



Industrie Service

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Validation Report

H & R Johnson (India) Limited

VALIDATION OF THE CDM-PROJECT:

**HOT AIR GENERATION USING RENEWABLE BIO-
MASS FUEL FOR SPRAY DRYING APPLICATION AT H
& R JOHNSON(INDIA) LTD.,KUNIGAL**

REPORT NO. 983240

16 January 2008

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

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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: H & R Johnson (India) Limited Windsor, Kalina, Santacruz (East), Mumbai-400098, Maharashtra India	Project Site(s): Latitude: 120 57' 00" N & Longitude: 760 53' 15" E H & R Johnson (India) Ltd. Plot No. 1 – 12, KIADB Industrial Area, Near Anchepalya Village Kunigal, Dist. Tumkur, Karnataka – 572 130
Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal	
Applied Methodology / Version: AMS I.C, version 9	Scope(s): 1
First PDD Version: Date of issuance: 2007-02-25 Version No.: 1 Starting Date of GSP 2007-04-05	Final PDD version: Date of issuance: 2007-12-14 Version No.: 03
Estimated Annual Emission Reduction: 11,741 tons CO ₂ e	
Assessment Team Leader: Abhishek Goyal	Further Assessment Team Members: Bratin Roy
Summary of the Validation Opinion: <p><input checked="" type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfillment 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.</p> <p><input type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfillment 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.</p>	

Abbreviations

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
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
GHG	Greenhouse gas(es)
HRJ	H & R Johnson (India) Limited
PP	Project Proponent
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
PDD	Project Design Document
HAG	Hot Air Generator
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

Table of Contents	Page
1 INTRODUCTION	4
1.1 Objective	4
1.2 Scope	4
2 METHODOLOGY	5
2.1 Appointment of the Assessment Team	7
2.2 Review of Documents	7
2.3 Follow-up Interviews	7
2.4 Resolution of Clarification and Corrective Action Requests	8
2.5 Internal Quality Control	8
3 SUMMARY OF FINDINGS	9
COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS	12
4 VALIDATION OPINION	13

Annex 1: Validation Protocol

Annex 2: Information Reference List

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:

Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

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

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

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	Id. of CAR/CR 1	Explanation of the Conclusion for Denial
<i>If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.</i>	<i>Identifier of the Request.</i>	<i>This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.</i>

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 is written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
Abhishek Goyal	ATL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bratin Roy	GHG-A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Abhishek Goyal is an Assessment Team Leader for CDM/JI 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.

Bratin Roy is a lead auditor for quality, environment and occupational health and safety management system (according to ISO 9001, ISO 14001 and OHSAS 18001) and an auditor for CDM/JI projects at TÜV SÜD South Asia. He holds a master degree in environmental science. He is based in Pune, India. He has received extensive training in the CDM validation and verification processes and has already participated in several CDM project assessments.

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 April 23-24, 2007, 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 summarized 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 an 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 re-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. Selection of baseline scenario through alternative analysis
2. Compliance with baseline calculation and monitoring methodology as per AMS I.C, version 9
3. Assessment of additionality using barrier analysis
4. Accuracy and calibration procedure of monitoring and measuring equipment

Resolution of 1. Selection of baseline scenario through alternative analysis

HRJ has identified plausible project options for baseline scenario, which include all possible courses of actions that could be adopted in order to generate hot air. Further an assessment was conducted for each alternative to project activity with respect to the risks/barriers associated to implementation and their hot air generation costs, in order to arrive at the baseline scenario i.e. the most likely future scenario in absence of the project activity. In the initial PDD, sources of the data mentioned in the levelized cost comparison analysis like cost of fuel and net calorific value (NCV) value of fuel was missing. Also, it was felt by the audit team that Liquidified Petroleum gas (LPG) should also be considered in the plausible alternative. In the response of the corrective action request, project proponent (PP) submitted the detailed excel sheet of cost calculation for individual fuel as well as justification of not using the LPG in the alternative analysis. Project proponent has submitted the detailed cost analysis including the LPG. The cost of LPG is very high in compare to other fuels. Also, the burner used in the system is not meant for gaseous fuel which means an additional cost for the project proponent. By considering these two factors project proponent decided not to include the LPG in the alternative analysis as the same is not a possible and feasible alternative to the project. Further to this response, audit team asked PP to submit the purchase order of each fuel. Finally PP submitted all the purchase order and the same has been verified with the excel sheet calculation by the audit team. The cost of biomass and other fuel is based on the actual offer from the various suppliers. The biomass prices have also been compared with the actual biomass prices as evidenced in the year of 2005, 2006 and 2007. It has been found that the biomass price considered for the cost analysis is very conservative and over the last years there is a little increase in biomass price. Based on the cost analysis, it was very evident that the cost of hot air generation using coal is very low as compared with other alternative and the same is abundantly available in India. Hence, selection of hot air generation with coal is the right selection.

Resolution of 2. Compliance with baseline calculation and monitoring methodology as per AMS I.C, version 9

The baseline emissions will be calculated on the basis paragraph 6. of AMS I.C which states the fuel consumption of the technology that would have been used in absence of the project activity times an emission factor of fossil fuel displaced. In the initial PDD, baseline emission was determined by calculating the biomass quantity and then calculating coal quantity multiplied by the emission factor of coal. Audit team also asked a corrective action request on the efficiency of coal based hot air generation in compare to the existing biomass based system. In response, project proponent submits the suppliers report on design efficiency of hot air generation system. Project proponent rightly chooses

the higher efficiency value as a conservative approach which is acceptable to the audit team. Base-line emission calculation has also been revised. The amount of coal which would have been used in absence of the project activity has been calculated by using the supplier design data of HAG and NCV of the coal. The same has been multiplied by the emission factor of the coal. The revised approach of baseline calculation is accepted by the audit team as the same is in the line of AMS I.C. requirements.

Also, the audit team asked the corrective action request on the monitoring methodology as described in the initial PDD as the same was not as per the methodology. As per AMS I.C small scale methodology, monitoring shall be carried out using paragraph 11(a), which is metering the energy produced by a sample of the systems is where the simplified baseline is based on the energy produced multiplied by an emission coefficient. In the initial PDD, monitoring plan was not in complying with the same line. There was no system to meter the energy generated by the Fluidized Bed Hot Air Generator. It was argued that due to high temperature and dust quantity it is not possible to meter the energy content through any conventional system like flow meter. Hence, PP proposed to the monitor the energy produced through a indirect method of monitoring the quantity and calorific value of the biomass. The same approach was not acceptable to the audit team. At the same time, considering the high temperature in the range of 600 – 700 deg C and the nature of dusty hot air, it was not technically feasible to install any flow meter for online measurement. Therefore PP decided to meter the hot air flow with the help of Pitot tube assembly. The method is one of the most primary techniques to measure velocity pressure and derive energy content in the thermal energy source medium. The baseline emission was calculated on the basis of design parameters supplied by the HAG supplier. Emission reduction in the monitoring period will be calculated as per the actual metering data on energy produced as mentioned in the monitoring plan of revised PDD. Hence, Paragraph 6 and paragraph 11 (a) of the applied methodology AMS I.C, versions 9 are complied with the present baseline calculation and monitoring plan.

Resolution of 3. Assessment of additionality using barrier analysis

Technological barrier discussed in the initial version of the PDD did not seem prohibitive and hence corrective action request was raised by audit team to justify that there is a risk involved due to performance uncertainty of the project activity and authentic and verifiable evidence was requested. Operational uncertainty with reference to the published paper and risk of operation involved in the project activity were elaborated in the final version of the PDD and evidence in form of minutes of meeting between various departments was submitted(document enclosed). The clinker formation has been described as a main technical barrier. Clinker formation is due to temperature increase that would melt minerals present in the biomass residues reaching their melting temperature. Therefore clinker formation in the bed block the holes in the air supply line provided for air supply. In addition to it, ash generated during biomass residue burning has low density and high silica content. Due to low bulk density, ash adheres to refractory surface in the settling chamber & cyclone causing the blockage of air pollution abatement devices. Minutes of meeting in the project department submitted to the audit team (document enclosed), substantiates the technological barrier in terms of risks involved due to performance uncertainty of the project activity.

Initial version of the PDD also stated that uncertainty of the biomass is the technical barrier. Followed by the clarification request from the audit team PP has shifted the same to the other barrier. However, the explanation by the PP was mainly focused on the uncertainty of prices not the uncertainty of the availability of biomass. Further to it, there were no authentic documents available to the PP by which the statement of uncertainties of price can be substantiated. In the final PDD, the same has been removed from the PDD.

Audit team is of the opinion that since the project activity faces technical barriers as discussed above coupled with the other barriers as mentioned in the PDD, the project proponent was reluctant to invest in this project activity. Among this barrier, utilization of ash as a raw material in dust manu-



facturing was a big challenge. A batch card of ball mill which specifies percentage of ash used in raw material is also been verified by the audit team (document enclosed). The report indicates the complete utilization of ash quantity from FBC. The dust produced gas to be of desired granulometry; otherwise it would severely affect the product quality. Proportionate addition of ash was required to prevent any alteration of dust properties and this was a major barrier in consideration of the product quality and company reputation.

The benefit of CDM has been considered during the approval of the project from the top management (document enclosed). CDM revenue would help to alleviate the barriers discussed.

Resolution of 4. Accuracy and calibration procedure of monitoring and measuring equipment

Clarification was requested by audit team on the accuracy of the equipment as well as calibration procedure of the equipments which will be used during monitoring period. In the response, PDD has been revised and accuracy and uncertainty of the equipments have also been included in the PDD. Calibration frequency and responsibility has also been included in the monitoring table of the final PDD. The final revised monitoring plan and PDD is deemed complete now.

