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# VALIDATION REPORT

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## JIANLI KAIDI BIOMASS POWER PROJECT IN CHINA

REPORT No. 01 997 9105048660

REVISION No. 03

# VALIDATION REPORT

Date of first issue: 2008-11-30	Project No.: 153107028	<i>TÜV Rheinland Japan Ltd.</i>
Approved by:  Dr. Manfred Brinkmann	Organisational unit: Industrial Services Energy and Environment Technology	<i>Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama 222-0033</i>
Client: Camco International Limited	Client ref.: Ms. Madeleine Rawlins	

**Project Name:** Jianli Kaidi Biomass Power Project

**Country:** China

**Methodology:** ACM0006

**Version:** 06.2

**GHG reducing Measure/Technology:** Renewable energy / Biomass Residue

**ER estimate:** 164,694 tCO<sub>2</sub>/year

**Size**

☒ Large Scale

☐ Small Scale

**Validation Phases:**

☐ Desk Review

☐ Follow up interviews

☒ Resolution of outstanding issues

**Validation Status**

☐ Corrective Actions Requested

☐ Clarifications Requested

☒ Full Approval and submission for registration

☐ Rejected

In summary, it is the validation team's opinion that Jianli Kaidi Biomass Power Project in China, as described in the PDD of version 03, 10 July 2009 meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria applies the baseline and monitoring methodology ACM0006 (version 06.2). TÜV Rheinland thus requests the registration of the Project as a CDM project activity with the UNFCCC.

Report No.: 01 997 9105048660	Date of this revision: 2009-10-12	Rev. No. 03
Report title: Jianli Kaidi Biomass Power Project in China		
Work carried out by: - Sequoia A, Team Leader - ZHU Jiang, Trainee		
Work verified by: Dr. Manfred Brinkmann		

Key words:

Climate Change

Kyoto Protocol

Validation

Clean Development Mechanism

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## Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DNA	Designated National Authority
EF	Emission Factor
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MP	Monitoring Plan
NCV	Net Calorific Value
NDRC	National Development and Reform Commission
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change

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## 1 EXECUTIVE SUMMARY – VALIDATION OPINION

The validation team assigned by the DOE (TÜV Rheinland Japan Ltd.) has performed a validation of the “Jianli Kaidi Biomass Power Project” in P.R.China on the basis of UNFCCC criteria for Clean Development Mechanism (CDM) projects according to Article 12 of the Kyoto Protocol and subsequent decisions of the CDM Executive Board with regard to CDM modalities and procedures and the application of approved methodologies. The validation report and the validation protocol summarize the findings of the validation.

The review of the project design documentation and the subsequent follow-up interviews have provided DOE with sufficient evidence to determine the fulfillment of stated criteria.

The Validation was executed in the following steps so far:

- Project desk review (PDD Version 01, 27 August 2008)
- Public stakeholder comment process(25 September 2008 to 24 October 2008)
- On-site visit with stakeholder interviews(27 to 30 October 2008)
- Issue of checklist with corrective action requests (CARs) and clarification requests (CLs) and the draft validation report & protocol (Version 00, 30 November 2008)
- Desk review of revised PDD (version 03, 10 July 2009 )
- Review of proposed correction and clarifications
- Issue of the final validation report & protocol

The host country of the proposed project is P.R.China. The Letter of Approval (LoA) of voluntary participation, including confirmation by China’s DNA National Development & Reform Commission (NDRC) that the project assists them in achieving sustainable development has been received.

According to the revised PDD, the project activity is bilateral CDM-project, with United Kingdom of Great Britain and Northern Ireland identified as the Annex I party, the LoAs from which have also been provided.

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

The project applies approved consolidated baseline and monitoring methodology ACM0006 “*Consolidated methodology electricity generation from biomass residues*” .

And also the project applies the tools as follows:

- “*Combined tool to identify the baseline scenario and demonstrate additionality*”. (Version 02.2)
- “*Tool for the demonstration and assessment of additionality*”(Version 05.2)
- “*Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion*”

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(Version 02)

- *“Tool to calculate baseline, project and/or leakage emissions from electricity consumption”* (Version 01)

The total emission reductions from the project are estimated to be on the average 164,694 tCO<sub>2</sub>/year over the first crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate monitoring procedures have been implemented according to the monitoring methodology ACM0006. Project operational staff's training records is available to the Audit Team.

