Validation Report

Dwarikesh Sugar Industries Limited

VALIDATION OF THE CDM-PROJECT:

GREENFIELD POWER PROJECT AT DWARIKESH DHAM

REPORT NO. 885512

~~September 10, 2007~~ January 11, 2008

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.
885513	2007-08-16	~~12~~	~~2007-09-10~~ 2008-01-11	-

Subject: Validation of a CDM Project	
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany	**TÜV SÜD Contract Partner:** TÜV SÜD South Asia C-153/1, Okhla Industrial Estate Phase- 1 New Delhi – 110020 India
Client: Dwarikesh Sugar Industries Limited Dwarikesh Nagar - 246 762 Dist. Bijnor, Uttar Pradesh, India	**Project Site(s):** Village Bhagwanpur Fulwa and Bakarganj, Tehsil Faridpur, District Bareilly, Uttar Pradesh, India
Project Title: Greenfield power project at Dwarikesh Dham	
Applied Methodology / Version: ACM0006 version 05	**Scope(s):** 1
First PDD Version: Date of issuance: 2006-09-12 Version No.: 1 Starting Date of GSP1 2006-09-29 Starting Date of GSP2 2007-06-05	**Final PDD version:** Date of issuance: ~~2007-09-05~~ 2008-01-11 Version No.: ~~05~~06
Estimated Annual Emission Reduction:	~~61,007~~ **54,502 tons CO_{2e}**
Assessment Team Leader: Dr. Ayse Frey	**Further Assessment Team Members:** Sunil Kathuria Prabhat Kumar Abhishek Goyal

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
AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority, India
CER	Certified Emission Reduction
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
DSIL	Dwarikesh Sugar Industries Limited
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
PDD	Project Design Document
PP	Project Proponent
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

Table of Contents

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-EB. The ultimate decision on the registration of a proposed project activity rests at the CDM Executive Board and the Parties involved.

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

Greenfield power project at Dwarikesh Dham

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
- 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 by the EB published under http://cdm.unfccc.int
- 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 Methodlogy (CDM-NM)
- The applied approved methodology
- The technical environment of the project (technical scope)
- Internal and national standards on monitoring and QA/QC
- Technical guideline and information on best practice

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

Once TÜV SÜD receives a first PDD version, it is made publicly available on the internet at TÜV SÜD's webpage as well as on the UNFCCC CDM-webpages 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 will be repeated) and the final PDD will form the basis for the final evaluation as presented by this report. Information on the first and on the final PDD version is presented at page 1.

The only purpose of a validation 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.

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual, an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customized for the project. TÜV SÜD developed a "cook-book" for methodology-specific checklists and protocol based on the templates presented by the Validation and Verification Manual. 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 and the result of the validation.

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

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

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	***Reference***	***Comments***	***PDD in GSP***	***Final PDD***
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further subdivided. The lowest level constitutes a checklist question / criterion.	*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.*	*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*	*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.*	*Conclusions are presented in the same manner based on the assessment of the final PDD version.*

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***
If the conclusions from table 1 are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	*Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final PDD".*

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 1***	***Explanation of the Conclusion for Denial***
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	*Identifier of the Request.*	*This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.*

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 ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Auditor (GHG-A)
- Greenhouse Gas Auditor Trainee (T)
- Experts (E)

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

The validation team was consisting of the following experts (the responsible Assessment Team Leader in written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
Dr. Ayse Frey	**ATL**	☑	☑	
Sunil Kathuria	GHG-A	☑	☑	☑
Abhishek Goyal	T		☑	☑
Prabhat Kumar	T			☑

Dr. Ayse Frey is an auditor and project manager for CDM/JI projects as well as an energy/waste expert at TÜV SÜD Industrie Service GmbH. In her position she is responsible for the implementation of validation, verification and certifications processes for greenhouse gas mitigation projects in the context of the Kyoto Protocol. After her studies in civil and environmental engineering, she completed a PhD in the field of water and waste policy. She has extensive experience with the CDM and JI flexible mechanisms as well as with management systems.

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

Abhishek Goyal is an auditor trainee for CDM projects and environment/energy expert at TÜV SÜD Industrie Service GmbH. Before joining the TÜV SÜD Industrie Service GmbH he has worked on development of PDDs and methodologies for several energy efficiency, renewable energy, and waste to energy projects. He has extensive experience in CDM.

Prabhat Kumar is an Auditor for environmental management systems (according to ISO 14001) at TÜV SÜD South Asia. He is based in New Delhi. He has received extensive training in the CDM validation process and participated as an Auditor in the audit team.

2.2 Review of Documents

The first PDD version submitted by the client and additional background documents related to the project design and baseline were reviewed as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as Annex 2 to this report.

2.3 Follow-up Interviews

In the period of October 12, 2006, TÜV SÜD performed interviews on-site with project stakeholders to confirm selected information and to resolve issues identified in the first document review. Annex 2 lists all persons interviewed in the context of this on-site visit.

2.4 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 positive conclusion on the project design. The Corrective Action Requests and Clarification Requests 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 summarised in chapter 3 below and documented in more detail in the validation protocol in Annex 1.

2.5 Internal Quality Control

As final step of a validation the validation report and the protocol have to undergo and internal quality control procedure by the Certification Body “climate and energy”, i.e. each report has to be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD’s Certification Body whether a project will be submitted for requesting registration by the EB or not.

3 SUMMARY OF FINDINGS

This section summarizes the main issues that were found and resolved during the validation process. A detailed listing of all findings is available in table 2 of the attached validation protocol (in Annex 1 of this report).

The main issues identified were:

1. Proof of additionality using the barrier analysis and supported by common practice analysis
2. Prior consideration of CDM
3. Calculation of efficiency of reference plant and justification for choice of data.
4. Calculation of emission reductions based on dry weight of bagasse and calorific value determined on dry basis
5. Calculation of grid emissions factor
6. Monitoring as per the applied methodology

Resolution of: 1. Proof of additionality using the barrier analysis and supported by common practice analysis

~~Based on the initial assessment of the PDD it was identified that the data provided to justify that implementation of high pressure cogeneration system in the sugar industry is not prevalent practice, was in correct. Based on the corrective action raised, the data was revised in the PDD to establish that out of 117 sugar mills in the state of Uttar Pradesh, only 13 have a similar high pressure cogeneration systems. Out of these 13 only one is a Greenfield project and rest are capacity expansion projects. Out of 13 such projects 7 have been registered as CDM projects by CDM EB and rest are under process of availing the CDM benefits. Based on this information it can be concluded that high pressure configuration co-generation projects have not been widely implemented in sugar industry in Uttar Pradesh, India.~~

~~Further, the project activity discussed the institutional barriers faced due to losses incurred by UPPCL, the electricity off-taker. Audit team felt that this barrier is not project specific and will be faced by the identified baseline scenario for power; 'P4-The generation of power in existing and/or new grid-connected power plants.' Hence audit team requested the Project Proponent (PP) to remove this barrier. PP argued that this barrier is most relevant for private project owners who would be greatly affected in case of default in payment by UPPCL. Whereas most of the other grid connected power projects are owned and operated by State and Central Government, hence they do not face this risk~~.

Based on request for review received for the project activity, the project proponent has now included information on investment barrier and technological barriers and modified argument for prevailing practice barrier faced by the project activity. Our assessment on the arguments presented by project proponent is as follows:

Investment barrier

There are 117[*] sugar mills in state of Uttar Pradesh out of which 66[†] are above 2500 tonnes cane crushed per day (TCD) capacity. Through the letter available from UP Sugar Mill Cogen Association, which is the apex organization for sugar mill cogeneration in Uttar Pradesh, it is established that till beginning of year 2007 (project started in May 2006) there were only three sugar mills[‡] in the state that were operating high pressure configuration cogeneration systems (above 86 kg/cm^2). Till date, 14 sugar mills out these 66 have installed/are in process of installing similar systems. All these 14 projects have been developed by considering revenues from CDM. The 14 projects are as follows:

1. Balrampur Chini Mills, Balrampur (http://cdmindia.nic.in/cdmindia/project.select.jsp, http://wbln0018.worldbank.org/IFCExt/spiwebsite1.nsf/0/1a8da1ee3d43dcd385256f1c0074e368?OpenDocument)
2. Balrampur Chini Mills, Haidergarh (http://cdmindia.nic.in/cdmindia/project.select.jsp, http://wbln0018.worldbank.org/IFCExt/spiwebsite1.nsf/0/1a8da1ee3d43dcd385256f1c0074e368?OpenDocument)
3. Triveni Sugar, Deoband (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1156433275.07/view.html)
4. Triveni Sugar, Khatauli (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1166781266.9/view.html)
5. Upperganges Sugar Limited, Seohara (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1166188515.27/view.html)
6. Mawana Sugars Limited, Mawana (http://cdm.unfccc.int/Projects/DB/SGS-UKL1166045384.64/view.html)
7. Mawana Sugars Limited, Nanglamal (http://cdm.unfccc.int/Projects/DB/SGS-UKL1166044856.42/view.html)
8. Mawana Sugars Limited, Titawi (http://cdm.unfccc.int/Projects/DB/SGS-UKL1166043658.43/view.html)
9. Ramgarh Chini Mills, Sitapur (http://cdm.unfccc.int/Projects/DB/DNV-CUK1173874501.78/view.html)
10. Dalmia Sugars, Sitapur (http://cdm.unfccc.int/Projects/DB/DNV-CUK1173357593.94/view.html)
11. Dalmia Sugars, Shahjahanpur (http://cdm.unfccc.int/Projects/DB/DNV-CUK1173095684.92/view.html)
12. DSCL Sugar Ajbapur Cogeneration Project, Lakhimpur Kheri (http://cdm.unfccc.int/Projects/DB/BVQI1173177798.18/view.html)
13. LH Sugar Works, Pilibhit (http://cdm.unfccc.int/Projects/Validation/DB/43V853VSZM02FMIUWATPAQ04MQB2JZ/view.html)
14. Power capacity expansion project at Dwarikesh Puram (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1185292467.98/view)

As evident from information available at Point 25, Report on price policy for sugarcane for the season 2004-05 (http://dacnet.nic.in/cacp/sugar-final.htm), there exists a tremendous potential for bagasse based cogeneration in India, but due to the high capital cost required in setting up a high pressure cogen unit and the high interest cost of capital makes the cogeneration less attractive for

[*] http://www.indiainbusiness.nic.in/indian-states/uttarpradesh/Maj_Ind.htm

[†] http://www.sugartoday.com/upmills.htm

[‡] http://cdm.unfccc.int/UserManagement/FileStorage/EZHN15ZRYPHUVIDO5UNHSVYSONL73M

sugar mills. Thus the lending institutions are reluctant and unwilling to finance such cogeneration projects.