In conclusion, the assessment team has found that all major and minor issues were resolved during the validation process.

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=2815&Ebene1_ID=26&Ebene2_ID=852&mode=1	
Starting date of the global stakeholder consultation process: 2007-04-05	
Comment submitted by:	No comments have been received.

4 VALIDATION OPINION

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

Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfillment 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, 2008-01-16



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

Munich, 2008-01-16



Assessment Team Leader

Annex 1: Validation Protocol

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A. General description of small-scale project activity				
A.1. Title of the small-scale project activity				
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	2	The project title clearly enables to identify the unique CDM activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.2. Are there any indication concerning the revision number and the date of the revision?	2	Yes, there is an indication of a revision number and the date of the revision.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.3. Is this consistent with the time line of the project's history?	2	Yes, it is consistent with the time line of the project history.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2. Description of the small-scale project activity				
A.2.1. Is the description delivering a transparent overview of the project activities?	1,2	<p>The description is delivering a transparent overview of the project activities in general.</p> <p><u>Corrective Action Request No.1.</u></p> <p>Pre-project scenario of the project activity is not clear from the project activity description in the PDD. PDD should clearly describe the pre-project scenario in details.</p> <p><u>Clarification Request No. 1.</u></p> <p>PDD indicates the usage of two types of biomass like ground nut shell and rice husk in the fluidised bed combustion. However, the same system can use any type of biomass residue. Revise the PDD accordingly.</p>	CAR CR	<input checked="" type="checkbox"/>
A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	1,2,5 ,7,8, 18	Specification of fluidised bed combustion system, biomass usage record, operation and maintenance manual as well as purchase orders for the fluidised bed combustion system clearly demonstrates the project description compliance.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.3. Is the information provided by these	1,2,5	Yes, information provided in the PDD is consistent with the im-	CAR	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
proofs consistent with the information provided by the PDD?	,7,8,18	plementation of the project. However, see CAR 1 and CR 2.	CR	
A.2.4. Is all information presented consistent with details provided by further chapters of the PDD?	1,2,5,7,8,18	Yes, the description of the project activity is consistent in the PDD in general.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance?	1,2,5,7,8,18	The description of the technology is sufficiently transparent to evaluate its impact on GHG balance. The project activity generates hot air for tile manufacturing using biomass. The hot air in the pre-project scenario was generated using fossil fuels.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.6. Is the brief explanation how the project will reduce greenhouse gas emission transparent and suitable?	1,2,5,7,8,18	Yes, the brief explanation is transparent and suitable. The biomass based hot air generation project activity will displace fossil fuel for hot air generation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3. Project participants				
A.3.1. Is the form required for the indication of project participants correctly applied?	1,2,2,23	The form for the indication of project participants is correctly applied. H&R Johnson (India) Limited has been identified as the only project participant.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	1,2	Clarification Request No. 2. Modalities of communication and Host Country Approval needs to be submitted to DOE.	CR	<input checked="" type="checkbox"/>
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)?	1,2	Yes, all provided information is in consistency with details provided in other sections of the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4. Technical description of the small-scale project activity				
<i>A.4.1. Location of the small-scale project activity</i>				
A.4.1.1. Does the information provided on	1,2,1	Partially.	CAR	<input checked="" type="checkbox"/>

Validation Protocol

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Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
the location of the project activity allow for a clear identification of the site(s)?	9,20	<u>Corrective Action Request No.2.</u> Information provided in the section A.4.1.4. should include information which enabled clear identification of location of this small scale activity. Exact road name or plot address as well GPS coordinates can be more specific to identify the project location.		
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.)?	2,19, 20	Yes. The project has been already established in the own site. Licences for hot air generation and environmental consent of Karnataka State Pollution control board ensures the same.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2. Type and category(ies) and technology/measure of the small-scale project activity				
A.4.2.1. To which type(s) does the project activity belong to? Is the type correctly identified and indicated?	1,2,2 2,23	The project activity belongs to Type 1-Renewable Energy projects. The type has been correctly identified and indicated in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.2. To which category (ies) does the project activity belong to? Is the category correctly identified and indicated?	1,2,2 2,23	The project activity belongs to Project Category: Thermal energy for the users (1 C Version 9: 23 December 2006). The category has been correctly identified and indicated in the PDD since project activity is a hot air generation project (no co-generation) for onsite use only with installed capacity of 4.5 MW.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.3. Does the technical design of the project activity reflect current good practices?	1,2,6	Yes, the technical design does reflect current good practice.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.4. Does the implementation of the project activity require any technology transfer from Annex-I-countries to the host country (ies)?	1,2	No, it does not require any technology transfer from Annex-1 countries. The technology is available in India.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.5. Is the technology implemented by the project activity environmentally safe?	1,2	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.6. Is the information provided in compliance with actual situation or planning?	1,2,6	Yes. All information is provided in compliance with actual situation or planning as available by the project participants in general.	CR	<input checked="" type="checkbox"/>

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Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		<p><u>Corrective Action Request No.3.</u></p> <p>As per the specification and contract of Fluidised bed combustion technology supplier, hot air generation capacity is 4.5 MWthermal. In the PDD, it is mentioned as 2.5 MWthermal. Revise the PDD accordingly.</p> <p><u>Clarification Request No. 3.</u></p> <p>PDD mentions about crushing unit as well as shredding system in the technical description. However, no system of crushing or shredding is available as the received biomass does not require any further crushing or shredding. Explain and revise the PDD.</p>		
A.4.2.7. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	1,2,6	The project uses Fluidised Bed Combustion (FBC) technology for burning of biomass to produce hot air, which is supposed to be energy efficient.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2	It is not planned to substitute the project technology by other or more efficient technologies.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.9. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1,2	The project does require extensive initial training and maintenance efforts as both of the measures are new and person involved at the site are not experienced to handle the equipment before.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.10. Is information available on the demand and requirements for training and maintenance?	1,2	Yes, Extensive training has been given to the entire operator by the supplier M/s Radhe Renewable Energy Associates and internally also by the project manager.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.11. Is a schedule available for the implementation of the project and are there any	1,2,1 1,13	Project schedule is available. There is no risk of delays as the project is already commissioned and in operation since 14 th April,	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
risks for delays?		2005.		
<i>A.4.3. Estimated amount of emission reductions over the chosen crediting period</i>				
A.4.3.1. Is the form required for the indication of projected emission reductions correctly applied?	2	The form required for the indication of projected emission reductions is correctly applied.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.2. Are the figures provided consistent with other data presented in the PDD?	2	Yes, the figures are consistent with other data in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.3. Are the figures consistent with the small-scale criteria for the used Type?	2	Small scale criteria for Type I projects is governed by installed capacity of the project activity, which should be below 15 MW. The project activity is a 4.5 MW hot air generation project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>A.4.4. Public funding of the small-scale project activity</i>				
A.4.4.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	2	No public funding or bank loan has been taken for this project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.4.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	2	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity</i>				

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD										
A.4.5.1. Is there a registered small-scale CDM project activity or an application to register another small-scale CDM project activity: with the following characteristics:	1,2	<table><tr><td>Debundling checklist</td><td>Yes / No</td></tr><tr><td>The same project participants?</td><td>Yes</td></tr><tr><td>In the same project category and technology/measure?</td><td>Yes</td></tr><tr><td>Registered within previous two years? Or in registration process?</td><td>Yes</td></tr><tr><td>Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?</td><td>No</td></tr></table> <p>The project proponent is developing a similar project at its other manufacturing facility, which is located in different state.</p>	Debundling checklist	Yes / No	The same project participants?	Yes	In the same project category and technology/measure?	Yes	Registered within previous two years? Or in registration process?	Yes	Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Debundling checklist	Yes / No													
The same project participants?	Yes													
In the same project category and technology/measure?	Yes													
Registered within previous two years? Or in registration process?	Yes													
Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?	No													
A.4.5.2. If the answer to all the above question is 'Yes' then does the total size of the small scale project activity combined with previously registered small scale CDM project activity exceeds the limits of small scale CDM project activities?	2	See above A.4.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B. Application of a baseline and monitoring methodology														
B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity														
B.1.1.1.Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1,2,2 2,23	Yes, the PDD is applying baseline and monitoring methodology AMS.I.C version 09, dated 23 rd December 2006. Reference has been given in PDD, section B.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B.1.1.2.Is the applied version the most recent one and / or is this version still applicable?	1,2,2 2,23	Yes. The small-scale baseline methodology Type I C: Thermal energy for the user version 9 has been approved on December 23, 2006 by the CDM Methodology Panel. Request for registration can be submitted until 17 Jan 2008 with	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD								
		the applied version.										
B.2. Justification of the choice of the project category												
B.2.1. Is the applied methodology considered the most appropriate one?	1,2,2,23	Yes. AMS IC Version 9 is the most appropriate methodology.	☒	☒								
Integrate the required amount of sub-checklists on the applicability criteria as given by the applied methodology and comment on at least every line answered with “No”; Replace blue text												
B.2.1.1.Criterion 1: Project comprises renewable energy technologies that supply individual households or users with thermal energy that displaces fossil fuels.	1,2,8,22,23	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>The project activity is thermal energy (hot air) generation using renewable biomass.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	☒	☒
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.1.2.Criterion 2: generation capacity is specified by the manufacturer, it shall be less than 15MW.	1,2,8,22,23	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>Generation capacity of hot air as specified by the manufacturer is 4.5 MW.</p> <p>Clarification Request No. 4.</p> <p>Explain the “criteria 1” and “criteria 2” as mentioned in the justification of the project activity. Is it the criteria of small scale activity or type I C?</p> <p>Describe clearly that the generation capacity is specified by the</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	CR	☒
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD								
		manufacturer is less than 15 MW.										
B.2.1.3.Criterion 3: 45 MW thermal – part I co-generation systems and/or co-fired systems to qualify under this category, the energy output shall not exceed 45 MWthermal e.g. for a bio-mass based co-generating system the capacity for all the boilers affected by the project activity combined shall not exceed 45 MWthermal. In the case of the co-fired system the installed capacity (specified for fossil fuel use) for each boiler af-fected by the project activity combined shall not exceed 45 MWthermal	1,2,8 ,22,2 3	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>NA</td></tr><tr><td>Compliance provable?</td><td>NA</td></tr><tr><td>Compliance verified?</td><td>NA</td></tr></table> <p>The project activity is not cogeneration and/or co fire system. The system will use only biomass residue for generation of hot air.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	NA	Compliance provable?	NA	Compliance verified?	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	NA											
Compliance provable?	NA											
Compliance verified?	NA											
B.2.1.4.Criterion 3: 45 MW thermal – part II In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the added capacity of the units added by the project should be lower than 45 MWthermal and should be physically distinct1 from the existing units.	1,2,8 ,22,2 3	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>NA</td></tr><tr><td>Compliance provable?</td><td>NA</td></tr><tr><td>Compliance verified?</td><td>NA</td></tr></table> <p>There is no addition of renewable energy units.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	NA	Compliance provable?	NA	Compliance verified?	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	NA											
Compliance provable?	NA											
Compliance verified?	NA											
B.3. Description of the project boundary												
B.3.1. Does the project boundary include phys-ical, geographical site where the project activity takes place?	2	Yes, the project boundary includes physical, geographical site where the project activity takes place. Clarification Request No. 5. What are the agro-residue biomass depot and fuel yard? Is it an additional storage of biomass inside the project location? If yes, then it should be included in the project boundary.	CR	<input checked="" type="checkbox"/>								
B.3.2. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to	1,2	Yes, the boundaries are clearly defined and the same is verified with the PDD and project site. See also above B.3.1.	CR	<input checked="" type="checkbox"/>								