The project proponent has resolved all Corrective Action Requests and Clarification Requests as stated in the Validation Report and the Validation Protocol, which has resulted in a revision of the PDD. In summary, it is the validation team's opinion that the Jianli Kaidi Biomass Power Project in P.R.China as described in the PDD of version 03, 10 July 2009, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and applies the baseline and monitoring methodology ACM0006. TÜV Rheinland thus requests the registration of the Project as a CDM project activity.

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## 2 INTRODUCTION

Camco International Limited has commissioned TÜV Rheinland to perform a validation of the project Jianli Kaidi Biomass Power Project in China (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board.

### 2.1 Objective

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

### 2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual, version 01, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

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## 3 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design documents
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

### 3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the validation:

- /1/ Camco International Limited, Project Design Document for the “Jianli Kaidi Biomass Power Project”, version 03, 10 July 2009
- /2/ Camco International Limited, Project Design Document for the “Jianli Kaidi Biomass Power Project”, version 01, 27 August 2008
- /3/ The National Development and Reform Commission of the People’s Republic of China, Letter of Approval, January 2009
- /4/ International Climate Change , Letter of Approval for Camco International Limited, 13 February 2009
- /5/ International Climate Change, Letter of Approval for Camco Carbon Limited, 13 February 2009
- /6/ CDM Executive Board, ACM0006 “*Consolidated methodology electricity generation from biomass residues*”, Version 06.2
- /7/ CDM Executive Board, Combined tool to identify the baseline scenario and demonstrate additionality, Version 02.2
- /8/ CDM Executive Board, Tool for the demonstration and assessment of additionality, Version 5.2
- /9/ CDM Executive Board, Tool for calculation of emission factor for electricity systems ,Version 1.1
- /10/ CDM Executive Board, Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion ,Version 02
- /11/ CDM Executive Board, Tool to calculate baseline, project and/or leakage emissions from electricity consumption ,Version 01
- /12/ CDM Executive Board, Clean Development Mechanism Project Design Document Form (CDM-PDD), Version 03



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- /13/ CDM Executive Board, Guidelines For Completing The Project Design Document (CDM-PDD) And the Proposed New Baseline And Monitoring Methodologies (CDM-NM), Version 7, Annex 12 EB41 Report
- /14/ CDM Executive Board, Clean Development Mechanism Validation and Verification Manual, Version 01
- /15/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Feasibility Study Report for Jianli Kaidi Biomass Power Project ( $4 \times 12\text{MW}$ ), September 2007
- /16/ Development and Reform Commission of Hubei Province, Approval for Jianli Kaidi Biomass Power Project Phase 1 ( $2 \times 12\text{MW}$ ), 5 November 2007
- /17/ Environment Science Institute of Hubei Province, Environmental Impact Assessment for Jianli Kaidi Biomass Power Project( $4 \times 12\text{MW}$ ), July 2007
- /18/ Environment Protection Bureau of Hubei Province, Approval of EIA for Jianli Kaidi Biomass Power Project ( $4 \times 12\text{MW}$ ), 17 July 2007
- /19/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Biomass Availability Report, September 2007
- /20/ Development and Reform Bureau of Jianli County, Construction Progress Report for Jianli Kaidi Biomass Power Project, 22 October 2008
- /21/ State Council Office, Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below, June 2002
- /22/ Camco International Limited, IRR Calculation Sheet,
- /23/ Camco International Limited, Emission Reduction Calculation Sheet,
- /24/ National Development and Reform Commission of P.R.China, Notification on Determining Baseline Emission Factor of China's Grid, 31 December 2008
- /25/ China Renewable Energy Law, 1 January 2006
- /26/ Wuhan Kaidi Electric Power Engineering Co., Ltd. & Jiangxi Jianglian Energy and Environment Inc., 65t/h Boiler Components Purchasing Contract, November 2007
- /27/ Wuhan Kaidi Electric Power Engineering Co., Ltd. & Nanjing Steam Turbine Co., Ltd., Steam Turbines Purchasing Contract, 6 November 2007
- /28/ Wuhan Kaidi Electric Power Engineering Co., Ltd. & Nanjing Steam Turbine Co., Ltd., Generators Purchasing Contract, November 2007
- /29/ Hubei Electric Power Co., Advice on Paralleling Design for Jianli 48MW Biomass Power Project (*e'diansifazhan [2007]154*)
- /30/ Jianli Biomass Power Plant, Technical Training Records
- /31/ Wuhan Kaidi Investment Holding Ltd., CDM Monitoring & QC Manual, 4 September 2008