Indian Renewable Energy Development Agency (IREDA), which is one of the lending institutions for the project activity has considered revenues from CDM in its approval to sanction the loan for the project activity. This is evident by the fact that the contract with IREDA categorically mentions that a Trust and Retention Account (TRA) has to be opened by the borrower for servicing the repayment to IREDA and all the CDM revenues are to be routed through the TRA.

Audit team is of the opinion that project activity like other similar projects in sugar industry in Uttar Pradesh is facing investment barrier and is being implemented only through consideration of revenues from CDM.

Technological barrier

As per study published by Winrock International India, on sugar mill cogeneration which is sponsored by the Ministry of New and Renewable Energy (MNRE), Government of India, (http://www.winrockindia.org/newsletter_pdf/Cane_Cogen_India-Vol28_Dec06.pdf) there is still very limited experience and lack of technical awareness with operation of high pressure cogeneration systems in the industry. This often leads to uncertainties with regards to operation and performance of the system. This is further evident by difficulty faced by project proponent in finding expert personnel to operate high pressure cogeneration system for the project activity.

Lack of prevailing practice

As evident from report, "Promotion of Biomass Cogeneration with Power Export in the Indian Sugar Industry"[*], the use of high pressure cogeneration system is not a prevailing practice in India. Most of the cogeneration systems operate at low pressure configurations (at or below 45 kg/cm^2). This argument in context of project activity is further substantiated by letter available from UP Sugar Mill Cogen Association, which states that till beginning of year 2007 there were only three sugar mills in the state that were operating high pressure configuration cogeneration systems (above 86 kg/cm^2). At the time of the start of the project activity in May 2006 it could be considered as 'first of its kind' in the state of Uttar Pradesh as there were only three similar projects and they have also considered CDM. Audit team would like to further specify that implementation and operation of high pressure configuration cogeneration systems in sugar industry is associated with high capital cost, unwillingness of lending institutions to finance such projects, lack of skilled personnel to operate the plant etc. Considering these facts, the project proponent was reluctant to invest in the 'first of its kind' project activity and hence the project activity faced barriers.

Other barriers including institutional barriers

The institutional barriers discussed in the PDD submitted for registration and the revised PDD submitted now are associated with export of electricity to grid by the project activity. Hence the analysis given below compares the project activity with alternative scenario for power only (not biomass and heat).

The alternative scenarios identified for power were:

P4: The generation of power in the grid

P5: The installation of a new biomass residue fired power 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

[*] Page 7 of 25 of the report "Promotion of Biomass Cogeneration with Power Export in the Indian Sugar Industry " http://www.netl.doe.gov/publications/carbon_seq/articles/india.pdf

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

Scenario P5 essentially represents low pressure configuration cogeneration projects that are installed to meet the captive electrical and thermal energy requirements of sugar plant, **without export to grid** and hence is not considered for further analysis. This is a prevailing practice in the Indian Sugar industry as evident from report, "Promotion of Biomass Cogeneration with Power Export in the Indian Sugar Industry. Hence, the analysis below provides justification why institutional barriers do not affect the alternative scenario P4.

The institutional barriers due to poor financial condition of electricity off-taker (UPPCL), uncertainty in rate of power purchase by UPPCL, reduction in limit to purchase energy from renewable and non-conventional energy by Uttar Pradesh Electricity Regulatory Commission (UPERC) and non-payment by UPPCL only affect the private sector project developers investing in the project activity like Dwarikesh Sugar Industries Limited (DSIL). These aspects do not affect the most of the other grid connected projects, which are operated by State and Central Government. The total installed capacity of government owned plants supplying electricity to grid in Uttar Pradesh is 4755.6 MW[*], which is 98.14% of the total installed electricity generation capacity of the state.

Common practice analysis

There are 117[†] sugar mills in state of Uttar Pradesh out of which 66[‡] are above 2500 tonnes cane crushed per day (TCD) capacity. Till date, 14 sugar mills out these 66 have installed/are in process of installing high pressure cogeneration system similar to project activity. All these 14 projects have been developed by considering revenues from CDM. The list of 14 projects is already presented above. Out of these 14 projects only one is green field project (like project activity) and others are power capacity expansion projects. Hence it can be concluded that there is no other activity similar to project activity implemented without consideration of revenues from CDM

Further, we would like to re-instate that the common practice in the region is operation of low pressure configuration cogeneration projects that are installed to meet the captive electrical and thermal energy requirements of sugar plant. The common practice does not face barriers that are faced by high pressure configuration cogeneration project activity.

Resolution of: 2. Prior consideration of CDM

Prior consideration of CDM has been validated as presented in section B.5.1 of the Annex 1 of the validation report. Following request for review received for the project activity further clarification is provided as follows:

The decision to implement the project activity was taken on 11 May 2006 after considering the incentives from CDM. Resolution passed in the Project Committee Meeting of the Company held on 11 May 2006 was already submitted while requesting registration for the project activity. The implementation/real action of the project activity started subsequently on 13 May 2006 with signing of contract agreements for purchase of turbines. All the major steps in the process of implementation of the project were carried out later as follows:

13th May 2006 Contract agreement for purchase of turbines

[*] http://www.nreb.nic.in/Reports/ar06-07/Chapter2/Annex2.4.pdf

[†] http://www.indiainbusiness.nic.in/indian-states/uttarpradesh/Maj_Ind.htm

[‡] http://www.sugartoday.com/upmills.htm

14th July 2006	Contract agreement for purchase of boilers
17 May 2006	Power purchase agreement signed
03 July 2006	Loan sanctioned
27 September 2006	No objection from State Pollution Control Board to implement the project

The process to avail the CDM benefits was started in June 2006 with appointment of CDM consultants and subsequently the appointment of DOE in September 2006. The applied methodology (ACM0006) was already available since September 2005. Hence it is evident that incentives from CDM were seriously considered in decision to implement the project activity.

Resolution of: ~~2~~3. Calculation of electrical efficiency of reference plant and justification for choice of data

The initial PDD did not contain the calculations and data that were used to arrive at the electrical efficiency of the reference plant. Based on corrective action raised the information was provided in the PDD however, the calculations were done based on wet biomass. The calculations were revised based on dry biomass (as required by methodology), which led to a decrease in the electrical efficiency of the reference plant.

Further, the PDD did not provide the reference and justification of chosen data to calculate the electrical efficiency. This information was included in the revised PDD and it was demonstrated that common practice in the Indian Sugar Industry is operating low pressure boilers upto 35 kg/cm^2 (without export of power) and CDM is being considered for all the high pressure cogeneration systems that are being implemented. DSIL is operating a 45 kg/cm^2 pressure cogeneration system at one of its sugar mill, which has been taken as the reference plant (commissioned in 2001). This approach is deemed reasonable and conservative. The efficiency of the reference plant was based on operation data for two years however, based on request for review received for the project activity, the project proponent has now recalculated the efficiency based on design data for the reference plant. The efficiency calculation presented in the revised excel sheet has been validated and is found to be correct. The efficiency has increase from value of 0.095 to 0.1074 leading to conservative emission reduction calculations.

Resolution of: ~~3~~4. Calculation of emission reductions based on dry weight of bagasse and calorific value determined on dry basis

In the initial version of the PDD, the emission reductions were calculated based on wet weight of bagasse and its calorific value determined on wet basis. Based on corrective action raised, the calculations were revised based on dry weight of bagasse and its calorific value determined on dry basis.

Resolution of: ~~4~~5. Calculation of grid emissions factor

Emission factor for the northern region grid of India was determined as 896.26 tCO_2/GWh in the initial version of the PDD. This was significantly higher that the data published by Central Electricity Authority (CEA), Government of India. Version 1.1 of the CEA data stated the grid emission factor for northern grid as 756.6 tCO_2/GWh based on latest grid data available until 2004-2005. This significant difference in the value determined in the PDD and that given by CEA was primarily due to difference in calorific value of coal used. The PDD referred to calorific value of coal from India's Initial National Communication on Climate Change to the UNFCCC (NATCOM). The value give by

NATCOM is 4593 kcal/kg. The CEA uses the calorific value of Indian coal as per the data available from the plant, which is in the range of 3800 kcal/kg. The PP was asked to revise the grid emission factor calculation based on conservative calorific value of coal as given by CEA. The PP revised the calculations to determine the grid emission factor as 750.87 tCO_2/GWh, which was more conservative than that given by CEA. Recently in June 2007, CEA has published version 2.0 of the grid emission factor data for all regional grids in India based on latest grid data available until 2005-2006. The emission factor for northern region grid has been determined to be 793.00 tCO_2/GWh. The PDD has been revised and the emission factor available from CEA has been directly used to calculate the emission reductions. Several registered projects from India now directly refer to the grid emission factor as available from CEA website. Hence this is deemed acceptable to use the most recent data available from CEA.

Resolution of: 6. Monitoring as per applied methodology

The quantity of bagasse used in the project activity would be measured and the basis of the measuring system of the equipment installed would be the speed of the rotary feeder. The measuring equipment would be calibrated to give the quantity of bagasse based on speed of rotary feeder. The procedure for monitoring of biomass to be consumed by project activity is now inline with requirements stipulated by ACM0006, version 5, which requires direct measurement of biomass quantity used in the project activity. The monitoring plan in the PDD has been further revised to make provision for carrying out annual energy balance measurement of heat generation, gross electricity generation and auxiliary electricity consumption. The net calorific value of the bagasse would be monitored every six months, taking at least three samples for each measurement. The monitoring plan is now inline with the applied methodology.