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
the PDD?				
B.4. Description of baseline and its development				
Integrate questions concerning the determination of the additionality as provided by the methodology applied or insert the module provided when applying the “additionality tool”; Replace blue text, if necessary				
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?	1,2,4 ,7,8, 9,10, 22,2 3	<p>The baseline identified for the project activity is generation of equivalent amount of hot air using most likely use of fossil fuel (in absence of the project activity).</p> <p><u>Clarification Request No. 6.</u></p> <p>Clarify why LPG has not been considered in the list of plausible alternatives to meet hot air generation.</p> <p><u>Clarification Request No. 7.</u></p> <p>In the table B-1: assessment of all real and credible alternatives with HRJK in absence of the project activity, levelized hot air generation cost is mentioned as “INR/MT”. It is not clear whether the MT of total production or dust or intermediate has been taken into the consideration.</p> <p><u>Corrective Action Request No.4.</u></p> <p>Indicate the sources of the data mentioned in the levelized cost comparison analysis like cost of fuel and NCV value of fuel in the PDD. Also, submit the excel calculation sheet including the data source.</p>	CR CAR	<input checked="" type="checkbox"/>
B.4.2. Does project identify correctly and excludes those options not in line with regulatory or legal requirements?	1,2,4 ,7,8, 9,10, 22,2	Yes, all the scenarios are in line with the regulatory and legal requirement.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
	3			
B.4.3. Have applicable regulatory or legal requirements been identified?	1,2	Yes, all the applicable regulatory or legal requirements have been identified and fulfilled. All the relevant licenses and consents have been availed at the site.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.4. Does the PDD identify the most likely baseline scenario in absence of the project activity?	1,2,4 ,7,8, 9,10, 22,2 3	Yes, the usage of coal has been identified as the most likely base-line scenario.	CR	<input checked="" type="checkbox"/>
B.4.5. Is this identification supported by official and/or verifiable documents (e.g. studies, web pages, certificates, etc)?	1,2,4 ,7,8, 9,10, 22,2 3	Yes, the identification supported by verifiable documents likes price details, laboratory analysis report of calorific value of different types of fuels.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.6. Is the identified baseline scenario in line with regulatory or legal requirements?	1,2	See above B.4.2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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 small-scale CDM project activity:				
Integrate questions concerning the determination of the additionality when applying the “additionality tool”; Replace blue text, if necessary				
B.5.1. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	1,2,2 2,23	Not applicable. Step 2 of the additionality tool has not been used.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.2. In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	1,2,2 2,23	Please see above B.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.5.3. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2,2 2,23	Please see above B.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.4. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2,2 2,23	Please see above B.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.5. In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	1,2,2 2,23	Please see above B.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.6. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	1,2,2 2,23	Please see above B.5.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.7. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	1,2,2 2,23	The additionality tool has not been used. In general there is a list of barriers developed that prevent different alternatives to occur. Please see below B.5.15. for specific comments.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.8. In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	1,2,2 2,23	Please see above B.5.7.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.9. In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	1,2,2 2,23	Please see above B.5.7.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.5.10. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	1,2,2 2,23	The additionality tool has not been used.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.11. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?	1,2,2 2,23	The additionality tool has not been used.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.12. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers (step 5)?	1,2,2 2,23	Please see below B.5.18. for detailed comments.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If the additionality tool has not been used please answer B.5.13 to B.5.18				
B.5.13. 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?	1,2,1 1,12, 13	<p>Yes. Starting date of the project activity is 04/07/2003, which is before date of validation. Purchase order of HAG was raised on the same day.</p> <p>Minutes of Board of Directors meeting dated 9th and 10th January 2003 has been submitted. This demonstrates that the CDM was considered in the management decision for implementing the project activity.</p> <p><u>Corrective Action Request No.5.</u></p> <p>Clarify why there is a delay in CDM project registration if board of directors already decided on the same on 9th and 10th January, 2003.</p>	CAR	<input checked="" type="checkbox"/>
B.5.14. Is a complete list of barriers developed	2	Yes, a complete list of barriers has been developed that prevents	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD															
that prevents the project activity to occur?		the project activity to occur.																	
B.5.15. Does this list include at least one of the following barriers?	1,2,4,7,8,9,10,17,22,23	<table><tr><th>Barrier</th><th>Discussed?</th><th>Verifiable?</th></tr><tr><td>Investment</td><td>Yes</td><td>Partially</td></tr><tr><td>Technological</td><td>Yes</td><td>Partially</td></tr><tr><td>Due to prevailing practice</td><td>No</td><td>No</td></tr><tr><td>Other</td><td>Yes</td><td>Partially</td></tr></table> <p>See CAR 4</p> <p><u>Clarification Request No. 8.</u></p> <p>It has been stated that uncertainties in biomass is a technical barrier to this project. Explain how it can be a technical barrier.</p> <p><u>Corrective Action Request No.6.</u></p> <p>It has been argued in the technical barrier that “clinker formation”, “air pollution equipment blockage” and “blocking of primary air lines” has led to several shut down, production loss, and down-time and efficiency reduction in the operation. Provide the authentic and verifiable sources and evidences for the same.</p> <p><u>Clarification Request No. 9.</u></p> <p>PDD describes that the significant amount of site development cost as other barrier. Explain in details about the cost and also how can it be consider as a barrier? The cost of site development has already been considered in the levelized cost comparison analysis.</p>	Barrier	Discussed?	Verifiable?	Investment	Yes	Partially	Technological	Yes	Partially	Due to prevailing practice	No	No	Other	Yes	Partially	CR CAR	<input checked="" type="checkbox"/>
Barrier	Discussed?	Verifiable?																	
Investment	Yes	Partially																	
Technological	Yes	Partially																	
Due to prevailing practice	No	No																	
Other	Yes	Partially																	

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		<u>Clarification Request No. 10.</u> Submit the sources of 3 MT/day ash generations as mentioned in the PDD. Additionally, also provide the supporting evidences about the difficulties faced in utilisation of the ash in consideration of alternation of product properties as mentioned in the PDD.		
B.5.16. Does the discussion sufficiently take into account relevant national and/or sectoral policies?	1,2	Yes. There is no legal binding or national and/or sectoral policy to come up with such biomass based thermal energy generation plant.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.17. Is transparent and documented evidence provided on the existence and significance of these barriers?	1,2,7,8,9,10,12	Partially. See above B.5.15.	CAR CR	<input checked="" type="checkbox"/>
B.5.18. Is it appropriately explained how the approval of the project activity will help to overcome the identified barriers?	1,2	The CDM registration plays a key role for the project. The benefit of CDM has been considered during the approval of the project from the top management. <u>Clarification Request No. 11.</u> Clarify how CDM component will help you in overcoming these barriers. Include the information in the PDD.	CR	<input checked="" type="checkbox"/>
B.6. Emissions reductions				
Integrate questions concerning methodological choices and selection of options, if necessary				
<i>B.6.1. Explanation of methodological choices</i>				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1,2,22,23	Yes, it has been explained clearly that the paragraph 6 of Type I.C. applies to this project activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.1.2. Is every selection of options offered by	1,2,2	Yes. The justification has been given for every sections of option	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD						
the methodology correctly justified and is this justification in line with the situation verified on-site?	2,23	given by the methodology and the justification is in line with the situation verified on site.								
B.6.1.3.Determination of project emissions (Comment on any line answered “No”) Replace blue text										
a. Component 1: emissions from (project activity component)	1,2,3	<table border="1"><tr><td>Project emission checklist</td><td>Yes / No</td></tr><tr><td>Component discussed in the PDD?</td><td>Yes</td></tr><tr><td>Formulae correctly applied?</td><td>Yes</td></tr></table> <p>There will not be any project emission as the project activity will use only biomass.</p>	Project emission checklist	Yes / No	Component discussed in the PDD?	Yes	Formulae correctly applied?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Project emission checklist	Yes / No									
Component discussed in the PDD?	Yes									
Formulae correctly applied?	Yes									
B.6.1.4.Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored?	1,,32	<p>Yes, the baseline emissions are defined as product of fuel consumption of the technology that would have been used in absence of the project activity and the emission factor of fossil fuel (coal) displaced.</p> <p><u>Corrective Action Request No.7.</u></p> <p>The energy generated by the project activity (TJ) in form of hot air should be multiplied with emissions coefficient (ton CO2/TJ) of the fossil fuel displaced to arrive at baseline emissions. The monitoring plan should make provisions for monitoring of energy produced by monitoring flow of hot air and its temperature.</p> <p>The baseline emissions equation should include the efficiency of the coal based hot air generation which would have been used in absence of the project activity and the efficiency of the biomass hot air generation.</p> <p><u>Corrective Action Request No.8.</u></p> <p>What is NVCbiomass? Describe all the abbreviations in the base line emission equation in the PDD?</p> <p><u>Clarification Request No. 12.</u></p>	CAR CR	<input checked="" type="checkbox"/>						