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- /32/ Merchants Bureau of Jianli Country, Confirmation Letter Regarding No Other Biomass Project Existing in Jianli Country (*jianzhaohan [2008] 65*), 10 December 2008
- /33/ Jianli Statistics Bureau, Jianli Statistical Yearbook, 2007
- /34/ 135MW Notice on Strictly Prohibiting the Illegal Installation of coal-fired Generators with the Capacity of 135MW or below issued by the General Office of the State Council, Guo Ban Fa Ming Dian decree No. 2002-6
- /35/ Electricity Dispatching Department of State Power Co., Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects, March 2003
- /36/ Environment Science Institute of Hubei Province, Stakeholder Interview Records for Jianli Kaidi Biomass Energy Power Project, July 2007
- /37/ Central Southern China Electric Power Design Institute of China Power Engineering Consulting, Introduction for Life Span of Industry Boilers in Jianli, 30 August 2008
- /38/ China Standard Press, Application Manual of Boiler Strength Calculation, December 1998
- /39/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Analysis for 'Heat Distribution of Jianli Kaidi Biomass Project' (*kaidigongchenghan[2008]031*), 6 December 2008
- /40/ Environment Protection Bureau of Jianli County, Introduction of Local Biomass Uncontrolled Burning (*jianhuanhan [2008] 35*), 10 December 2008
- /41/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Introduction Letter Regarding the Operation Hour Defined in the 'FSR for Jianli Biomass Project' (*kaidigongchenghan [2008]034*), 8 December 2008
- /42/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Introduction Letter Regarding the Electricity Tariff Defined in the 'FSR for Jianli Biomass Project' (*kaidigongchenghan [2008]033*), 8 December 2008
- /43/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Introduction Letter Regarding the Biomass Purchasing Price Defined in the 'FSR for Jianli Biomass Project' (*kaidigongchenghan [2008]032*), 8 December 2008
- /44/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Introduction Letter Regarding the Project Operation Life (*kaidigongchenghan [2008]036*), 8 December 2008
- /45/ Hubei Huanyu Construction Supervising Co., Jianli Project Department, Construction Approval Form (*HJ-A1-02-T003*), 14 April 2008
- /46/ Wuhan Kaidi Investment Holding Ltd., Board Resolution Regarding Applying CDM Activity for Biomass Projects (*konggu dongzi [2007] 12*), 21 September 2007
- /47/ Wuhan Kaidi Electric Power Engineering Co., Ltd. & Hubei No.1 Electric Power Erection Co., Ltd., Construction Contract of Main Buildings & Project Installation, 27 November 2007

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- /48/ Jianli Kaidi Green Energy Development Co., Ltd. & Camco International Ltd., CDM Consultation Agreement, 1 November 2007
- /49/ National Development and Reform Commission, Renewable Energy Electricity Tariff and Cost Management Trial Regulations (*fagaijiage [2006] 7*), 4 January 2006
- /50/ Enterprise Incoming Tax Law of People's Republic of China
- /51/ Ministry of Finance P.R.China & State Administration of Taxation, Notice on Value Added Tax Policy Regarding Resource Multiutilization and Other Products, 24 June 2003
- /52/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Introduction Letter Regarding the Steam Price Defined in the 'FSR for Jianli Biomass Project' (*kaidigongchenghan [2008]039*), 8 December 2008
- /53/ Steam Price in Garment Industry Zone of Cenhe County Jinzhou City, available at : '<http://sschz.shashi.gov.cn/dongtai/list.asp?id=864>', accessed by the Audit Team on 14 January 2009
- /54/ Wuhan Kaidi Electric Power Engineering Co., Ltd., Introduction Letter Regarding the Operation Hour, 20 March 2009

Main changes between the version published for the 30 days stakeholder commenting period and the final version submitted for registration:

- Changes related to the CAR and CL identified in the TÜV Rheinland's draft validation report to the Project;
- Annex I party is changed from *Netherlands* to *United Kingdom of Great Britain and Northern Ireland* by the project proponent;
- Project participate from Annex-I party is changed from *Camco International* to *Camco International Limited* and *Camco Carbon Limited* by the project proponent