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: http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=2126&Ebene1_ID=26&Ebene2_ID=633&mode=1	
Starting date of the global stakeholder consultation process: 2006-09-29	
Comment submitted by:	No comments were received.

The first global stakeholder consultation process was started with version 3 of ACM0006, which was revised to version 4. This change to version 4 from version 3 did not lead to significant change in the PDD. Also project did not claim for avoided emissions from biomass decay hence PDD was not required to be made publicly available again. However, ACM0006 was further revised to version 5 and the global stakeholder consultation process was repeated. The link to the second global stakeholder consultation process is given below.

webpage: http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=3089&Ebene1_ID=26&Ebene2_ID=948&mode=1	
Starting date of the global stakeholder consultation process: 2007-06-05	
Comment submitted by:	No comments were received.

4 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Greenfield power project at Dwarikesh Dham

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project 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 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 using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, ~~2007-09-10~~ 2008-01-11

Certification Body “climate and energy”
TÜV SÜD Industrie Service GmbH

Munich, ~~2007-09-10~~ 2008-01-11

Assessment Team Leader

Annex 1: Validation Protocol

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 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 is version 1 dated 12.09.2006.	☑	☑
A.1.3.	Is this consistent with the time line of the project's history?	2, 6	Yes, this is consistent with time line of the project's history. Decision to implement the project was taken in May 2006.	☑	☑
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	2, 5, 7	The description is mostly delivering overview of the project activity however, following issues need to be clarified. **Clarification Request No. 1.** In the PDD, please provide details on: • quantity of bagasse generated **Clarification Request No. 2.** Please clarify if there is one boiler or there are two boilers in the project activity. Section A.2 says there is one boiler however, section A.4.3 talks about two boilers.	CR	☑
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	2, 5, 7	The project activity is under implementation. Audit team has verified the equipment purchase documents, project schedule, No Objection Certificate (NOC) from State Pollution Control Board and Power Purchase Agreement, which provide details about the	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			project.		
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	2, 5, 7	The project description in the PDD is in line with information available from the documents mentioned in A.2.2	☑	☑
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	2, 5, 7	Yes, the information in PDD is consistent.	☑	☑
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	2, 25	Yes, the form has been correctly applied. Dwarikesh Sugar Industries Limited (DSIL) is the only project participant.	☑	☑
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	25, 26	**Outstanding Issue 1:** A Letter of Approval from the host Party confirming that the project contributes to sustainable development in the country needs to be submitted to the audit team. **Outstanding Issue 2:** A Letter on the Modalities of Communication needs to be submitted.	Outstanding issue	☑
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, 25	Yes.	☑	☑
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)?	2	Yes, the project is located at existing sugar manufacturing unit of DSIL, Village Bhagwanpur Fulwa and Bakarganj, Tehsil Faridpur,	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			District Bareilly , Uttar Pradesh, India.		
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.)?	2, 17	The project proponent (DSIL) has obtained NOC form the State Pollution Control Board to implement the project activity.	☑	☑
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?	2, 3	The project activity falls under the Sectoral Scope 1: Energy industries (renewable - / non-renewable sources) as per the sectoral scopes related approved methodologies and DOEs.	☑	☑
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?	2	The project activity involves installation of two high pressure boilers (86 kg/cm^2) and one double extraction cum condensing turbine and one backpressure turbine for co-generation of power and heat. This technology is more energy efficient than conventional low pressure co-generation system.	☑	☑
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?	2, 3	The surplus electricity generated by the bagasse (biomass) based project activity would be exported to the fossil fuel dominated grid thereby reducing GHG emissions.	☑	☑
A.4.3.3.	Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	2, 5, 7	No technology transfer is involved due to project activity.	☑	☑
A.4.3.4.	Is the technology implemented by the project activity environmentally safe?	5, 7	The technology implemented is considered to be environmentally safe with pollution control equipments that will be installed along with the project activity.	☑	☑
A.4.3.5.	Is the information provided in compliance with actual situation or planning?	2, 5, 7	Yes, the information provided is in compliance with actual planning.	☑	☑
A.4.3.6.	Does the project use state of the art tech-	2	This technology is more energy efficient than conventional low	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	nology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?		pressure co-generation system being used in the sugar industry.		
A.4.3.7.	Is the project technology likely to be substituted by other or more efficient technologies within the project period?	2	It is not likely that the project technology will be substitutes by other or more efficient technologies within the project 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?	5, 7	Manpower will be hired to operate and maintain the plant, which will be required to be trained to be able to meet the operation and maintenance needs of the plant.	☑	☑
A.4.3.9.	Is information available on the demand and requirements for training and maintenance?	5, 7	**Clarification Request No. 3.** Please provide a detailed program on the demand and requirements for training with respect to project activity.	CR	☑
A.4.3.10.	Is a schedule available for the implementation of the project and are there any risks for delays?	15	Yes the project schedule is available and the execution of the same is being carried out in accordance to the planning.	☑	☑
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	Yes, the form has been correctly applied.	☑	☑
A.4.4.2.	Are the figures provided consistent with other data presented in the PDD?	2	Yes.	☑	☑
A.4.5.	*Public funding of the project activity*				
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?	13	According to the information obtained by the audit team, no public funding from parties included in Annex-I of the Convention is involved in the project activity. The project is financed through loan provided by one of the Indian	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		National Banks.		
A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	13	Yes.	☑	☑
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	The title and version number of ACM0006 have been clearly indicated. **Corrective Action Request No.1.** As per the "Guidelines For Completing The Project Design Document (CDM-PDD), And The Proposed New Baseline And Monitoring Methodologies (CDM-NM)-Version 06.1" please include in section B.1 of the PDD, the reference to other approved methodologies and tools that the methodology adopted by project activity uses.	CAR	☑
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	2, 3	**Corrective Action Request No.2.** Since the revision has come in the methodology, please revise the PDD according to the ACM0006, Version 04.	CAR	☑
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?	2, 3	Yes.	☑	☑
B.2.2. Is the project activity clear according to the PDD?	2, 18	Applicability checklist: Greenfield project? Yes; Power capacity expansion project? No	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		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.	5	Applicability checklist — Yes / No Criterion discussed in the PDD? — Yes Compliance provable? — Yes Evidences provided in the PDD? — No Compliance verified? — No **Clarification Request No. 4.** Please clarify if the boiler is designed to fire any fossil fuels. Please provide documentary evidence.	CR	☑
B.2.4. Criterion 2: For projects that use biomass residues from a production process (e.g. production 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	2	Applicability checklist — Yes / No Criterion discussed in the PDD? — Yes Compliance provable? — Yes Evidences provided in the PDD? — Yes Compliance verified? — Yes	☑	☑
B.2.5. Criterion 3: The biomass residues used by the project facility should not be stored for more than one year;	2	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:	2	Applicability checklist — Yes / No	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
from transportation or mechanical treatment of the biomass residues, are required to prepare the biomass residues for fuel combustion		Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes		
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	2	Boundary checklist: 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	2	Boundary checklist: 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 replacement of heat by the project activity hence not applicable.	☑	☑
B.3.3. Source: Uncontrolled burning or decay of surplus biomass residues Gas(es): CH4 Type: Baseline Emissions	2	Boundary checklist: Source and gas(es) discussed in the PDD? NA; Inclusion / exclusion justified? NA; Explanation / Justification sufficient? NA	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Consistency with monitoring plan? NA There is no uncontrolled burning or decay of surplus biomass (bagasse) in absence of the project activity.		
B.3.4. Source: On-site fossil fuel or electricity consumption Gas(es): CO2 Type: Project Emissions	2	Boundary checklist / Yes / No Source and gas(es) discussed in the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? No Consistency with monitoring plan? Yes See B.2.3	CR	☑
B.3.5. Source: Off-site transportation of biomass residues Gas(es): CO2 Type: Project Emissions	2	Boundary checklist / Yes / No Source and gas(es) discussed in the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? No Consistency with monitoring plan? Yes See A.2.1	CR	☑
B.3.6. Source: Combustion of biomass residues Gas(es): CH4 Type: Project Emissions	2	Boundary checklist / Yes / No Source and gas(es) discussed in the PDD? NA Inclusion / exclusion justified? NA Explanation / Justification sufficient? NA Consistency with monitoring plan? NA Since methane emissions from biomass decay or uncontrolled burning are not considered in baseline scenario this is not applicable in the project scenario.	☑	☑
B.3.7. Is the spatial extension of project bound-	2	Yes, the spatial extent of the project boundary includes the North-	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	ary clearly described?		ern region grid of India.		
B.3.8.	Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD?	2	Yes.	☑	☑
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 PDD? Why can this list be considered as being complete?	2	Realistic and credible alternatives should be determined: Completely discussed and reasoned in PDD? / Yes / No how **power** would be generated in the absence of the CDM project activity; / Yes 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	For **power** generation, the realistic and credible alternatives may include 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 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. / No	CAR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS			PDD in GSP	Final PDD
		P3	The generation of power in an existing captive power 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 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.	Yes		
		P6	The installation of a new biomass residue fired power 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, 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		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD

P8	The retrofitting of an existing biomass residue fired power 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

For **heat** generation, realistic and credible alternative(s) may include,

Categories		Yes / No
H1	The proposed project activity not undertaken as a CDM project activity	Yes
H2	The proposed project activity (installation of a cogeneration power 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)	Yes
H3	The generation of heat in an existing captive cogeneration 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 cogeneration 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.	No
H6	The generation of heat in boilers using fossil fuels	No
H7	The use of heat from external sources, such as	No

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD

	district heat	
H8	Other heat generation technologies (e.g. heat pumps or solar energy)	No

For the use of **biomass residues**, the realistic and credible alternative(s) may include, *inter alia*:

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 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