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Baseline emission i.e. 9,773 tCO ₂ e has been calculated on actual consumption of biomass in the time frame of April 2005 to March 2007. Explain the same in the PDD.		
B.6.1.5.Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1,2,3	Leakage has been considered due to transportation of biomass.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.1.6.Are the formulae required for the determination of emission reductions correctly presented?	1,2,3	Yes, emission reductions are defined as difference of baseline emission and summation of leakage and project emission.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.2. Data and parameters that are available at validation				
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?	1,2	<p>Yes.</p> <p><u>Clarification Request No. 13.</u></p> <p>Section B.6.2 incorrectly mentions 4000 kcal/kg as calorific value of biomass. It should be calorific value of coal.</p> <p><u>Corrective Action Request No.9.</u></p> <p>As per the methodology, if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity leakage is to be considered. In this project, fluidised bed combustion is a new technology and there is no transfer of energy generating equipment. Justify the use of formula used to calculate leakage emission in B.6.1. of PDD. Emissions from transportation of biomass should be categorised as project emissions and not leakage.</p>	CR CAR	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD																		
		<u>Corrective Action Request No.10.</u> Section B.6.2. 1 incorrectly refer to the 1996 IPCC Guidelines for “ emission factor of coal” and “ oxidation factor of coal”. The latest source of 2006 IPCC guidelines or national guidelines should be referred and used.																				
B.6.2.2.Comment on any line answered with “No” Replace blue text																						
b. Parameter Title: TEy total thermal energy produced in year y by all units, existing and new project units	1,2	<table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>	Data Checklist	Yes / No / NA	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No / NA																					
Title in line with methodology?	NA																					
Data unit correctly expressed?	NA																					
Appropriate description of parameter?	NA																					
Source clearly referenced?	NA																					
Correct value provided?	NA																					
Has this value been verified?	NA																					
Choice of data correctly justified?	NA																					
Measurement method correctly described?	NA																					
c. Parameter Title: WTEy the estimated thermal energy that would have been produced by existing units (installed before the project activity) in year y in the	1,2	<table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr></table>	Data Checklist	Yes / No / NA	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
Data Checklist	Yes / No / NA																					
Title in line with methodology?	NA																					
Data unit correctly expressed?	NA																					
Appropriate description of parameter?	NA																					
Source clearly referenced?	NA																					
Correct value provided?	NA																					

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD																		
absence of the project activity		<table><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>		Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA														
Has this value been verified?	NA																						
Choice of data correctly justified?	NA																						
Measurement method correctly described?	NA																						
d. Parameter Title: MAX (WTEactual,y , WTEestimated,y) WTEactual,y = the actual, measured thermal energy production of the existing units in year y WTEestimated,y = the estimated thermal energy that would have been produced by the existing units under the observed availability of the renewable resource for year y;	1,2	<table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>NA</td></tr><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>NA</td></tr><tr><td>Source clearly referenced?</td><td>NA</td></tr><tr><td>Correct value provided?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Choice of data correctly justified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>		Data Checklist	Yes / No / NA	Title in line with methodology?	NA	Data unit correctly expressed?	NA	Appropriate description of parameter?	NA	Source clearly referenced?	NA	Correct value provided?	NA	Has this value been verified?	NA	Choice of data correctly justified?	NA	Measurement method correctly described?	NA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No / NA																						
Title in line with methodology?	NA																						
Data unit correctly expressed?	NA																						
Appropriate description of parameter?	NA																						
Source clearly referenced?	NA																						
Correct value provided?	NA																						
Has this value been verified?	NA																						
Choice of data correctly justified?	NA																						
Measurement method correctly described?	NA																						
e. Is following circumstances relevant and in case of is it applied correctly: If the	1,2	The hot air generation through renewable resources is a new unit. The existing unit used the fossil fuel only. Hence the circumstances are not relevant for this project case.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
existing units shut down, are derated, or otherwise become limited in production, the project activity should not get credit for generating thermal energy from the same renewable resources that would have otherwise been used by the existing units				
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?	1,2,3	Projection of emission reduction is based on total quantity of biomass used and net calorific value of biomass which would be directly monitored. Emission reductions are defined as difference of baseline emission and summation of leakage and project emission.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.3.2.Are the GHG calculations documented in a complete and transparent manner?	1,2,3	Partly. <u>Corrective Action Request No.11.</u> GHG calculation for baseline, leakage and emission reduction is given in PDD and a detailed excel sheet has also been submitted. However, clarify and mention the sources of each single data like quantity of biomass; net calorific value of coal and biomass and quantity of coal that would have been used in absence of the project activity in the PDD and/or excel sheet.	CAR CR	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		<u>Clarification Request No. 14.</u> Submit the authentic documents for all the assumptions while calculating the emission reduction. For example, "km/litre of diesel", "average truck load" and "density and calorific value of diesel". Also see CR 11.		
B.6.3.3.If there is more than one component of the project activity, then, are emission reduction calculations provided separately for each component?	1,2,3	There is only one component of the project activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.3.4.Is the data provided in this section consistent with data as presented in other chapters of the PDD?	1,2,3	Yes, the data is consistent within the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4. Summary of the ex-ante estimation of emission reductions				
B.6.4.1.Will the project result in fewer GHG emissions than the baseline scenario?	1,2,3	Yes, the biomass based hot air generation project does not produce any GHG emissions compared to the grid power generation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.2.Is the form/table required for the indication of projected emission reductions correctly applied?	1,2,3	Yes, table is correctly applied.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.3.If the project activity involves more than one component, is separate table included for each of the component.	1,2,3	See B.6.3.3.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.4.Do these values comply with small-scale criteria for every year?	1,2,3	Emission reductions do not exceed that corresponding to 45 MW _{thermal} .	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.5.Is the projection in line with the envisioned time schedule for the project's implementation and the indicated credit-	1,2,3	The project activity has been implemented. The crediting period will start from the date of registration.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD														
ing period?																		
B.6.4.6.Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1,2,3	Yes it 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?	1,2,2 2,23	Partially. See B.6.1.3.1.	CAR CR	☒														
B.7.1.2.Does the PDD or the monitoring plan clearly determine which of the given options (a, b or c) is applied?	1,2,2 2,23	No. <u>Corrective Action Request No.12.</u> PDD or the monitoring plan should clearly specify which of the given monitoring options (a, b or c) of the methodology I.C. has been applied and how the same can be applied in present project scenario.	CAR	☒														
B.7.1.3.According to chosen and justified options which parameters are given as key parameters? Complete for each chosen parameter the given table on the right hand.	1,2,1 8,22, 23	The following parameters are given as key parameters: Parameter title: Annual Quantity of biomass consumed: <table><tr><td>Monitoring Checklist</td><td>Yes / No</td></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>No</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	No	Source clearly referenced?	No	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	CAR CR	☒
Monitoring Checklist	Yes / No																	
Title in line with methodology?	Yes																	
Data unit correctly expressed?	Yes																	
Appropriate description of parameter?	No																	
Source clearly referenced?	No																	
Correct value provided for estimation?	Yes																	
Has this value been verified?	Yes																	

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD												
		<table><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table> <p><u>Clarification Request No. 15.</u> As per the PDD, biomass consumption will be measured at weigh bridge at the plant and MIS will account the data. How the data will be entered in MIS system is not clear. Is the data will be entered by store in charge or by production in charge as per the daily consumption?</p> <p><u>Corrective Action Request No.13.</u> Accuracy levels of measuring equipments and monitoring frequency are not listed in PDD. Mention the same. The procedure covering calibration of monitoring equipments traceable with national and international standard, procedure to handle data uncertainty, frequency of internal audit and responsibility should be defined and documented.</p> <p><u>Clarification Request No. 16.</u> Mention clearly the sources of the data to be used in actual monitoring for each data/parameter.</p> <p>Parameter title: Net calorific value of biomass fuel</p> <table><tr><td>Monitoring Checklist</td><td>Yes / No</td></tr></table>	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	Monitoring Checklist	Yes / 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															
Monitoring Checklist	Yes / No															

