revised.</p>	<p>PDD has been revised. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.39.</u> The data unit should be MWh/yr. The description of the parameter is not complete.</p>	<p>B 7.1. 16</p>	<p>This has been revised in the PDD.</p>	<p>PDD has been revised. Hence the issue remains closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.40.</u> This section states the auxiliary consumption of the plant will be measured but the same is not included in the monitoring plan .Please include.</p>	<p>B.7. 2.1</p>	<p>The parameter has been included in the PDD.</p>	<p>PDD has been revised. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.41.</u> It is mentioned that the electricity generation records will be maintained in log books on eight hourly bases for the both new and existing power plant, which is quite contradictory with description stated in section A.2 that the turbine generators of 2.5 MW and 1.5 MW could continue to operate but are retired due to the installation of new biomass residue fired plant. Please modify it in the PDD.	B 7.2. 1	There is no contradictory statement. Some of the existing equipments for eg 12MW and 3MW TG will continue to operate and these constitute existing equipment. Therefore monitoring will be done as mentioned in the PDD.	The response is acceptable. Hence the issue remains closed. <input checked="" type="checkbox"/>
<u>Corrective Action Request No.42.</u> Please describe in details about impacts in the pre and post Project Scenario and also during commissioning, explaining how the same will be mitigated.	D.1. 1	The implementation of the project activity does not cause any negative impact on the surrounding environment or the population. In addition to this the factory has conducted an EIA which does not outline any adverse effects on the environment.	The response is acceptable. Hence the issue remains closed. <input checked="" type="checkbox"/>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<p><u>Clarification Request No.19</u> Please submit the summary of EIA report.</p>	<p>D.1. 1</p>	<p>The summary of EIA is not available. A full EIA report is available and relevant extracts can be submitted if required. <u>Further response by the Project proponent</u> The extracts from the EIA have been now provided to the DOE. <u>Response by project proponent (Nov 2008)</u> This comprises the cover page, the list of chapters and the foreward.</p>	<p>Please submit extracts of EIA report. <u>Further response by the Audit Team</u> The response is not complete until the relevant document is submitted. <u>Final response by the Audit Team</u> The extracts from the EIA has been provided to the DOE. Therefore the issue is closed. <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.43.</u> PDD does not identify the stakeholders consulted and it does not include a summary of the comments received. Please include this information in the PDD.</p>	<p>E 1.1</p>	<p>The stakeholders have been identified clearly in section E.1. These are: -DNA -Pilibhit District Administration -Local Cane Society -Local public notice. No comments have been received during the stakeholder consultation process and therefore the comments have not been included in the PDD.</p>	<p>The response is acceptable. Hence the issue remains closed. <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title "LHSF RE Project"

Date of Completion: 17/05/2011

Number of Pages: 42



Industrie Service

<u>Corrective Action Request No.44.</u> The tool was not applicable at the time of 1 st GSP and version 1 was adopted at the time of repeat GSP. However the PP needs to update with the latest version of the tool for the final PDD.	F.1. 10. 1	This has now been revised.	PDD has been revised. Hence the issue remains closed. <input checked="" type="checkbox"/>
---	------------------	----------------------------	---

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)


Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

Validation of the CDM Project:
LHSF RE Project




Industrie Service


Annex 2: Information Reference List

Final Report	17.05.2011	Validation of "LHSF RE Project" Information Reference List	Page 1 of 4	 Industrie Service
--------------	------------	---	----------------	--