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			Corrective Action Request No.3. Please correct the baseline scenarios for biomass as per the revised methodology. For e.g the baseline for biomass is B4 as per scenario 4 and not B2.		
B.4.3.	What kind of scenario combination has been applied according to table 1 of methodology?	2, 3	Scenario 4 has been applied for the project activity.	☑	☑
B.4.4.	Does chosen scenario meet engineered project activity?	2, 5, 7	Yes, the chosen scenario is appropriate for the project activity. **Corrective Action Request No.4.** Please include the description of technology that would have been implemented in the absence of the project activity. Also demonstrate whether the thermal efficiency in the project plant is larger, smaller or similar compared with the reference plant.	CAR	☑
B.4.5.	Have applicable regulatory or legal requirements been identified?	2	Yes.	☑	☑
B.4.6.	Does project identify correctly and excludes those options not in line with regulatory or legal requirements?	2	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 in respective 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. I	2	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Age of each component mentioned?</td><td>NA</td></tr><tr><td>Expected lifetime of each component mentioned?</td><td>NA</td></tr><tr><td>Does the ending date fall in the scheduled crediting period of the project?</td><td>NA</td></tr><tr><td>Evidences clearly referenced?</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></table>	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? NA The sugar mill itself is a Greenfield project and there was no power or heat generation in pre-project scenario.		
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, 6, 11, 16	The evidence of CDM consideration provided is Resolution passed in Project Committee Meeting held on 11 May 2006. **Corrective Action Request No.5.** PDD mentions that Step 0 of the additionality tool is not applicable to the project activity. Please revise the additionality discussion as per 'combined tool to identify baseline scenario and demonstrate additionality'. **Clarification Request No. 5.** The evidence of CDM consideration provided is Resolution passed in Project Committee Meeting held on 11 May 2006. However, PPA was signed on 17 May 2006. It seems that the project activity started before CDM was taken into consideration. Please clarify. **Clarification Request No. 6.** Resolution passed in Project Committee Meeting held on 11 May 2006 states that revenue from CERs has been accounted to work out the viability of the project and project would not have been viable without these revenues. Please provide further information to support the statement.	CAR CR	☑
B.5.2. *Step 2a of combined tool to identify base-*	2	Yes, lack of prevailing practice and other barriers have been dis-	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	line scenario and demonstrate additionality: Is a complete list of barriers developed that prevent the different alternatives to occur.		cussed in the PDD.		
B.5.3.	Is transparent and documented evidence provided on the existence and significance of these barriers?	2	**Corrective Action Request No.6.** PDD mentions that "There are 40 sugar mills in Uttar Pradesh, out of which only 14 have cogeneration systems". This data seems bit old. Please refer following links, which give much higher number of sugar mills operating in Uttar Pradesh, India: **http://www.indiainbusiness.nic.in/indian-states/uttarpradesh/Maj_Ind.htm** **http://www.sugartoday.com/map_big.jpg** **http://www.sugartoday.com/upmills.htm** Please provide updated information along with clear, retraceable references to the sources used. **Clarification Request No. 7.** PDD mentions that "**The aggregate technical and commercial loss for UPPCL (off-taker) in the year 2003-04 was INR 32.82 billion".** This figure is not available in the given reference. Please clarify. Also it needs to be clarified if this barrier is not faced by other projects supplying power to the grid. If yes, then the barrier is not project specific and should be removed. **Clarification Request No. 8.** PDD mentions that due to imbalances Northern Grid has failed in recent past and this scenario continues it may lead to tripping of project plant. It needs to be clarified if this barrier is not faced by other projects	CAR CR	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			supplying power to grid. If yes, then the barrier is not project specific and should be removed. **Clarification Request No. 9.** PDD mentions that "**initial years of establishing a sugar factory requires a great deal of extension work to develop the cane area therefore installing such a large scale power plant in a new factory poses a real risk related to the throughput of cane".** Since the quantity of bagasse used in baseline and project scenario is same, it needs to be evidenced how this is barrier only for project and not baseline scenario.		
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	It has been shown that barriers are faced by the high pressure boiler configuration project activity, which supplies electricity to the grid. These barriers are not faced by identified baseline scenario 4.	☑	☑
B.5.5.	Is it appropriately explained how the registration of the project activity will help to alleviate the identified barriers?	2	**Clarification Request No. 10.** PDD states that the registration of the project activity would help in mitigating the barriers and encourage other entities in similar nature of works to pursue such kind of initiatives. Please clarify how the registration of project will mitigate barriers.	CR	☑
B.5.6.	Is there more than one alternative scenario **including the project activity** that is not prevented by the identified barriers?	2	No, the only plausible alternative scenario that is not prevented by identified barriers is scenario 4 as per ACM0006.	☑	☑
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	Not applicable	☑	☑
B.5.8.	Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit	2	Not applicable	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	ratio, or (levelized) unit cost)?				
B.5.9.	Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	2	Not applicable	☑	☑
B.5.10.	Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	2	Not applicable	☑	☑
B.5.11.	Has a sensitivity analysis been carried out	2	Not applicable	☑	☑
B.5.12.	Is there more than one alternative scenario **excluding the project activity** that is not prevented by the identified barriers?	2	No	☑	☑
B.5.13.	If there is more than one alternative scenario excluding project activity that is not prevented by identified barriers, has an investment comparison analysis been done as per step 3 of the tool or the scenario with lowest baseline emissions has been chosen?	2	Not applicable	☑	☑
B.5.14.	If investment comparison analysis has been done then follow step B.5.7 to B.5.10 given above.	2	Not applicable	☑	☑
B.5.15.	If baseline scenario with lowest emissions has been chosen, has appropriate justification been given?	2	Not applicable	☑	☑
B.5.16.	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	**Corrective Action Request No.7.** Please provide evidence in the PDD that only 4 sugar mills operating in the state have similar boiler configuration as project activity, and that these have applied for CDM.	CAR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.5.17. If similar activities are occurring, have essential distinctions between project activity and similar activities been explained?	2	See B.5.16	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?	2,3	Yes, the PDD defines the methodology procedures to estimate the emission reductions.	☑	☑
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?	2,3	Yes, options selected to define the project emissions and baseline emissions have been defined in the PDD.	☑	☑
B.6.1.3. Which conservativeness factor has been chosen and how is this choice justified	2,19	Please see F.1.18	CAR	☑
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?	2,19	The project activity is not anticipated to use fossil fuels and there is no transportation of bagasse. Hence, no project emissions are anticipated.	☑	☑
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?	2,19	**Corrective Action Request No.8.** Please revise in the PDD, the equation used by scenario 4 to calculate the net energy generated by project activity as per the revised methodology.	CAR	☑
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 moni-	2	Not applicable for scenario 4.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	tored?				
B.6.1.7.	Are the formulae required for the determination of emission reductions correctly presented?	2	See B.6.1.5	CAR	☑
B.6.2.	*Data and parameters that are available at validation* *The Emission reduction is estimated by the formula ERy = ERheat, y + ERelectricity, y + BEbiomass, y − PEy − Ly* *ERy = Emissions reductions of the project activity during the year y (tCO2/yr)* *ERelectricity,y = Emission reductions due to displacement of electricity during the year y (tCO2/yr)* *ERheat,y = Emission reductions due to displacement of heat during the year y (tCO2/yr)* *BEbiomass,y = Baseline emissions due to natural decay or burning of anthropogenic sources of biomass residues during the year y (tCO2e/yr)* *PEy = Project emissions during the year y (tCO2/yr)* *Ly = 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	The list is not entirely complete. Please see below.	☑	☑
B.6.2.2.	Does the quantity of biomass residues refer to the dry weight?	2	**Clarification Request No. 11.** Please clarify if the weight of bagasse mentioned in the PDD (270,000 ton) is on dry basis. If not, it should be corrected. Furthermore, if the biomass is not dry, then monitoring of moisture content must be included in monitoring plan.	CR	☑
B.6.2.3.	Parameter Title: Global warming potential for CH_4 GWP_{CH4}	2	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter?	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable since no emissions reductions are claimed for avoidance of methane.		
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	Data Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable since no fossil fuel fired plant has been identified as baseline plant.	☑	☑
B.6.2.5. Parameter Title: Net quantity of electricity generated during the most recent three years in all power plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant $EG_{historic,3y}$	2	Data Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? |	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		This is not applicable since it is a Greenfield project.		
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	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? This is not applicable.	☑	☑
B.6.2.7. Parameter Title: Average net efficiency of heat generation in the project plant prior to project implementation $\varepsilon_{th\_pre\ project}$	2	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? This is not applicable.	☑	☑
B.6.2.8. Parameter Title: Average net efficiency of electricity generation in the project plant prior to project implementation $\varepsilon_{el\_pre\ project}$	2	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter?	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable.		
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. $\varepsilon_{el\_grid\ plants}$	2	Data Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable.	☑	☑
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 activityε el, reference plant / $\varepsilon_{th\_reference\ plant}$	2, 24, 22	Data Checklist | Yes / No Title in line with methodology? | Yes Data unit correctly expressed? | Yes Appropriate description of parameter? | Yes Source clearly referenced? | No Correct value provided? | No Has this value been verified? | No Choice of data correctly justified? | No Measurement method correctly described? | No **Corrective Action Request No.9.**	CAR	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>The parameter $\varepsilon_{el,other\ plant,y}$ should read $\varepsilon_{el,reference\ plant}$ and should be included in section B.6.2 of the PDD and not B.7.1. Furthermore, $\varepsilon_{th,reference\ plant}$ should be included in B.6.2. as well. The efficiency should be chosen in a conservative manner, and documentary evidence should be provided to justify the choice.
<u>Corrective Action Request No.10.</u>
Please provide in the PDD the calculations and sources referred to derive the efficiency of reference plant. Please justify the choice.</td><td></td><td></td></tr>
<tr><td>B.6.2.11. Parameter Title:
Average net efficiency of electricity / heat generation in the existing power / cogeneration plant(s) fired with the same type of biomass residue at the project siteε el, existing plant /
$\varepsilon_{th\_existing\ plant}$</td><td>2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr></table>This is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>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
$Q_{historic\ 3y}$</td><td>2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		This is not applicable.		
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	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? This is not applicable.	☑	☑
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	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided? Has this value been verified? Choice of data correctly justified? Measurement method correctly described? This is not applicable.	☑	☑
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 $\varepsilon_{boiler\ biomass}$	2	Data Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter?	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable.		
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 implementation of the project activity $BF_{historic, k, 3y}$	2	Data Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable.	☑	☑
B.6.2.17. Parameter Title: Moisture content of each biomass residue type k or i	2	Data Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided? | Has this value been verified? | Choice of data correctly justified? | Measurement method correctly described? | This is not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.2.18. Parameter Title: Net calorific values of fossil fuel type i NCV_i	2	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Choice of data correctly justified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr></table> This is not applicable.	☑	☑
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	No, the projection is based on Plant Load Factor and turbine capacity however; the energy generated will be monitored during actual operation.	☑	☑
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	2	**Corrective Action Request No.11.** Please mention the assumptions used to arrive at the amount of electricity to be generated by project plant (155.52 GWh) and include this information in the PDD.	CAR	☑
B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	2	Data is consistent within the PDD.	☑	☑
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, 19	Yes.	☑	☑
B.6.4. *Summary of the ex-ante estimation of emission reductions*				
B.6.4.1. Will the project result in fewer GHG	2	The project activity will lead to reduction in green house gas	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	emissions than the baseline scenario?		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	Yes, the form has been correctly applied.	☑	☑
B.6.4.3.	Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	2, 5, 7	Yes, the crediting period will start from date of registration since project activity has started operation.	☑	☑
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	No, the list is not complete.	☑	☑
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	<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>No</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr></table>	CAR CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		QA/QC procedures described? — No QA/QC procedures appropriate? — No **Corrective Action Request No.12.** PDD does not specify the monitoring frequencies of the parameters mentioned in section B.7.1 of the PDD. **Corrective Action Request No.13.** Please provide the accuracy of equipment used to monitor the bagasse quantity used in project activity. **Corrective Action Request No.14.** Please define the QA procedures (internal audit plan) to be adopted for all the monitored data. **Clarification Request No. 12.** Annex 4 mentions that bagasse used by the project activity would be measured on weigh bridge. However, section B.7.1 mentions that it would be calculated from measured quantity of cane. Please clarify and revise PDD accordingly. If the amount of bagasse is calculated, then provide the detailed calculations and assumptions.		
B.7.1.3. Parameter Title: Moisture content of the biomass residues	2	Monitoring Checklist — Yes / No Title in line with methodology? — No Data unit correctly expressed? — No Appropriate description of parameter? — No Source clearly referenced? — No Correct value provided for estimation? — No Has this value been verified? — No Measurement method correctly described? — No	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct reference to standards? — No Indication of accuracy provided? — No QA/QC procedures described? — No QA/QC procedures appropriate? — No Please see B.6.2.2		
B.7.1.4. Parameter Title: CH4 emission factor for the combustion of biomass residues in the project plant $EF_{CH4,BF}$	2	Monitoring Checklist — Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? This is not applicable.	☑	☑
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	Monitoring Checklist — Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards?	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | 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	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | 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	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? |	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable since there is no transportation of biomass from other sites to project site.		
B.7.1.8. Parameter Title: Average CO2 emission factor for the trucks during the year y $EF_{km,CO2,y}$	2	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | 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	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? |	☑	☑