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	No		
		Source clearly referenced?	No		
		Correct value provided for estimation?	Yes		
		Has this value been verified?	Yes		
		Measurement method correctly described?	Yes		
		Correct reference to standards?	Yes		
		Indication of accuracy provided?	No		
		QA/QC procedures described?	No		
		QA/QC procedures appropriate?	No		
		<u>Corrective Action Request No.14.</u>			
		Describe about the methods and procedures that will be applied for estimation of the net calorific value of biomass.			
		Recording frequency of this data is three months. What would be the procedure for calculation of net calorific value of biomass fuel considering the different types of biomass that can be used in an estimated time period?			
		See also CAR 7, CAR 11 and CR 15			
		Parameter title:			
		Net calorific value of fossil fuel:			

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD																
		<table><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table> <p><u>Corrective Action Request No.15.</u> Describe in details about the methods and procedure that will be applied for estimation of the net calorific value of coal. Recording frequency of this data is three months. What would be the procedure for calculation of net calorific value of coal considering the different types of coal that can be available in an estimated time period? As the project will not use any coal, what will be source of regular coal input for three monthly monitoring of coal calorific value?</p> <p><u>Corrective Action Request No.16.</u> Describe in details about the method and procedure that will be applied for estimation of the data and parameter related to leakage like “capacity of the track carrying biomass”, “distance of procurement”, “Mileage of vehicle”, “density of fuel” and “calorific value of transport fuel”.</p> <p><u>Clarification Request No. 17.</u> Value of distance of procurement including return journey of vehicle applied as 300 Km in B.7.1. is different from 400 Km as applied in the emission calculation. Also see CAR 11.</p>	Source clearly referenced?	No	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	No	QA/QC procedures described?	No	QA/QC procedures appropriate?	No		
Source clearly referenced?	No																			
Correct value provided for estimation?	Yes																			
Has this value been verified?	Yes																			
Measurement method correctly described?	Yes																			
Correct reference to standards?	Yes																			
Indication of accuracy provided?	No																			
QA/QC procedures described?	No																			
QA/QC procedures appropriate?	No																			

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
f. Are there any parameters missing or unclear for future monitoring in order to determine emission reductions?		See above B.7.1.3.1.	CAR CR	<input checked="" type="checkbox"/>
B.7.2. Description of the monitoring plan				
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation?	1,2	<u>Corrective Action Request No.17.</u> The operational and management structure is not clearly described in section B.7.2 and Annex 4. Provide information about the person responsible for data monitoring, data verification, report preparation, data archiving etc.	CAR	<input checked="" type="checkbox"/>
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1,2	See above B.7.2.1.	CAR	<input checked="" type="checkbox"/>
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	1,2	The current practice of data recording, storage, retrieval and back up is done through Enterprise Resource Package (ERP). The validation team was able to verify the various data through the screening in the ERP, however the monitoring plan does not include the accuracy level of the measuring equipments and uncertainty level for each parameters See CAR 13.	CAR	<input checked="" type="checkbox"/>
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1,2	See above B.7.2.1.	CAR	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
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.8.1.1.Is there any indication of a date when the baseline was determined?	1,2,1 3,14, 15,1 6	Yes, date has been mentioned in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.2.Has dd/mm/yyyy format been used to indicate the date.	2	Yes, the date of completion of baseline has been indicated as 25/02/2007.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.3.Is this consistent with the time line of the PDD history?	1,2,1 3,14, 15,1 6	Yes, the consistency is evident with PDD history.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.4.Is the information on the person(s) / entity (ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	1,2	The name of Mr. D.R. Kulkarni, Vice President (Project) has been shown as responsible for the application for the baseline and monitoring.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.5.Is information provided whether this person / entity is also considered a project participant?	1,2	The company HR Johnson (India) Ltd. is the project participant which is represented by Mr Kulkarni.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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?	1,2,1 1,13	Yes, it is clearly defined in the PDD. <u>Clarification Request No. 18.</u> Submit the supporting documents for the 20 years of expected operational life time of the project activity.	CR	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1,2,1 1,13	A fixed crediting period for 10 years has been chosen. The commencement of this period shall start only after registration of the project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C.2.2. Has dd/mm/yyyy format been used to indicate the start date of the crediting period.	2,22, 23	The format has been chosen correctly.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D. Environmental impacts				
D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved? <i>If yes answer also D.1.2 to D.1.4</i>	1,2	No separate environment impact assessment study is required for this kind of project as per the current environmental notification.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.2. <i>Has the analysis of the environmental impacts of the project activity been sufficiently described?</i>	1,2	See above in D.1.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.3. <i>Will the project create any adverse environmental effects?</i>	1,2	See above in D.1.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.4. <i>Were transboundary environmental impacts identified in the analysis?</i>	1,2	See above in D.1.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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	1,2	H & R Johnson (India) Limited has conducted a detailed aspect impact analysis for the project. Measures taken for the environ-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
sufficiently?		ment protection have been described in the PDD.		
D.2.2. Does the project comply with environmental legislation in the host country?	1,2,1 9,20	Yes, the project has received the permission for operation from the State Pollution Control Board.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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?	1,2,2 1	Employees, local community, biomass supplier, contractor, non-governmental organizations have been identified as the relevant stake holders. Meetings with stake holder's representatives have taken place at the project site where project proponent described various aspects of CDM project activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	1,2,2 1	Yes, a formal invitation in form of individual letter has been sent to the identified stakeholders by the project owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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?	1,2,2 1	Stakeholder consultation process is not required by regulations/laws in India for this particular type of project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	1,2,2 1	.Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2. Summary of the comments received				
E.2.1. Is a summary of the received stakeholder comments provided?	1,2,2 1	Yes, a summary of the comments received have been given in the PDD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
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?	1,2,2 1	No negative comments have been received and hence, there was no need to take any action.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F. Annexes 1 - 4				
F.1.Annex 1: Contact Information				
F.1.1. Is the information provided consistent with the one given under section A.3?	1,2	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.2. Is the information on all private participants and directly involved Parties presented?	1,2	Yes, all information has been presented.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.2.Annex 2: Information regarding public funding				
F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1,2	No public funding has been involved in financing of project. The sources of the funds were through internal accruals and capital expenditures.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.2.2. If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	1,2	See above F.2.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3.Annex 3: Baseline information				
F.3.1. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1,2	No additional information has been provided.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3.2. Is the data provided verifiable?	1,2	See above F.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
Has sufficient evidence been provided to the validation team?				
F.3.3. Does the additional information substantiate / support statements given in other sections of the PDD?	1,2	See above F.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4. Annex 4: Monitoring information				
F.4.1. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1,2	No additional Information is provided in this section.	CAR	<input checked="" type="checkbox"/>
F.4.2. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1,2	See above F.4.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1,2	See above F.4.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action re-quests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
<u>Corrective Action Request No.1.</u> Pre-project scenario of the project activity is not clear from the project activity description in the PDD. PDD should clearly describe the pre-project scenario in details.	A.2.1.	The pre-project and post project activity scenario has been properly defined in the revised PDD.	<u>Response by the audit team</u> Activities of post project scenario are clearly documented. PDD should also clearly describe the technical specification of the equipments and processes used in pre-project scenarios in detailed and transparent manner in the same way of post project scenario. <u>Response by the PP</u> We have provided technical specification and description of FO based Hot air generation which was a pre-project scenario in the PDD <u>Final response by the audit team</u> <input checked="" type="checkbox"/> Pre-project as well as post project activities have been documented in the PDD.
<u>Corrective Action Request No.2.</u> Information provided in the section A.4.1.4. should include information which enabled clear identification of location of this small scale activity. Exact road name or plot address as well GPS coordinates can be more specific to identify	A.4.1.4.	The revised section A.4.1.4 contains information on 1. Location co-ordinates 2. Plot address of H&R Johnson , Kunigal.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/> Clear identification of this project activity is possible from the information provided in the revised PDD.

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

the project location.			
<u>Corrective Action Request No.3.</u> As per the specification and contract of Fluidised bed combustion technology supplier, hot air generation capacity is 4.5 MWthermal. In the PDD, it is mentioned as 2.5 MWthermal. Revise the PDD.	A.4.2.6.	Technology description and its specifications have been described in the revised PDD in section A.4.2.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/>
<u>Corrective Action Request No.4.</u> Indicate the sources of the data mentioned in the levelized cost comparison analysis like cost of fuel and NCV value of fuel in the PDD. Also, submit the excel calculation sheet including the data source.	B.4.1.	Data sources to each value of levelized cost comparison in the excel calculation sheet has been included. Reference documents for value have been provided to validator.	<u>Response by the audit team</u> The revised excel sheet has been submitted but following still needs to be clarified. Provide back up documents for yearly fuel Consumption' SAP data, Prices (for what period these values have been averaged) and other parameters like cost of power(for what period these values have been averaged), cost of shut down, loss on profit. <u>Response by the PP</u> Source along with supporting document have been provided for each parameter in the levelized hot air cost analysis. <u>Response by the audit team</u> Following information is still not clear to the audit team. Provide supporting documents or verifiable data source to the audit team. <ol style="list-style-type: none"> 1. Is there any supporting evidence against the 25% moisture and impurities in coal and 20% in the biomass? 2. It has been argued that the solid fuel required for 1:1 replacement of liquid fuel of kg/kg of FO(Furnace Oil). In the biomass assessment survey report it has been ar-