Reference No.	Document or Type of Information																				
1.	<p>On-site interviews at the Project Site of "LHSF RE Project" at Pilibhit, Uttar Pradesh on 30th & 31st July 2007 by auditing team of TÜV SÜD</p> <p>Validation team:</p> <table> <tr> <td>Praveen Pyata</td><td>TUV SUD South Asia Pvt. Ltd.</td></tr> <tr> <td>Eswar Murty</td><td>TUV SUD South Asia Pvt. Ltd.</td></tr> <tr> <td>Sunil Kathuria</td><td>TUV SUD South Asia Pvt. Ltd.</td></tr> </table> <p>Interviewed persons:</p> <table> <tr> <td>Mr. B. P.Dixit</td><td>L. H. Sugar Factories Ltd.</td></tr> <tr> <td>Mr. Rajeev Kumar Agarwal</td><td>L. H. Sugar Factories Ltd.</td></tr> <tr> <td>Mr. Navin Kumar</td><td>L. H. Sugar Factories Ltd.</td></tr> <tr> <td>Mr. A. K.Singh</td><td>L. H. Sugar Factories Ltd.</td></tr> <tr> <td>Mr. Robert Taylor</td><td>Agrinergy Ltd</td></tr> <tr> <td>Mr. Santosh Kumar Singh</td><td>Agrinergy Ltd</td></tr> <tr> <td>Ms. Rakshya Thapa</td><td>Agrinergy Ltd</td></tr> </table>	Praveen Pyata	TUV SUD South Asia Pvt. Ltd.	Eswar Murty	TUV SUD South Asia Pvt. Ltd.	Sunil Kathuria	TUV SUD South Asia Pvt. Ltd.	Mr. B. P.Dixit	L. H. Sugar Factories Ltd.	Mr. Rajeev Kumar Agarwal	L. H. Sugar Factories Ltd.	Mr. Navin Kumar	L. H. Sugar Factories Ltd.	Mr. A. K.Singh	L. H. Sugar Factories Ltd.	Mr. Robert Taylor	Agrinergy Ltd	Mr. Santosh Kumar Singh	Agrinergy Ltd	Ms. Rakshya Thapa	Agrinergy Ltd
Praveen Pyata	TUV SUD South Asia Pvt. Ltd.																				
Eswar Murty	TUV SUD South Asia Pvt. Ltd.																				
Sunil Kathuria	TUV SUD South Asia Pvt. Ltd.																				
Mr. B. P.Dixit	L. H. Sugar Factories Ltd.																				
Mr. Rajeev Kumar Agarwal	L. H. Sugar Factories Ltd.																				
Mr. Navin Kumar	L. H. Sugar Factories Ltd.																				
Mr. A. K.Singh	L. H. Sugar Factories Ltd.																				
Mr. Robert Taylor	Agrinergy Ltd																				
Mr. Santosh Kumar Singh	Agrinergy Ltd																				
Ms. Rakshya Thapa	Agrinergy Ltd																				
2.	<p>Project Design Document for Green House Gas (GHG) emission reduction by 'LHSF RE Project' Version 01 dated 02.06.2007: GSP dates: July 21 to August 19, 2007. http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=3492&Ebene1_ID=26&Ebene2_ID=1064&mode=1</p> <p>Version 02 dated 25.04.2008: Repeat GSP dates: April 27 to May 26, 2008 http://www.netinform.net/KE/Wegweiser/Guide2_3.aspx?ID=4676&Ebene1_ID=26&Ebene2_ID=1473&mode=0</p>																				
3.	UNFCCC homepage http://www.unfccc.int																				
4.	Approved consolidated methodology ACM0006, Version 10.1																				
5.	Combined tool to demonstrate additionality and baseline version 2.2 http://cdm.unfccc.int/methodologies/Tools/EB28_repan14_Combined_tool_rev_2.1.pdf																				
6.	Approved consolidated methodology ACM0002 Version 12.1 and Tool to calculate the emission factor of an electricity system, Version																				

Final Report	17.05.2011	Validation of "LHSF RE Project" Information Reference List	Page 2 of 4	 Industrie Service
--------------	------------	---	----------------	--

Reference No.	Document or Type of Information
	02.
7.	Purchase Order for 26.75 MW T.G. set, dated 31.05.06, submitted on 31.07.07.
8.	Confirmation of supply of 2 nos. of 16" size valves, LHSF, dated 18.12.06, submitted on 31.07.07.
9.	Contract for erection/commissioning of 120 TPH boiler, dated 24.04.06, submitted on 31.07.07.
10.	Confirmation on bagasse firing ability of boiler, dated 03.07.07, submitted on 31.07.07.
11.	Order for designing, fabrication, erection of HPS/ESP lines, dated 15.05.07, submitted on 31.07.07.
12.	Order for supply of cooling tower, dated 30.01.07, submitted on 31.07.07.
13.	Analysis report of effluent sample, Uttar Pradesh Pollution Control Board, dated 02.06.07, submitted on 31.07.07.
14.	Order for supply of DSH and PRDSH, dated 23.04.07, submitted on 31.07.07.
15.	Purchase order for 120 TPH boiler, dated 24.04.06, submitted on 31.07.07.
16.	Organization chart relating to Power Project activities, LHSF, submitted on 31.07.07.
17.	English translation of no objection certificate of cane officer, Pilibhit, dated 20.03.07 & 01.06.07, submitted on 31.07.07.
18.	Statement on cogeneration capability at LHSF after project implementation, dated 30.07.07, submitted on 31.07.07.
19.	Introduction of 5 year plan, Pilibhit, submitted 31.07.07.
20.	Sales of the Bagasse in season (04-05), LHSF, dated April'04 to March '05, submitted on 31.07.07.
21.	Statement on surplus power generation at LHSF after its first CDM project implementation, submitted on 31.07.07.
22.	NOC for impact on environmental pollution, Uttar Pradesh Pollution control board, dated 01.09.06, submitted on 31.07.07.
23.	Data on power generation from existing power turbines for 2004-05, submitted on 31.07.07.
24.	Certificate of calibration, Yadav Measurements Pvt. Ltd. ,dated 04.11.06, submitted on 31.07.07.
25.	Power Purchase Agreement dated 09.02.07, submitted on 31.07.07.
26.	Application made to UPPCB for increase in 12 MW to 40 MW, dated 24.07.06, submitted on 31.07.07.
27.	Permission of Boiler equipment, dated 13.02.07, submitted on 31.07.07.
28.	Sample of Proforma Invoice, submitted on 31.07.07.
29.	Sanction, request of short term loan, State Bank of India, dated 07.11.06 & 18.07.07 submitted on 31.07.07.
30.	Fresh certificate for change of name, dated 04.01.1974, submitted on 31.07.07.
31.	NOC – 87, Uttar Pradesh Pollution control board, dated 01.09.06, submitted on 31.07.07.
32.	News article of L.H. Sugar Mill increasing electricity generation capacity, dated 07.02.2007, submitted on 31.07.07.
33.	Increase of generating capacity, permit of office of district sugar cane officer, Pilibit, dated 20.03.07, submitted on 31.07.07.