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

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | 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 $FF_{project\ plant,i,y}$	2	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable since there is no fossil usage anticipated in project scenario.	☑	☑
B.7.1.13. Parameter Title: 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 $FF_{project\ site,i,y}$	2	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? |	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable since there is no fossil usage is anticipated in project scenario.		
B.7.1.14. Parameter Title: Quantity of steam diverted from other boilers to the project plant.	2, 23	Monitoring Checklist | Yes / No Title in line with methodology? | No Data unit correctly expressed? | No Appropriate description of parameter? | No Source clearly referenced? | No Correct value provided for estimation? | No Has this value been verified? | No Measurement method correctly described? | No Correct reference to standards? | No Indication of accuracy provided? | No QA/QC procedures described? | No QA/QC procedures appropriate? | No **Clarification Request No. 13.** 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.	CR	☑
B.7.1.15. Parameter Title: Average net efficiency of steam generation in the plant(s) from where		Monitoring Checklist | Yes / No Title in line with methodology? | No	CR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
steam is diverted to the project plant		Data unit correctly expressed? — No Appropriate description of parameter? — No Source clearly referenced? — No Correct value provided for estimation? — No Has this value been verified? — No Measurement method correctly described? — No Correct reference to standards? — No Indication of accuracy provided? — No QA/QC procedures described? — No QA/QC procedures appropriate? — No See B.7.1.14		
B.7.1.16. Parameter Title: Net quantity of electricity generated in the project plant during the year y $EG_{project\ plant,y}$	2	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? — 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? — No QA/QC procedures appropriate? — No Please see B.6.3.2 and B.7.1.2 **Corrective Action Request No.15.** In section B.7.1 “EGy” has been mentioned as “total quantity of electricity generated at the project site”. EGy is the “net quantity of increased electricity”. Please correct.	CAR CR	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.7.1.17. Parameter Title:
Net quantity of electricity generated in the fossil fuel fired captive power plant during the year y
$EG_{CP,y}$</td><td>2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>
This is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>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 the new power unit installed as part of the project activity and any previously existing units, during the year y
$EG_{total,y}$</td><td>2, 3</td><td><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>No</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>No</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>No</td></tr><tr><td>Correct reference to standards?</td><td>No</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>
This is not applicable.</td><td>CAR</td><td>☑</td></tr>
<tr><td>B.7.1.19. Parameter Title:</td><td></td><td></td><td>CAR</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Net quantity of heat generated from firing biomass in the project plant $Q_{project\ plant,y}$		Monitoring Checklist / Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided for estimation? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No Please see B.7.1.2. This parameter is required to be monitored to estimate the biomass consumed by the project activity.	CR	
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	Monitoring Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? This is not applicable.	☑	☑
B.7.1.21. Parameter Title:	2		☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Net calorific value of the fossil fuel type i NCV_i		Monitoring Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? This is not applicable.		
B.7.1.22. Parameter Title: Net calorific value of biomass residue type k NCV_k	2, 3	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? No Has this value been verified? No Measurement method correctly described? No Correct reference to standards? No Indication of accuracy provided? No QA/QC procedures described? No QA/QC procedures appropriate? No **Corrective Action Request No.16.** Please mention if the NCV of bagasse would be monitored at in-house laboratory or would be based on external lab report. In ei-	CAR CR	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>ther case define the QC procedures adopted.
<u>Corrective Action Request No.17.</u>
Please revise the nomenclature for the parameters in the monitoring plan as per the new version 04 of ACM0006. For example, $BF_{i,y}$ and $NCV_{i.}$
<u>Clarification Request No. 14.</u>
The PDD states that NCV of bagasse is 1800 kcal/kg – please provide a retraceable data source for this value.</td><td></td><td></td></tr>
<tr><td>B.7.1.23. Parameter Title:
CH4 emission factor for uncontrolled burning of the biomass residue type k during the year y
$EF_{burning,CH4,k,y}$</td><td>2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>
This is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>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</td><td>2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable.		
B.7.1.25. 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	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable.	☑	☑
B.7.1.26. 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	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? |	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable.		
B.7.1.27. Parameter Title: Quantity of available biomass residues of type k in the region	2	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable.	☑	☑
B.7.1.28. 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	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? |	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable.		
B.7.1.29. Parameter Title: On-site electricity consumption attributable to the project activity during the year y $EC_{PJ,y}$	2	Monitoring Checklist | Yes / No Title in line with methodology? | Data unit correctly expressed? | Appropriate description of parameter? | Source clearly referenced? | Correct value provided for estimation? | Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | This is not applicable.	☑	☑
B.7.1.30. 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. $EF_{grid,y}$		See ACM002 protocol (chapter B should be filled out)		