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>gued that the solid fuel consumption will be 2.5 Kg/Lt of liquid fuel consumption.</p> <ol style="list-style-type: none"> 3. Provide the supporting documents for the FO price as mentioned in the cost estimation. Weighted average cost analysis of FO is not understood by the audit team. What is meant by the total FO consumption and what is meant by spray drier consumption is not clear. Is there any other use of FO other than the spray drier? 4. NCV of FO has been supported by IOC(Indian Oil Corporation) report October, 2006. Substantiate that the same type of oil (7000-Furnace oil Regular) was is use in pre project scenario. 5. Biomass price has been calculated based on the average price taken from two purchase order (GAS enterprise and AVI enterprise). Both of the purchase orders are related to ground nut shell. Is the price of the other biomass also in the same line? Provide the purchase order for other types of biomass also. Also, GAS enterprise is not in the list of the approved supplier. <p><u>Response by the PP:</u></p> <ol style="list-style-type: none"> 1. Coal moisture contain data is available from supplier quotation. (Quotation from Swami Yogananda Trading Company dated 20.05.03). Biomass moisture & impurity data is available from moisture test report conducted at Kunigal laboratory. 2. Density of furnace oil used for calculation is 0.974 gm/cc, considering the same if we calculate the replacement ratio of furnace oil by biomass the same comes to 2.38 kg of biomass per liter of furnace oil. The same has rounded off to 2.5 kg of biomass per liter of furnace oil in the biomass assessment report. .
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Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>3. Find the attached FO purchase order (on random sample basis) as supporting document for FO price. We have provided furnace oil consumption for the year 02-03 and 03-04 in Kunigal spray dryer only. (Refer details hot air costing Kunigal.xls attached) Data for the same has been used from SAP and records from Kunigal plant accounts department.</p> <p>4. NCV report provided is a typical test report. It is representative of net calorific value of FO. Since calorific value of FO does not vary drastically therefore same can be considered as NCV of FO used in the project activity. We have provided web site reference for two major oil suppliers of India. In these web sites for all grades of furnace oil it has been mentioned that GCV is 10000 cal/gm. In our calculation we have considered NCV of FO as 9506 kcal/kg, which is a conservative estimate.</p> <p>http://www.bharatpetroleum.in/sbu/ind_comm/indFuelsSolve/nts_furnace_oil.asp?from=ind</p> <p>http://www.iocl.com/products_fuel_3.aspx</p> <p>5. Offer for paddy husk and coffee husk from the other supplier are attached. Though G.A.S Enterprise was not in the approved vendor list, offer for biomass supply obtained from the party for feasibility study of the project.</p> <p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p> <p>Revised Excel sheet of levelised cost comparison analysis indicates the sources of data used into it. The price and NCV has been verified by the audit team with the relevant purchase order and test certificate.</p>
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Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

<p><u>Corrective Action Request No.5.</u> Clarify why there is a delay in CDM project registration if board of directors already decided on the same on 9th and 10th January, 2003.</p>	<p>B.5.13.</p>	<p>We have initiated the process of dialogue with our consultant way back in Jan.2004, before implementation of these projects. Prior to that also we were aware of the facts and benefits associated to CDM. We waited till 2006 to add more number of projects like Karaikal and GT project in Pen. This would have enabled us to have sufficient number of CER to justify the engagement of various agencies like consultant, validator and all other associated cost involved. We have attached our initial communication with consultant as supporting document.</p>	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.6.</u> It has been argued in the technical barrier that “clinker formation”, “air pollution equipment blockage” and “blocking of primary air lines” has led to several shut down, production loss, and downtime and efficiency reduction in operation. Provide the authentic and verifiable sources and evidences for the same.</p>	<p>B.5.15.</p>	<p>The same has been evidenced from the downtime notes recorded and communicated between the plant supervisor to plant manager. The same affected the annual run time. All the problems indicated are practical problems faced during day to day operation of FBC.</p>	<p><u>Response by the audit team</u> Substantiate these statements with any published material on the subject. Also, submit the relevant portion of the published documents to the audit team.</p> <p><u>Response by the PP</u> The basic theory behind clinkerisation as explained below describes why clinker forms in such cases. Clinker formation : Clinker formation is due to Temperature increase that would melt minerals present in the biomass residues reaching their fusion temperature. As oxygen is added into combustion bed, it enhances the reactions of combustion which are exothermic, thus increasing the temperature. Baxter <i>et al.</i> (1998) mentioned that alkali metals, especially potas-</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>sium,in biomass, tend to react with silica to form alkali silicates melting at temperatures above 700 °C.</p> <p>Primary air lines are located at the bottom of the bed. Therefore clinker formation in the bed block the holes provided for air supply.</p> <p>As far as line blockades are concerned, It can be noted that Ash generated during biomass residue burning has low density and high silica content. Due to low bulk density, ash adheres to refractory surface in the settling chamber & cyclone causing the blockage of air pollution abatement devices.</p> <p>Also due to high silica content cyclone and hot air pipeline gets eroded leading to frequent shut down and increased maintenance cost.</p> <p>Minutes of Meeting (dated April 14, 2005 and May 20, 2006) between plant personnel's and technology supplier has been attached for review and as an evidence for Clinker formation and other associated technical problems.</p> <p>The MOM documents have been provided to the validator during validation. Refer to the file (HRJ_KGL_MOM 2&3)</p> <p><u>Response by the audit team</u></p> <p>The explanation is accepted to the audit team. The minutes of meetings on different dates also clearly indicate the problem faced by the PP. Include the discussion related to the clinker formation and difficulties faced in the PDD. Also, primary air line blockage is primarily due to the clinker formation not because of high moisture of biomass as mentioned in the PDD. Revise the PDD.</p>
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Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p><u>Response by the PP:</u> Necessary changes have been made in the PDD.</p> <p><u>Final response by the audit team</u> <input checked="" type="checkbox"/> Detailed discussion on technical barrier has been included in the final PDD. The problem related to clinkerisation has been evident to the audit team through the various minutes of meeting among the project proponent and technology supplier at different dates.</p>
<p><u>Corrective Action Request No.7.</u> The energy generated by the project activity (TJ) in form of hot air should be multiplied with emissions coefficient (ton CO₂/TJ) of the fossil fuel displaced to arrive at baseline emissions. The monitoring plan should make provisions for monitoring of energy produced by monitoring flow of hot air and its temperature. The baseline emissions equation should include the efficiency of the coal based hot air generation which would have been used in absence of the project activity and the efficiency of the biomass hot air generation.</p>	B.6.1.4.	<p>Baseline emissions are derived on actual energy supplied by HAG to spray dryer. In the baseline calculation to arrive at the actual energy supplied to spray dryer, we have used the supplier provided data on quantity of hot air generated from HAG and combustion efficiency of the FBC based HAG. Efficiency of biomass based HAG is considered in emission calculation algorithm. Refer to the calculation sheet attached in last email sent to you. For monitoring purpose a pitot tube assembly will be used to derive the actual energy supplied by HAG. Associated monitoring parameters which helps to calculate energy supplied are included in the monitoring section B.7.1.</p>	<p><u>Response by the audit team</u> The baseline determination has been revised on the basis of energy produced. But correct the following. 1. Quantity of the coal used should be calculated directly using plant efficiency and the NCV instead of first calculating the biomass quantity and then calculating coal quantity. 2. Submit the supporting documents for each of the parameter used in the baseline calculation. And also mention the exact source from where the data can be verified. For example, hot air temperature, energy supply to spray drier, NCV of biomass (which time period average has taken), FBC efficiency and total energy from coal. 3. It is recommended to use country specific NETCOM values in place of IPCC values.</p> <p><u>Response by the PP</u> 1. We have changed baseline estimation calculation using coal NCV instead of biomass residue.</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

		<p>Also see the revision in the Base-line emission calculation formulae's used in B.6.1.</p>	<p>2. All supporting document references have been included in the estimation sheet.</p> <p>3. We have used NATCOM (INDIA), 1994 carbon emission factor data for non-coking coal with reference value of 26.13 tC/TJ has been considered instead of IPCC 2006 values to provide conservative estimation of emissions.</p> <p><u>Response by the audit team</u></p> <p>The revised baseline estimation calculation is accepted to the audit team as the same is as per the methodology requirement. However, clarify the following points:</p> <ol style="list-style-type: none"> 1. Efficiency of HAG has been considered as 95%. Is there any supporting evidence for the same. 2. Parameters like "Cp", "Y", "A", "Tambient", "efficiency of FBC HAG", "specific heat of hot air at 600 degree C" have been used in emission reduction calculation. The same parameters must be included in table B.7.1 of the PDD or in B.6.2. of the PDD if the same is fixed during validation. <p><u>Response by the PP:</u></p> <ol style="list-style-type: none"> 1. Efficiency of the HAG is considered as 95% as per the supplier data. Refer HRJ-KGL_OFFER_RADHE.pdf page no 2. In the supplier offer it has been mentioned as combustion efficiency, therefore to indicate the actual system efficiency we have compared data of two supplier (refer the attached efficiency data from Radhe Renewable Energy Development Pvt. Ltd and Ashutosh Engg. consulting) and consider 83% which is the highest reported efficiency between two suppliers as conservative thermal
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Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>efficiency of the system.</p> <p>3. All parameters as indicated above have been included in table B.6.2 and table B.7.1 in the PDD. Refer page no 26-37 in the PDD.</p> <p><u>Final Response by the audit team</u></p> <p><input checked="" type="checkbox"/></p> <p>Baseline emission calculation has also been revised. The amount of coal which would have been used in absence of the project activity has been calculated by using the supplier design data of HAG and NCV of the coal. The same has been multiplied by the emission factor of the coal. The revised approach of baseline calculation is accepted by the audit team as the same is in the line of AMS I.C. requirements.</p>
<p><u>Corrective Action Request No.8.</u></p> <p>What is NVCbiomass? Describe all the abbreviations in the baseline emission equation in the PDD?</p>	B.6.1.4.	The revised PDD describes all abbreviations in emission reduction equations under section B.6.1	<p><u>Final Response by the audit team</u></p> <p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.9.</u></p> <p>As per the methodology, if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity leakage is to be considered. In this project, fluidised bed combustion is a new technology and there is no transfer of energy generating equipment. Justify the use of formula</p>	B.6.1.5.	Emissions from biomass transport are neglected as leakages from the transport of most plausible baseline coal would have been more, when compared with biomass transport. Therefore the no leakage calculations are considered in the revised PDD.	<p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p> <p>Since the transportation of biomass is not covered under methodology the same has been deleted from the PDD</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