Final Report	17.05.2011	Validation of "LHSF RE Project" Information Reference List	Page 3 of 4	 Industrie Service
--------------	------------	---	----------------	--

Reference No.	Document or Type of Information
34.	Increase of generating capacity, permit of President district panchayat, 01/06/07, submitted on 31.07.07.
35.	Air and water consent from Uttar Pradesh Pollution Control Board, dated 01.03.07 & 23.02.07, submitted on 31.07.07.
36.	Form R-T-8(c), submitted on 31.07.07.
37.	a) Host country approval letter from MoEF, Govt.of India,dated 17.03.2008, submitted on 05.07.2008 b) Host country approval letter from DEFRA, U.K,dated 25.04.2008, submitted on 05.07.2008
38.	Modalities of Communication with CDM Executive Board by LHSF, submitted on 21.07.2009
39.	LHSF steam flow diagram, submitted on 05.07.2008
40.	Indian Boiler Regulations-1950- IBR:391A regarding lifetime of boilers, submitted on 20.08.2008
41.	Manufacturers document supporting the efficiency of existing low pressure boiler, submitted on 21.11.2008
42.	Manufacturers document supporting the efficiency of project high pressure boiler, submitted on 21.11.2008
43.	Document supporting the lifetime of existing turbines, submitted on 20.08.2008
44.	LHSF list of auxiliaries for boiler and turbine, submitted on 20.08.2008
45.	Trainings conducted on equipment by M/s Triveni Engineering & Industries to LHSF, dated 02.06.2008, submitted on 05.10.2008
46.	Letter of appointment of CDM consultant, dated 11.05.2006, submitted on 21.11.2008
47.	EIA Report, submitted on 21.11.2008
48.	Excel sheet showing LH sugars biomass scenario, submitted on 21.11.2008
49.	Excel sheet showing LH efficiency of power generation, submitted on 21.11.2008
50.	Invoices of bagasse sale dated 31.03.2008, 28.12.2006 and 22.11.2005, submitted on 03.03.2009
51.	Prevailing rates of interest of ICICI Bank dated 31.05.2007
52.	Prevailing PLR of UTI Bank dated 09.04.2007
53.	71 st Annual Report for 2004 & 2005 of LHSF
54.	72 nd Annual Report for 2005 & 2006 of LHSF
55.	Bagasse consumed for the period 2004- 2007
56.	Term sheet for sale of CERs from project, dated 05.07.2007, submitted on 23.11.2008
57.	List of Cane Sugar Factories with co-generation power, http://www.upcane.org/Status%20of%20co-genration%20of%20Power.pdf , submitted on 26/05/2010
58.	Agreed terms on CDM development dated 22.11.2006, submitted on 03/04/2009
59.	Information on DOE's invited to quote for validation, submitted on 03/04/2009
60.	NOC from district commissioner, which was issued in response to the stakeholder review, submitted on 03/04/2009

Final Report	17.05.2011	Validation of "LHSF RE Project" Information Reference List	Page 4 of 4	 Industrie Service
--------------	------------	---	----------------	--