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.7.1.31. 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
$BF_{all\ plants,k,y}$</td><td>2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>This is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.32. Parameter Title:
CO2 emission factor of the most carbon intensive fuel used in the country
$EF_{CO2,LE}$</td><td>2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>This is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.33. Parameter Title:</td><td>2</td><td></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
CO2 emission factor for the fossil fuel used in the captive power plant $EF_{CP,CO2}$		Monitoring Checklist / Yes / No Title in line with methodology? Data unit correctly expressed? Appropriate description of parameter? Source clearly referenced? Correct value provided for estimation? Has this value been verified? Measurement method correctly described? Correct reference to standards? Indication of accuracy provided? QA/QC procedures described? QA/QC procedures appropriate? This is not applicable.		
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 envisoned situation?	2	Yes, the operational and management structure is defined in the PDD.	☑	☑
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	2, 21	**Corrective Action Request No.18.** PDD defines the person responsible for data monitoring. However, information on person responsible for maintenance of monitoring equipments is not available.	CAR	☑
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	2, 21	Yes, the monitoring plan provides current good practices. **Corrective Action Request No.19.** Please identify the procedures for dealing with possible monitoring data adjustments and uncertainties.	CAR	☑
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better under-	2	Yes.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	standing of the envisoned monitoring provisions?				
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 3 September 2006.	☑	☑
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?	2	Yes, the project owners DSIL are responsible for application of baseline and monitoring methodology.	☑	☑
B.8.4.	Is information provided whether this person / entity is also considered a project participant?	2	Yes, DSIL is also the project 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, 6	Yes, the project starting date and lifetime are deemed reasonable.	☑	☑
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	2	Fixed 10 year crediting period has been chosen.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
renewals or fixed crediting period of max. 10 years)?				
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	Yes, the environmental impacts of the project activity have been sufficiently described.	☑	☑
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.	☑	☑
D.1.3. Will the project create any adverse environmental effects?	2	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	Yes, the mitigation measures have been defined.	☑	☑
D.2.2. Does the project comply with environmental legislation in the host country?	2, 17	Yes.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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, 8, 9, 10	**Corrective Action Request No.20.** 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 and provide any documents received from stakeholders to the audit team.	CAR	☑
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	2, 8, 9, 10	Letters were sent out and advertisements were placed in the local newspapers 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, 8, 9, 10	See E.1.1	CAR	☑
E.2. Summary of the comments received				
E.2.1. Is a summary of the received stakeholder comments provided?	2	See E.1.1	CAR	☑
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, 8, 9, 10	No adverse comments were received.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
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.	☑	☑
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.	☑	☑
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, 13	According to the information obtained by the audit team, no public funding from parties included in Annex-I of the Convention is involved in the project activity. The project is financed through loan provided by one of the Indian National Banks.	☑	☑
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, 19	Information on grid emission factor calculation is provided and is consistent with other sections of the PDD.	☑	☑
F.1.6. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	2	Yes.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	2	Yes.	☑	☑
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	Additional information on electricity and biomass monitoring is given. However, this information is not consistent with information given in section B of the PDD. See B.7.1.2	CR	☑
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	See F.1.8	CR	☑
Table 1b: Checklist for relevant questions with respect to ACM0002					
F.1.11.	Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	2	Yes, ex-ante choice for calculation of OM and BM has been defined in the PDD.	☑	☑
F.1.12.	Parameter Title: Emission factor of the grid (CM)	2	<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></table>	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? Yes		
F.1.13. Parameter Title: Operating margin (OM) emission factor of the grid	2	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.1.14. Parameter Title: Build margin (BM) emission factor of the grid	2	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.1.15. Parameter Title: fuel consumption of each power source	2	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	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? — Yes		
F.1.16. Parameter Title: emission coefficient of each fuel	2	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.1.17. Parameter Title: electricity generation of each power source	2	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.1.18. Parameter Title: electricity imports	2	Data Checklist — Yes / No Title in line with methodology? — Yes Data unit correctly expressed? — Yes Appropriate description of parameter? — Yes Source clearly referenced? — No Correct value provided? — No Has this value been verified? — No Choice of data correctly justified? — No	CAR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Measurement method correctly described? No **Corrective Action Request No.21.** The emission factor calculation has referred to NATCOM value for calorific value of coal. Please use more conservative factor as given by CEA. **Corrective Action Request No.22.** Emission factor for imports have been referred from MNES study. This is not acceptable as these are based on projections only. Please use an appropriate data source and use one of the options provided in ACM0002.		

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
Outstanding Issue 1: A Letter of Approval from the host Party confirming that the project contributes to sustainable development in the country needs to be submitted to the audit team.	A.3.2	Submitted	☑
Outstanding Issue 2: A Letter on the Modalities of Communication needs to be submitted.	A.3.2	The letter is attached.	☑ This letter has been provided.
Corrective Action Request No.1. As per the "Guidelines For Completing The Project Design Document (CDM-PDD), And The Proposed New Baseline And Monitoring Methodologies (CDM-NM)-Version 06.1" please include in section B.1 of the PDD, the reference to other approved methodologies and tools that the methodology adopted by project activity uses.	B.1.1	The reference to other approved methodologies and tools adopted has been provided in the revised PDD under section B.1.	☑

Corrective Action Request No.2. Since the revision has come in the methodology, please revise the PDD according to the ACM0006, Version 04.	B.1.2	The PDD has been revised as per version 04 of ACM0006.	Response by audit team The PDD now refers to version 4 of ACM0006, which is the latest version available. This change in reference to version 4 from version 3 does not lead to significant change in the PDD. Also project does not claim for avoided emissions from biomass decay hence PDD is not required to be made publicly available again. Response by audit team ACM0006 has been further revised to version 5. The PDD should be revised according to version 5 and PDD is required to be made publicly available again. Response by project proponent The PDD has been revised as per version 5 of ACM0006. Final response by audit team ☑ The PDD has been suitably revised as per version 5 of ACM0006 and was made publicly available again. The only significant change in context of the project activity is adoption of combined tool to identify baseline scenario and demonstrate additionality.

Corrective Action Request No.3. Please correct the baseline scenarios for biomass as per the revised methodology. For e.g the baseline for biomass is B4 as per scenario 4 and not B2.	B.4.2	The baseline scenarios have been corrected in accordance with the revised methodology in the revised PDD under section B4.	☑
Corrective Action Request No.4. Please include the description of technology that would have been implemented in the absence of the project activity. Also demonstrate whether the thermal efficiency in the project plant is larger, smaller or similar compared with the reference plant.	B.4.4	If this high pressure cogeneration unit would not have been installed then the likely baseline scenario would have been installation of a low pressure cogeneration unit with lesser efficiency as compared to the project activity. This low pressure cogeneration unit would have been installation of a boiler with 45 kg/cm^2 pressure along with an associated turbo-generator vis a vis the high pressure high efficiency 86 kg/cm^2 boiler along with the associated turbo-generator as in the project activity. Refer Enclosure – 1.	Response by audit team It is understood from Enclosure 1 that common practice in the Indian Sugar Industry is operating low pressure boilers upto 35 kg/cm^2. DSIL is operating a 45 kg/cm^2 pressure cogeneration system at the sugar mill, which has been taken as the baseline scenario. This approach is deemed conservative. However, please include this discussion in section B.4 of the PDD where baseline scenario has been discussed. Please provide calculations to demonstrate that the thermal efficiency in the project plant is larger, smaller or similar compared with the reference plant. This reference plant should be the same for which $\varepsilon_{el,\ reference\ \ plant\ (s)}$ has been calculated as 0.11. Response by project proponent Also since heat generation in the baseline and project case is both through biomass and no fossil fuel usage is involved so ER_heat = 0. The demonstration of thermal efficiency has been incorporated in the PDD.

			Final response by audit team ☑ The PDD demonstrates that thermal efficiency in project plant is less than the baseline however, since the fuel in baseline and project is biomass ER_heat = 0.
Corrective Action Request No.5. PDD mentions that Step 0 of the additionality tool is not applicable to the project activity. Please revise the additionality discussion as per 'combined tool to identify baseline scenario and demonstrate additionality'.	B.5.1	This has now been incorporated in the revised PDD.	Response by audit team The 'combined tool to identify baseline scenario and demonstrate additionality' has been applied however, the step 2 of the tool has not been discussed properly. Please revise. Response by project proponent PDD has been modified. Final response by audit team ☑

Corrective Action Request No.6. PDD mentions that "There are 40 sugar mills in Uttar Pradesh, out of which only 14 have co-generation systems". This data seems bit old. Please refer following links, which give much higher number of sugar mills operating in Uttar Pradesh, India: **http://www.indiainbusiness.nic.in/indian-states/uttarpradesh/Maj_Ind.htm** **http://www.sugartoday.com/map_big.jpg** **http://www.sugartoday.com/upmills.htm** Please provide updated information along with clear, retraceable references to the sources used.	B.5.3	The information has been updated in the revised PDD with retraceable references under section B.5.	Response by audit team Information regarding total number of sugar mils is correct but the number of sugar mills with co-generation systems as 11 seems incorrect. Please revise because almost all sugar mills have co-generation systems. Response by project proponent The reference from where the number of sugar mills with cogeneration systems has been taken is provided in the foot-note. Here the term of cogeneration is used in the context of supplying power to grid apart from meeting the captive requirements. The PDD has been revised. Final response by audit team ☑ It can be concluded that high pressure configuration co-generation projects have not been widely implemented in sugar industry in Uttar Pradesh, India. Out of 10 such projects 6 have been registered as CDM projects by CDM EB and rest under process of availing the benefits.

Corrective Action Request No.7. Please provide evidence in the PDD that only 4 sugar mills operating in the state have similar boiler configuration as project activity, and that these have applied for CDM.	B.5.16	The PDD has been updated with latest available information on sugar mills operating in the state having similar boiler configuration and have applied for CDM funding. These constitute 10 numbers of projects and the references for the same have been provided in the footnote.	Response by audit team Revised PDD states that there are four locations of Mawana Sugars having high pressure boiler systems. This information seems incorrect because Mawana Sugars has three locations with three high pressure boiler systems. Please revise in the PDD. Response by project proponent The PDD has been revised. Final response by audit team ☑
Corrective Action Request No.8. Please revise in the PDD, the equation used by scenario 4 to calculate the net energy generated by project activity as per the revised methodology.	B.6.1.5	The equation has been changed in accordance with the revised methodology under section B.6.1 of the revised PDD.	☑
Corrective Action Request No.9. The parameter $\varepsilon_{el,other\ plant,y}$ should read $\varepsilon_{el,reference\ plant}$ and should be included in section B.6.2 of the PDD and not B.7.1. Furthermore, $\varepsilon_{th,reference\ plant}$ should be included in B.6.2. as well. The efficiency should be chosen in a conservative manner, and documentary evidence should be provided to justify the choice.	B.6.2.10	The parameter has been put in the section B.6.2 instead of B.7.1 as required in the revised PDD. The PDD has been updated with all relevant figures for the justification of the efficiency under Annexure 3 of the revised PDD.	Response by audit team The parameter has been added in section B.6.2 of the PDD. However please see CAR 4 and CAR 10. Response by project proponent The units have been mentioned and the supporting data used to arrive at the value is being attached. Final response by audit team ☑

Corrective Action Request No.10. Please provide in the PDD the calculations and sources referred to derive the efficiency of reference plant. Please justify the choice.	B.6.2.10	The calculations to derive the efficiency of reference plant have been provided in the Annexure 3 of the revised PDD.	Response by audit team The calculations have been given in Annex 3 of the PDD. Please mention units of electricity, NCV and bagasse quantity. Please provide the plant records for this data to the audit team. Response by project proponent The units have been incorporated. The plant record for this data is attached. Response by audit team Please re-check the quantity of bagasse mentioned, which seems un-realistic. Also use bagasse quantity and calorific value on dry basis. Response by project proponent The bagasse quantity has been corrected and values have been used on dry basis. Final response by audit team ☑ PDD now clearly states how the electrical efficiency of the reference has been arrived. Due to use of bagasse quantity and calorific value on dry basis the efficiency of reference plant has reduced.