used to calculate leakage emission in B.6.1. of PDD. Emissions from transportation of biomass should be categorised as project emissions and not leakage.			
<u>Corrective Action Request No.10.</u> Section B.6.2.1 incorrectly refer to the 1996 IPCC Guidelines for “emission factor of coal” and “oxidation factor of coal”. The latest source of 2006 IPCC guidelines or national guidelines should be referred and used.	B.6.2.1.	IPCC 2006 guidelines for GHG emissions in stationary combustion have been referred in the revised PDD and baseline emission calculations which are conservative and internationally established.	<u>Response by the audit team</u> Compare the data available from national sources (NATCOM) and 2006 IPCC guidelines and choose the value conservatively. <u>Response by the PP</u> It was found NATCOM INDIA 1994 data for carbon emission factor (26.13 tC/TJ) was more conservative than IPCC 2006 (26.2 tC/TJ) data. Therefore we have considered NATCOM as our reference for baseline emission estimation. <u>Final response by the audit team</u> <input checked="" type="checkbox"/>
<u>Corrective Action Request No.11.</u> GHG calculation for baseline, leakage and emission reduction is given in PDD and a detailed excel sheet has also been submitted. However, clarify and mention the sources of each single data like quantity of biomass; net calorific value of coal and biomass and quantity of coal that would have been used in absence of the project activity in the PDD and/or excel sheet.	B.6.3.2.	Data sources for each baseline emission calculation has been included in the excel sheet which is separately attached along with the document.	<u>Response by the audit team</u> See the response against CAR 6. <u>Response by the PP</u> Find corrected response as per CAR 6. <u>Final response by the audit team</u> <input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

<p><u>Corrective Action Request No.12.</u> PDD or the monitoring plan should clearly specify which of the given monitoring options (a, b or c) of the methodology I.C. has been applied and how the same can be applied in present project scenario.</p>	<p>B.7.1.2.</p>	<p>In the present scenario as per the monitoring plan, biomass and its NCV will be monitored which is a part (a) of monitoring options as per AMS I.C.</p>	<p><u>Response by the audit team</u> Not clear to the audit team. Explain in details with reference to the actual monitoring system as described in the PDD.</p> <p><u>Response by the PP</u> The revised PDD specifies monitoring option (a) as per paragraph 11 of AMS I.C version 09, December 23, 2006. See the corrected reference on page 34 of PDD.</p> <p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.13.</u> Accuracy levels of measuring equipments and monitoring frequency are not listed in PDD. Mention the same. The procedure covering calibration of monitoring equipments traceable with national and international standard, procedure to handle data uncertainty, frequency of internal audit and responsibility should be defined and documented.</p>	<p>B.7.1.3.</p>	<p>Accuracy and uncertainty information required in data monitoring plan is referred from test certificates provided by the third party testing agencies for each monitoring parameter.</p>	<p><u>Response by the audit team</u> Third party test certificates shall provided this information only at the time of calibration and accuracy check Include the details regarding manufacturer supplied design parameters of Accuracy and uncertainty levels for each of the equipments in this section.</p> <p><u>Response by the PP</u> In the project activity project parameters that have been included for monitoring are Biomass measurement using weigh bridge, Flow measurement with Pitot tube, pressure differential measurement with digital manometer and hot air temperature measurement with digital thermo couple. Weigh Bridge (Biomass and coal) – Calibration test report from Department of weight & Measurement, Karnataka, Government of India, dated: 21/03/2007. Accuracy is ± 0.05 % of the reading. Pitot Flow -- $\pm 3\%$ of reading $\pm 10\text{m}^3/\text{hr}$ (Reference: Technical Data sheet of KIMO, Page: 2)</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>Pitot Tube – Accuracy >1% for ± 10 deg alignment to the fluid flow (Reference: Technical Data sheet of KIMO, Page: 2)</p> <p>Digital Manometer - Accuracy ± 0.5 of reading and ± 1 mm H₂O (Reference: Technical Data sheet of KIMO, Page: 2)</p> <p>Digital Thermo couple - Accuracy - ± 0.5 of reading and ± 0.8 deg C (Reference: Technical Data sheet of KIMO, Page: 2)</p> <p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p> <p>PDD has been revised and accuracy and uncertainty of the equipments have also been included in the PDD. Calibration frequency and responsibility has also been included in the monitoring table of the final PDD. The final revised monitoring plan and PDD is deemed complete now.</p>
<p><u>Corrective Action Request No.14.</u></p> <p>Describe in details about the methods and procedure that will be applied for estimation of the net calorific value of biomass. Recording frequency of the data is three months. What would be the procedure for calculation of net calorific value of biomass fuel considering the different types of biomass that can be used in an estimated time period?</p>	B.7.1.3.	<p>NCV of biomass is determined from a government approved laboratory which is an external agency.</p> <p>Procedures applied for determination of NCV are as per Indian Standard (IS) code: 1350. As NCV determination is externally determined therefore there are no procedures for calculation of NCV</p>	<p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No.15.</u></p> <p>Describe in details about the</p>	B.7.1.3.	<p>Determination Coal NCV is one time activity and is fixed in base-</p>	<p><u>Response by the audit team</u></p> <p>The same parameter has been used in B.7.1. which indicates</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

methods and procedure that will be applied for estimation of net calorific value of coal. Recording frequency of the data is three months. What would be the procedure for calculation of net calorific value of coal considering the different types of coal that can be available in an estimated time period? As the project will not use any coal, what will be source of regular coal input for three monthly monitoring of coal calorific value?		line calculation. Reference document in form of laboratory analysis for coal NCV has been submitted to validator.	<p>monitoring of the parameter in a determined frequency. Also, if it needs to be fixed then PDD should discuss the same in details with explanation of value used.</p> <p><u>Response by the PP</u></p> <p>Coal NCV is fixed in the baseline calculation and the supporting document has been provided during validation. Section B.7.1 does not indicate mention of coal as a parameter considered in monitoring</p> <p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p>
<u>Corrective Action Request No.16.</u> Describe in details about the methods and procedure that will be applied for estimation of the data and parameter related to leakage like “capacity of the track carrying biomass”, “distance of procurement”, “Mileage of vehicle”, “density of fuel” and “calorific value of transport fuel”.	B.7.1.3.	No leakage has been considered therefore no method and procedures are required for estimation of parameter mentioned in CAR No.14	<p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p>
<u>Corrective Action Request No.17.</u> The operational and management structure is not clearly described in section B.7.2 and Annex 4. Provide information about person responsible for data monitoring,	B.7.2.1.	Revised PDD describes B.7.2 clearly.	<p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

data verification, report preparation, data archiving etc.			
<u>Clarification Request No. 1.</u> PDD indicates the usage of two types of biomass like ground nut shell and rice husk in the Fluidised bed combustion. However, the same system can use any type of biomass residue. Revise the PDD accordingly.	A.2.1.	Revised PDD mentions usage of different types of renewable biomass.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/>
<u>Clarification Request No. 2.</u> Modalities of communication and Host Country Approval needs to be submitted to DOE.	A.3.2.	The project proponent has received Host Country Approval and has submitted Modalities of communication.	<u>Response by the audit team</u> The host country approval has been submitted to the DOE. Modality of Communication is still waited from client. <u>Response by the PP</u> Find attached the required Modalities of Communication document. <u>Final response by the audit team</u> <input checked="" type="checkbox"/>
<u>Clarification Request No. 3.</u> PDD mentions about crushing unit as well as shredding system in the technical description. However, no system of crushing or shredding is available as the received biomass does not require any further crushing or shredding. Explain and revise the PDD.	A.4.2.6	The biomass residue from supplier is pre-shredded and then made available to H&R Johnson, Kunigal, therefore no requirement of shredding and crushing is required in the project activity. The point is explained and revised in PDD.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