Reference No.	Document or Type of Information
61.	Bagasse production records for previous 3 years (2003-06), submitted on 03/04/2009
62.	Certificate from sugar industry experts dated 31/03/2009, on financial assumptions, submitted on 03/04/2009
63.	Letter of LH Sugars to the Pilibhit District Administration and the local Cane Society, submitted on 06/05/2009
64.	Board Resolution dated 10/01/2006, submitted on 25/06/2009
65.	Source of plant load factor determined by a third party contracted by the project participants, submitted on 05/11/2009
66.	Evidence for the turbine capacities in the season and off-season (supply order), dated 31/05/2006, submitted on 06/02/2010
67.	Guarantee rate for India, http://www.stern.nyu.edu/~adamodar/pc/archives/ctryprem05.xls
68.	Evidence of sharp appreciation in Indian stock markets prior to the project start date, www.bseindia.com
69.	Evidence of non-listing, http://www.bseindia.com/
70.	Historical data on grid disconnections and plant stoppages, submitted on 09/04/2010
71.	Tariff order issued by UPERC regarding applicable tariff dated 25/08/2005, submitted on 09/04/2010
72.	http://law.incometaxindia.gov.in/TaxmannDit/DisplayPage/dpage1.aspx
73.	Copy of the ledger balance for Sitson Boiler and Triveni Turbine, submitted on 26/05/2010
74.	Siemens quote for a 24MW turbine, submitted on 09/04/2010
75.	CER and financials calculation excel sheet of LHSF RE project, submitted on 13/12/2010
76.	Revised PDD version 16, dated 12/01/2011, submitted on 13/01/2011
77.	Prevailing inflation rate http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/72301.pdf
78.	Commercial lending rates obtained from Reserve Bank of India: http://www.rbi.org.in/scripts/WSSViewDetail.aspx?TYPE=Section&PARAM1=4
79.	Minutes of Meeting of commissioning of power plant in May 2008 dated 02/06/2008, submitted on 27/08/2010
80.	Single Line Diagram of project including including metering points, submitted on 09/04/2010
81.	CDM contract of Upper Ganges, DSCL Loni and DSCL Hariawan co-generation projects, whose GSP was not initiated. Refer to Table under Step 4 of Section B.5 of PDD, submitted on 26/05/2010
82.	UPERC Practice Directions for Captive Power Generation applicable July 2000, http://www.uperc.org/olduperc/captivedir.htm



Annex 3: Appointment Certificates



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr Agarwal, Nikunj, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	22.03.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		22.03.11	22.03.11	22.03.11	22.03.11	

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	22.03.11				
Financial Expertise					
Date	29.03.11				

Qualification in technical areas	
Technical Area	Date
1.2_Energy generation from renewable energy source	22.03.11
13.1_Waste handling and disposal	12.04.11
3.1_Energy demand	27.04.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0001/04.

Date	Signature
27.04.11	<i>Thomas Klein</i>



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr Pyata, Praveen, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	31.01.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		31.03.11	31.03.11			

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	31.03.11				
Financial Expertise					
Date					

Qualification in technical areas	
Technical Area	Date
13.1_Waste handling and disposal	31.03.11
13.2_15.2_Animal waste management	31.03.11
15.1_Agriculture	31.03.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0036/00.

Date	Signature
31.03.11	



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr Grugni, Luciano, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	23.03.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		23.03.11	23.03.11			

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	23.03.11				
Financial Expertise					
Date					

Qualification in technical areas	
Technical Area	Date
1.1_4.10_Thermal energy generation...	23.03.11
1.2_Energy generation from renewable energy source	23.03.11
2.2_Heat distribution	23.03.11
13.1_Waste handling and disposal	05.05.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0021/01.

Date	Signature
23.03.11	
05.05.11	



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr. Murty, Eswar, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	06.05.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		06.05.11	10.05.11			

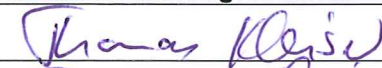
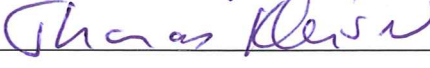
Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	06.05.11				
Financial Expertise					
Date					

Qualification in technical areas	
Technical Area	Date
1.2_Energy generation from renewable energy source	06.05.11
6.1_Construction	06.05.11
13.1_Waste handling and disposal	06.05.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0055/00.

Date	Signature
06.05.11	
10.05.11	



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr Kleiser, Thomas, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	25.03.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		25.03.11	25.03.11	25.03.11	25.03.11	

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	25.03.11				
Financial Expertise					
Date	25.03.11				

Qualification in technical areas	
Technical Area	Date
1.1_4.10_Thermal energy generation...	25.03.11
1.2_Energy generation from renewable energy source	25.03.11
4.1_Cement sector	25.03.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0027/00.

Date	Signature
25.03.11	