Corrective Action Request No.11. Please mention the assumptions used to arrive at the amount of electricity to be generated by project plant (155.52 GWh) and include this information in the PDD.	B.6.3.2	The amount of electricity to be generated by the project plant has been taken from the profitability estimates of the project activity as submitted to the Sugar Development Fund.	Response by audit team The profitability estimate does not consider the auxiliary consumption and hence cannot be considered appropriate. Please consider auxiliary consumption and present revised estimates. Please describe transparently all the assumptions in section B.5 of the PDD. Response by project proponent The auxiliary consumption has been considered and the PDD has been revised accordingly Final response by audit team ☑ The revised calculations submitted present reasonable estimate of the emission reductions.
Corrective Action Request No.12. PDD does not specify the monitoring frequencies of the parameters mentioned in section B.7.1 of the PDD.	B.7.1.2	The monitoring frequencies have already been mentioned in the section B.7.1 of the PDD.	☑

Corrective Action Request No.13. Please provide the accuracy of equipment used to monitor the bagasse quantity used in project activity.	B.7.1.2	The bagasse consumed in the co-generation plant will be calculated from the measured quantity of cane. In the manufacture of sugar, water is added to cane during the crushing process after which bagasse is produced along with mixed juice. The mixed juice, added water and cane are all measured and therefore the quantity of bagasse generated in the plant can be measured. Further the quantity of bagasse consumed in the boiler is estimated from the quantum of steam generated. This can also be cross verified from final manufacturing report (form no. RT 8C).	☑
Corrective Action Request No.14. Please define the QA procedures (internal audit plan) to be adopted for all the monitored data.	B.7.1.2	Please refer to the attached procedural document – GHG internal audit.	☑ The procedure has been submitted to the audit team.
Corrective Action Request No.15. In section B.7.1 “EGy” has been mentioned as “total quantity of electricity generated at the project site”. EGy is the “net quantity of increased electricity”. Please correct.	B.7.1.16	The same has been corrected under section B.7.1. of the revised PDD.	☑
Corrective Action Request No.16. Please mention if the NCV of bagasse would be monitored at in-house laboratory or would be based on external lab report. In either case define the QC procedures adopted.	B.7.1.22	Regular in-house and/or external laboratory at appropriate time would be used for monitoring the calorific value of bagasse. The accredited external laboratories would ensure that proper monitoring of the calorific value is being carried out.	☑

Corrective Action Request No.17. Please revise the nomenclature for the parameters in the monitoring plan as per the new version 04 of ACM0006. For example, $BF_{i,y}$ and $NCV_{i.}$	B.7.1.22	The nomenclature for the parameters in the monitoring plan as per the new version 04 of ACM0006 has been revised in the PDD.	☑
Corrective Action Request No.18. PDD defines the person responsible for data monitoring. However, information on person responsible for maintenance of monitoring equipments is not available.	B.7.2.2	Please refer to the attached document – GHG performance monitoring, measurement and reporting of data wherein the person responsible for maintenance of monitoring equipments has been mentioned.	☑ The procedure has been submitted to the audit team.
Corrective Action Request No.19. Please identify the procedures for dealing with possible monitoring data adjustments and uncertainties.	B.7.2.3	Please refer to the attached document – GHG performance monitoring, measurement and reporting of data wherein the procedures for monitoring data adjustments and uncertainties have been depicted. Refer Enclosure - 3.	☑ The procedure has been submitted to the audit team.

Corrective Action Request No.20. 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 and provide any documents received from stakeholders to the audit team.	E.1.1	The stakeholders identified and consulted by DSIL have now been mentioned in the revised PDD. The stakeholders had no adverse comments against the project activity and were in favour of the implementation of the project.	Response by audit team The identified stakeholders have been described in the PDD. Please provide the copy of responses received from the stakeholders. Response by project proponent The identified stakeholders as mentioned in the PDD were present during the stakeholder meeting and it is to be emphasized here that there were no adverse comment by any of the mentioned stakeholders. The stakeholder consultation documents are being submitted. Final response by audit team ☑

Corrective Action Request No.21. The emission factor calculation has referred to NATCOM value for calorific value of coal. Please use more conservative factor as given by CEA.	F.1.18	NCV for coal has been revised in accordance with the guidance given by CEA in the revised emission reduction calculations. The same has been documented in Annex 3 of the revised PDD.	☑ This has led to decrease in grid emission factor from 896.26 tCO_2/GWh (in the PDD made publicly availbe) to 750.87 tCO_2/GWh. The revised factor is also in line with the grid emission factor data published by Central Electricity Authority (CEA), Government of India (2004-2005 data). Response by project proponent The CEA data has been recently updated with 2005-2006 data for the grid. Hence the revised PDD now directly refers to the grid emission factor as given at CEA website for the northern region grid of India. Final response by audit team ☑ Several registered projects from India now directly refer to the grid emission factor as available from CEA website. Hence this is deemed acceptable to use the most recent data available from CEA.
Corrective Action Request No.22. Emission factor for imports have been referred from MNES study. This is not acceptable as these are based on projections only. Please use an appropriate data source and use one of the options provided in ACM0002.	F.1.18	Emission factor for imports have now been revised and have been referred from CEA publication, CO_2 Database for power sector.	☑ The reference to CEA data is deemed reasonable as electricity imports to the project electricity system are only 3-4 % of the total generation.

Clarification Request No. 1. In the PDD, please provide details on: • quantity of bagasse generated	A.2.1	The Dwarikesh Dham mill has sugar-cane crushing capacity of 7500 Tonnes. In the manufacture of sugar water is added to cane during the crushing process after which bagasse is produced along with mixed juice. The mixed juice, added water and cane are all measured and therefore the quantity of bagasse generated in the plant can be measured. This note has also been incorporated in the revised PDD under section B.7.1.	Section A.2 of the PDD mentions the crushing capacity of sugar mill. Please mention in section A.2 of the PDD, the quantity of bagasse that is generated with this crushing capacity. Response by project proponent The information on bagasse generation and consumption has been incorporated in the revised PDD. Final response by audit team ☑ The required information has been provided in the revised PDD. Sufficient bagasse is available for the project activity from the sugar manufacturing process.
Clarification Request No. 2. Please clarify if there is one boiler or there are two boilers in the project activity. Section A.2 says there is one boiler however, section A.4.3 talks about two boilers.	A.2.1	There are two boilers as documented in section A.4.3. In section A.2. the general configuration of each boiler had been mentioned. However to avoid confusion, it has now been clearly mentioned that there are 2 number of boilers in the section A.2 in the revised PDD	☑
Clarification Request No. 3. Please provide a detailed program on the demand and requirements for training with respect to project activity.	A.4.3.9	The necessary on job training would be provided and qualified and trained manpower would be hired for the operation of the project activity.	☑

Clarification Request No. 4. Please clarify if the boiler is designed to fire any fossil fuels. Please provide documentary evidence.	B.2.3	The boiler is designed only to fire bagasse. This can be clarified with the technical specifications as given in the purchase order.	☑
Clarification Request No. 5. The evidence of CDM consideration provided is Resolution passed in Project Committee Meeting held on 11 May 2006. However, PPA was signed on 17 May 2006. It seems that the project activity started before CDM was taken into consideration. Please clarify.	B.5.1	The project has been considered as a CDM project since inception. The subsequent activities were being carried out to ensure project execution in time.	☑
Clarification Request No. 6. Resolution passed in Project Committee Meeting held on 11 May 2006 states that revenue from CERs has been accounted to work out the viability of the project and project would not have been viable without these revenues. Please provide further information to support the statement.	B.5.1	Please refer to the attached document; 'Projected Profitability Statement' for Dwarikesh Dham wherein the income from carbon credit has also been documented.	☑ Profitability statements for the cogeneration project have been submitted, wherein revenue from sale of CERs has been considered in the calculations.

Clarification Request No. 7. PDD mentions that "**The aggregate technical and commercial loss for UPPCL (off-taker) in the year 2003-04 was INR 32.82 billion".** This figure is not available in the given reference. Please clarify. Also it needs to be clarified if this barrier is not faced by other projects supplying power to the grid. If yes, then the barrier is not project specific and should be removed.	B.5.3	Please find herewith attached document wherein "the aggregate technical and commercial loss for UPPCL (off-taker) in the year 2003-04 was INR 32.82 billion" has been stated. The given barrier is faced by other projects also, but considering this as a common scenario in the region, this poses a risk to the given project activity also and hence is applicable even to the project.	Response by audit team The document has been provided. Audit team would further like to stress that this barrier is not project specific and will be faced by the identified baseline scenario for power; 'P4-The generation of power in existing and/or new grid-connected power plants.' Hence this barrier should be removed. Please refer to paragraph 34 of EB 30 report where EB has expressed concern on this issue. Response by project proponent The barrier presented is relevant to the project activity because the project proponent (DSIL) would be facing the losses for any default in payment by the UPPCL. On the other hand in the baseline the power being generated in the grid would not have any adverse impact on DSIL for any default by UPPCL. The stated barrier is faced by private parties. Most of the other grid connected power plants are owned and operated by the Government authorities, hence they do not face this risk.