<p><u>Clarification Request No. 4.</u> Explain the “criteria 1” and “criteria 2” as mentioned in the justification of the project activity. Is it the criteria of small scale activity or type I C? Describe clearly that the generation capacity is specified by the manufacturer is less than 15 MW.</p>	B.1.2.2.	The criteria and its justification provided is a part of technology/measure section of AMS I.C. Revised PDD clearly describes project generation capacity is less than 15 MW.	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 5.</u> What are the agro-residue biomass depot and fuel yard? Is it an additional storage of biomass inside the project location? If yes, then it should be included in the project boundary.</p>	B.3.1.	Biomass residue yard is a part of the project boundary, where the biomass residues are stored not more than 20 days. There is no additional storage besides this biomass storage area.	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 6.</u> Clarify why LPG has not been considered in the list of plausible alternatives to meet hot air generation.</p>	B.4.1.	LPG has been considered as one of the probable alternative in baseline scenario analysis same can be found in the revised PDD.	<p><u>Response by the audit team</u> The same is been accepted. However, Explain why the same has not been considered further in cost analysis.</p> <p><u>Response by the PP</u> We have considered LPG as an plausible option in the baseline analysis. In case HRJK, the burner fitted prior to the FBC system was capable to fire liquid fossil fuels only. Therefore to fire LPG in system, it would require a gas fire burner and associated assemblies. Since the cost of LPG was very high when compared to FO, coal and biomass, LPG option was naturally ruled out from the analysis.</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>As the cost associated with the LPG burner assemblies was not ventured, therefore we cannot provide complete analysis of LPG option in the Levelised cost analysis sheet.</p> <p>The same can be validated from B.4</p> <p><u>Response by the audit team</u></p> <p>It has been argued in the response that the burner fitted prior to the FBC system was capable to fire liquid fossil fuel only. The same is true for other alternatives also. Explain with supporting documents about the statement made on high cost of LPG in comparison with FO, coal and biomass.</p> <p><u>Response by the PP:</u></p> <p>Purchase orders of LPG are attached as proof of price of LPG during project conception. Also a price comparison among LPG, FO, Coal & biomass have been provided in the file -- Detail hot air costing Kunigal.xls</p> <p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p> <p>The cost of LPG is very high in compare to other fuels. Also, the burner used in the system is not meant for gaseous fuel which means an additional cost for the project proponent. By considering these two factors project proponent decided not to include the LPG in the alternative analysis as the same is not a possible and feasible alternative to the project.</p>
<p><u>Clarification Request No. 7.</u></p> <p>In the table B-1: assessment of all real and credible alternatives with HRJK in absence of the project</p>	B.4.1.	The levelized hot air generation cost mentioned in table B.4(a) is INR per Metric Tonne (MT) of dust generated. The same is re-	<p><u>Final response by the audit team</u></p> <p><input checked="" type="checkbox"/></p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

activity, levelized hot air generation cost is mentioned as "INR/MT". It is not clear whether the MT of total production or dust or intermediate has been taken into the consideration.		vised in PDD.	
<u>Clarification Request No. 8.</u> It has been stated that uncertainties in biomass is a technical barrier to this project. Explain how it can be a technical barrier.	B.5.15.	Uncertainties in availabilities and price mechanism are a part of other barrier and not technical barrier. Same has been revised in the PDD.	<u>Response by the audit team</u> It must be clarified if the biomass is available in surplus quantity in the region, why is there uncertainty in biomass prices. <u>Response by the PP</u> 2. Refer to Surplus biomass assessment report which was provided to you during validation. Surplus availability of different biomass residues available in the regional radius of 50 kms have been described. 3. Why uncertainties in biomass prices? Ground nut, rice and coffee are three major cash crops available near around Kunigal, which comes under Tumkur district. Till date biomass residues used to be wasted or burnt on fields. However with inquiries from trader and manufactures as energy source, the unit price of these biomass residues have risen drastically and in uncontrolled manner. Moreover the biomass residue market being un regulated does not have any control of fix price. This exposes the project promoter (HRJK) to different prices as per seasonal changes. These factors govern the uncertainties in biomass availability and prices and have been explained in section Table -B.4 of PDD, Page 16. <u>Response by the audit team</u> The explanation by the PP mainly focussed on the uncertainty

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>of prices not the uncertainty of the availability of biomass. Remove the uncertainty of the biomass availability from the PDD. Also, if PP wants to include the uncertainty of biomass price, the same must be substantiating with the authentic documents like biomass price over the years in the region or price trend analysis.</p> <p><u>Response by the PP:</u> Biomass availability and price uncertainty have been removed from barrier section in PDD.</p> <p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 9.</u> PDD describes that the significant amount of site development cost as other barrier. Explain in details about the cost and also how can it be consider as a barrier? The cost of site development has already been considered in the leveled cost comparison analysis.</p>	B.5.15.	Cost incurred in site development is a part of Financial barrier which is considered in Levelised unit cost calculation sheet	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 10.</u> Submit the sources of 3 MT/day ash generations as mentioned in the PDD. Additionally, also provide the supporting evidences about the difficulties faced in utilisation of the ash in consideration of alternation of product properties</p>	B.5.15.	<p>Ash generated is utilized as raw material in dust production. A batch card of ball mill which specifies percentage of ash used in raw material is submitted to the validator.</p> <p>The report indicates the complete utilization of ash quantity from</p>	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p> <p>Batch card of production ensures the full utilisation of the ash. Inconsideration to the sensitive quality issue of the dust properties, the same was accepted to be an additional barrier.</p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

as mentioned in the PDD.		FBC. The dust produced gas to be of desired granulometry, otherwise drastically affects the product quality. Proportionate addition of ash was required to prevent any alteration of dust properties. This was a major barrier and challenge faced in ash utilization as raw material in dust manufacturing.	
<u>Clarification Request No. 11.</u> Clarify how CDM component will help you in overcoming these barriers. Include the information in the PDD.	B.5.18.	Section B.5 explains different barriers faced and how CDM revenues will help the project activities will reduce costs and un-certainties involved in the project. End of the section B.5, we have described the impacts of CDM that will reduce risks involved.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/> Minutes of Board of Directors meeting dated 9 th and 10 th January 2003 has been submitted. This demonstrates that the CDM was considered in the management decision for implementing the project activity.
<u>Clarification Request No. 12.</u> Baseline emission i.e. 9,773 tCO ₂ e has been calculated on actual consumption of biomass in the time frame of April 2005 to March 2007. Explain the same in the PDD.	B.6.1.4.	The revised PDD mentions time frame of actual biomass consumption.	<u>Response by the audit team</u> Time frame has been mentioned. However, also see the CAR 6 for audit team comments. <u>Response by the PP</u> Refer to CAR 6 for our replies. <u>Response by the audit team</u> See the comments on CAR 6. Also, baseline emission is calculated on the basis of design parameter given in the supplier data sheet and published data on calorific values of fuel, efficiency coefficient and oxidation factor.

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

			<p>Mention the same specifically in the PDD.</p> <p><u>Response by the PP:</u> Same has been included in the PDD. Refer to page no 19.</p> <p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 13.</u> Section B.6.2 incorrectly mentions 4000 kcal/kg as calorific value of biomass. It should be calorific value of coal.</p>	B.6.2.1.	<p>Correction of calorific value along with necessary documentary evidence has been done in the revised PDD.</p>	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 14.</u> Submit the authentic documents for all the assumptions while calculating the emission reduction. For example, "km/litre of diesel", "average truck load" and "density and calorific value of diesel".</p>	B.6.3.2.	<p>Authentic documents along with source for assumption and value in emission reduction and unit cost calculation have been provided in the revised PDD and same has been submitted to the validator.</p> <p>Considering distance travelled by trucks to carry coal to the project activity would have been more than for biomass transport, we have eliminated leakage estimation for the project.</p>	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>
<p><u>Clarification Request No. 15.</u> As per the PDD, biomass consumption will be measured at</p>	B.7.1.3.	<p>Biomass enters through main gate of the Kunigal factory, where it is weighed and the net weight</p>	<p><u>Final response by the audit team</u> <input checked="" type="checkbox"/></p>

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52



Industrie Service

weigh bridge at the plant and MIS will account the data. How the data will be entered in MIS system is not clear. Is the data will be entered by store in charge or by production in charge as per the daily consumption?		receipt is taken to store. The store personnel prepare a Goods receipt number (GRN) which is linked with the SAP system. Thereafter the net weight is entered in the SAP system. The stores person is responsible for data entry. This data monitoring approach is described in Monitoring table under parameter of biomass quantity.	
<u>Clarification Request No. 16.</u> Mention clearly the sources of the data to be used in actual monitoring for each data/parameter.	B.7.1.3.	Revised PDD mentions clearly sources of data to be monitored.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/>
<u>Clarification Request No. 17.</u> Value of distance of procurement including return journey of vehicle applied as 300 Km in B.7.1. is different from 400 Km as applied in the emission calculation.	B.7.1.3.	Biomass transport is very less (50kms) when compared with coal transport which is greater than 300 kms The revised PDD does not consider leakage calculation. Therefore the revised PDD shall not included distance based calculation for transport leakages.	<u>Final response by the audit team</u> <input checked="" type="checkbox"/>
<u>Clarification Request No. 18.</u> Submit the supporting documents for the 20 years of expected operational life time of the project activity.	C.1.1.	Documentary evidence for the starting date of the project activity is firm purchase order placed on M/s Radhe Renewable Energy Associates. Justification for project activity life	<u>Response by the audit team</u> Some third party certification or supplier confirmation related to the operation life time of the project activity. <u>Response by the PP:</u> Third party certificate on operation life time of the smelter is at-

Validation Protocol

Project Title: Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal

Date of Completion: 16.01.2008

Number of Pages: 52




Industrie Service

		time of 30 years is operation experience of H&R Johnson, Dewas in Tile manufacturing and its related processes. Since last 50 years H&R Johnson Dewas is operating tile manufacturing facility which provides justification for the clarification.	tached. <u>Final response by the audit team</u> <input checked="" type="checkbox"/>
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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

Final Report	16.01.2008	Validation of the “Hot air generation using renewable biomass fuel for spray drying application at H & R Johnson(India) Ltd., Kunigal” Information Reference List	Page 2 of 2	 Industrie Service
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Reference No.	Document or Type of Information
17.	Hot air generation cost comparison report, no date, submitted April 2007.
18.	Instruction manual for hot air generator by Radhe Renewable Energy Development Pvt. Ltd., no date, submitted April 2007.
19.	Consent from Karnataka Pollution Control Board dated 2 July, 2005, submitted April 2007.
20.	Copy of latest factory license dated 19 April, 2007, submitted April 2007.
21.	Minutes of stake holder comments and consultation, 1 July, 2006, submitted April 2007.
22.	Revision to approved baseline and monitoring methodology I C, Version 9, 23 December 2006.
23.	UNFCCC homepage http://www.unfccc.int
24.	Final PDD submitted December 2007.