			Final response by audit team ☑ It is acknowledged that the barrier is not very relevant for most of the other grid connected projects, which are operated by State and Central Government. This barrier is relevant for private power project owners in the state.
Clarification Request No. 8. PDD mentions that due to imbalances Northern Grid has failed in recent past and this scenario continues it may lead to tripping of project plant. It needs to be clarified if this barrier is not faced by other projects supplying power to grid. If yes, then the barrier is not project specific and should be removed.	B.5.3	The given barrier is faced by other projects also, but considering this as a common scenario in the region, this poses a risk to the given project activity also and hence is applicable even to the project.	Response by audit team Audit team would further like to stress that this barrier is not project specific and will be faced by the identified baseline scenario for power; 'P4-The generation of power in existing and/or new grid-connected power plants.' Hence this barrier should be removed. Please refer to paragraph 34 of EB 30 report where EB has expressed concern on this issue. Response by project proponent The said barrier has been removed from the revised PDD. Final response by audit team ☑

Clarification Request No. 9. PDD mentions that "**initial years of establishing a sugar factory requires a great deal of extension work to develop the cane area therefore installing such a large scale power plant in a new factory poses a real risk related to the throughput of cane".** Since the quantity of bagasse used in baseline and project scenario is same, it needs to be evidenced how this is barrier only for project and not baseline scenario.	B.5.3	Since the project would require relatively higher investment as compared to the baseline, thus it poses a risk in the project activity case.	☑

Clarification Request No. 10. PDD states that the registration of the project activity would help in mitigating the barriers and encourage other entities in similar nature of works to pursue such kind of initiatives. Please clarify how the registration of project will mitigate barriers.	B.5.5	The financial benefits accruing out of CDM revenues after the registration of the project activity would help in mitigating the losses which could occur due to non payment/delay of payments from UPPCL, losses due to failures and, loses of revenues due to reduction in tariff.	Response by audit team Please refer to CR 7 and CR 8 above. The institutional barriers discussed are not project specific and also faced by the baseline scenario for power 'P4'. In this case the most relevant barrier will be barrier due to prevailing practice. Please clarify how registration of the project activity will help to overcome this barrier. Response by project proponent The project activity being one of the very few cogeneration projects involving implementation of high pressure boilers faces an inherent risk / uncertainty of performance in the future due to lack of proven track record of operating such projects in the region. Hence the revenues from CDM will mitigate the losses due to under performance of the project activity and also as mentioned above provide a cushion against delay/non payment of electricity invoices by the UPPCL. Final response by audit team ☑

Clarification Request No. 11. Please clarify if the weight of bagasse mentioned in the PDD (270,000 ton) is on dry basis. If not, it should be corrected. Furthermore, if the biomass is not dry, then monitoring of moisture content must be included in monitoring plan.	B.6.2.2	The parameter has now been included in the monitoring plan under section B.7.1 of the revised PDD.	Response by audit team Moisture content has been added as a monitoring parameter in section B.7.1 of the PDD. Please clarify if the weight of bagasse mentioned in the PDD (270,000 ton) is on dry basis. If not, it should be corrected. Response by project proponent The quantity as mentioned is with 50% moisture and it has been stated in the revised PDD. Response by audit team Please state bagasse quantity on dry basis. Response by project proponent The bagasse quantity has now been mentioned on dry basis. Response by audit team The bagasse quantity has been mentioned on dry basis in the PDD however calculations have not been done accordingly. Response by project proponent Revised calculations are presented with bagasse quantity and calorific value considered on dry basis, both for project activity and efficiency of reference plant. Final response by audit team ☑

Clarification Request No. 12. Annex 4 mentions that bagasse used by the project activity would be measured on weigh bridge. However, section B.7.1 mentions that it would be calculated from measured quantity of cane. Please clarify and revise PDD accordingly. If the amount of bagasse is calculated, then provide the detailed calculations and assumptions.	B.7.1.2	As mentioned in section B.7.1 that bagasse quantity would be calculated from measured quantity of cane. The necessary correction has been made in Annexure 4 of the revised PDD.	Response by audit team Section B.7.1 and Annex 4 provide the same procedure for estimating the quantity of bagasse. It is understood that total quantity of bagasse generated at site will be calculated from measured quantity of cane and then the quantity of bagasse consumed in project boiler will be estimated from quantum of steam generated by project boiler and its efficiency. Audit team requests the project participant to monitor the steam generated, steam pressure and steam temperature from the project boiler and its efficiency and include these parameters in the monitoring plan of the PDD. Response by project proponent Since direct bagasse measurement is difficult so the bagasse combusted in the project plant would be calculated from the heat generated and the efficiency of the project plant boiler. Net heat generation is determined as the difference of the enthalpy of the steam generated by the project cogeneration plant minus the enthalpy of the feed-water and any condensate return. The respective enthalpies are determined based on the mass (or volume) flows, the temperatures and, in case of superheated steam, the pressure. The steam temperature and pressure will be taken as per design specifications. Steam tables or appropriate

			thermodynamic equations may be used to calculate the enthalpy as a function of temperature and pressure. Further since the quality of steam (pressure and temperature) and feed water characteristics remains essentially the same within permissible limits as specified to operate the turbine, so the heat generation would be directly related to the steam generation. Final response by audit team ☑ PDD now makes provision for monitoring of steam generated from the project boilers and boiler efficiency to estimate the biomass consumed by the project activity. The enthalpy of steam will be determined based on design steam temperature and pressure. This approach is deemed reasonable because design temperature and pressure will be generally higher than actual achieved leading to higher estimation of biomass and conservative emission reductions.
Clarification Request No. 13. 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.	B.7.1.14	There is no diversion of steam from other boilers to the project plant. Please find herewith attached the schematic diagram of steam flow and turbines.	☑

Clarification Request No. 14. The PDD states that NCV of bagasse is 1800 kcal/kg – please provide a retraceable data source for this value.	B.7.1.22	The net calorific value of bagasse is more or less constant. The generally accepted industry norm for NCV of bagasse is 1800 kcal/kg.	Response by audit team It is agreed that the calorific value of bagasse will remain more or less constant however; source of this value needs to be provided. Response by project proponent The calorific value of bagasse is based on theoretical calculations as per E.HUGOT (Hand Book of Sugar Engg. Acceptable world wide by Sugar Industries) based on 2 % pol and 50% moisture and is as under: NCV (kcal/kg) = 4250-12 x Pol% bagasse- 48.5 x Moisture% = 4250 – 12 x 2 – 48.5 x 50 = 1803 kcal/kg of bagasse. Response by audit team Please use the calorific value on dry basis. Response by project proponent The calorific value on dry basis is 4226 kcal/kg and same has been used. Final response by audit team ☑

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
-	-	-

Annex 2: Information Reference List

`

Reference No.	Document or Type of Information
1.	On-site interviews at the project site of the "Greenfield power project at Dwarikesh Dham", district Bareilly, Uttar Pradesh, India by audit team of TÜV SÜD, performed on 12.10.2006 **Validation team on-site**: Sunil Kathuria TUV SUD South Asia Prabhat Kumar TUV SUD South Asia **Interviewed persons:** Jagdish Kumar Banka Dwarikesh Sugar Industries Limited. (Chief General Manager) Rajendra Singh Thakur Dwarikesh Sugar Industries Limited. (DGM – Power) Saket Bansal Dwarikesh Sugar Industries Limited. (DGM – Works) Pravin Kumar Dwarikesh Sugar Industries Limited. (Manager-Instrumentation)
2.	Project Design Document, Version 01 dated 12.09.2006
3.	Approved consolidated baseline methodology ACM0006, version 04 and version 05
4.	UNFCCC homepage http://www.unfccc.int
5.	Contract agreement for purchase of boiler between M/s Dwarikesh Sugar Industries Limited and M/s ISGEC John Thompson, dated 14.07.2006, submitted 12.10.2006.
6.	Extract of resolution passed in the project committee meeting of the company M/s Dwarikesh Sugar Industries Limited, dated 11.05.2006, submitted 12.10.2006.
7.	Contract agreement for purchase of 24 MW Turbine between M/s Dwarikesh Sugar Industries Limited and M/s Siemens Limited, dated 13.05.2006, submitted 12.10.2006.
8.	Contract agreement for purchase of 12 MW Turbine between M/s Dwarikesh Sugar Industries Limited and M/s Siemens Limited, dated 13.05.2006, submitted 12.10.2006
9.	Letters for stakeholder comments with details of CDM project by Dwarikesh Sugar Industries Limited, dated 30.08.2006, submitted 12.10.2006.
10.	List of stakeholders to whom the letters and details were sent by Dwarikesh Sugar Industries Limited, dated 30.08.2006, submitted 12.10.2006.
11.	A copy of public notice published in Dainik Jagran newspaper by Dwarikesh Sugar Industries Limited, dated 07.09.2006, submitted 12.10.2006.

`

Reference No.	Document or Type of Information
12.	Power Purchase Agreement between M/s Dwarikesh Sugar Industries Limited and Madhyanchal Vidyut Vitran Nigam Limited dated 17.05.2006, submitted 12.10.2006.
13.	Cycle efficiency calculation by Dwarikesh Sugar Industries Limited, dated 09.10.2006, submitted 12.10.2006.
14.	Loan sanction letter by Punjab National Bank, dated 12.07.2006 and 03.07.2006, submitted 12.10.2006.
15.	Purchase order for reverse osmosis plant to Ion Exchange (India) Limited, dated 05.09.2006, submitted 12.10.2006.
16.	Project implementation schedule by Dwarikesh Sugar Industries Limited, dated 29.08.2006, submitted 12.10.2006.
17.	Project Profitability Statement by Dwarikesh Sugar Industries Limited, dated nil, submitted 12.10.2006.
18.	No objection certificate for Installation of 36 MW TG set and boiler from Uttar Pradesh Pollution Control Board, dated 27.09.2006, submitted 12.10.2006.
19.	Photographs of the site visit, validation team dated 12.10.2006.
20.	Baseline calculations sheet
21.	Project Feasibility Reports by Dwarikesh Sugar Industries Limited, dated nil, submitted 12.10.2006.
22.	Monitoring procedures by Dwarikesh Sugar Industries Limited, submitted 14.02.2007
23.	US-India Co-opeartion on Global Climate Change: Greenhouse Gas Pollution Prevention Project’s Alternative Bagasse Cogeneration Component, submitted by Dwarikesh Sugar Industries Limited, submitted 14.02.2007
24.	Single line diagram of pre-project and project equipments by Dwarikesh Sugar Industries Limited, submitted 16.04.2007
25.	Generation data and bagasse consumption data of reference plant by Dwarikesh Sugar Industries Limited, submitted 16.04.2007
26.	Letter of Approval from India DNA by Dwarikesh Sugar Industries Limited, submitted 16.04.2007
27.	Modalities of Communication by Dwarikesh Sugar Industries Limited, submitted 27.06.2007
28.	Project Design Document, Version 05 dated 05.09.2007
29.	Project Design Document, Version 06 dated 11.01.2008