### 3.2 Follow-up Interviews with Project Stakeholders

	Date	Name/Title	Organization	Topic
/I/	2008-10-27	- LV Jianhuai /Director	Carbon Asset Management	- Project Management
		- HAO Jin /Manager	Centre, Wuhan Kaidi Electric Power Co., Ltd.	- Technical issues
		- ZHANG Zhenquan / Manager		- Approval status by the host country
		- HUANG Qionghua		- Sustainable development issues
		- LI Qian		- Investment risks and barriers
				- Additionality
				- Monitoring plan

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		<ul style="list-style-type: none"> <li>- HE Xiaoquan</li> <li>- XIONG Zhi</li> </ul>		<ul style="list-style-type: none"> <li>- Training plan</li> <li>- Environmental impacts</li> <li>- Stakeholder process</li> <li>- Financial source</li> <li>- CDM incentive consideration</li> </ul>
/II/	2008-10-27	<ul style="list-style-type: none"> <li>- ZHANG Yanfeng/Department Director</li> <li>- GUO Hongzhi/Vice Department Director</li> <li>- CHENG Dongping/General Engineer</li> <li>- REN Wenxiu</li> </ul>	Wuhan Kaidi Electric Power Engineering Co., Ltd.	<ul style="list-style-type: none"> <li>- Project design</li> <li>- Project implementation</li> <li>- Scenario prior to implementation of the Project</li> <li>- Heat supplying</li> <li>- Biomass supplying</li> </ul>
/III/	2008-10-27	<ul style="list-style-type: none"> <li>- YAO Hui/Investment Supervisor</li> <li>- DONG Bin/Vice Administration Director</li> </ul>	Kaidi Cost Control Center	<ul style="list-style-type: none"> <li>- Project financial plan</li> <li>- Project financial risk analysis</li> <li>- IRR calculation</li> </ul>
/IV/	2008-10-27	<ul style="list-style-type: none"> <li>- Madeleine Rawlins/Director</li> <li>- SUN Li/Project Manager</li> <li>- GONG Jin/Project Assistant</li> <li>- LIU Ya'nan/Project Assistant</li> </ul>	Camco International Limited	<ul style="list-style-type: none"> <li>- PDD discussion</li> <li>- Baseline discussion</li> <li>- Emission reduction discussion</li> <li>- Monitoring discussion</li> </ul>
/V/	2008-10-29	<ul style="list-style-type: none"> <li>- WU Zunlian/Vice Director</li> </ul>	Development and Reform Bureau of	<ul style="list-style-type: none"> <li>- Local energy supply condition</li> </ul>

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			Jianli County	-	Positive or negative impact brought by the Project
/VI/	2008-10-29	- HAO Liqiong	Environmental Protection Bureau of Jianli County	-	Local environmental condition
				-	EIA approval status
				-	Environmental impacts during project construction and protection measures applied
/VII/	2008-10-29	- GAO Xiangxiong	Agriculture Bureau of Jianli County	-	Biomass availability
/VIII/	2008-10-29	- MAO Xiangyun	Government of Jianli County	-	Project background
		-		-	Project implementation
/IX/	2008-10-29	- LUO Xu	Jianli Biomass Power Plant	-	Project technology discussion
		- BAI Hong			
/X/	2008-10-29	- WANG Haiquan	Jianli Grandmother Pharmaceutical Co., Ltd.	-	Heat demanding
				-	Boiler condition
/XI/	2008-10-29	- DENG Yewei	Double Crane Pharmaceutical Co., Ltd.	-	Heat demanding
				-	Boiler condition
/XII/	2008-10-29	- ZHANG Yi	Maxleaf	-	Heat demanding
				-	Boiler condition
/XIII/	2008-10-30	- TANG Shanyuan	Qixin Rice Corporation	-	Rice husk supply condition

### 3.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

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The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for the Jianli Kaidi Biomass Power Project is enclosed in Appendix A to this report.

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

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

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

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

  

<b>Validation Protocol Table 2: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (<b>OK</b>), or a <b>corrective action request (CAR)</b> due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i>

  

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

**Figure 1 Validation protocol tables**

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### 3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification.

### 3.5 Validation Team

Role/Qualification	Last Name	First Name	Affiliation of Team Members
Team Leader	A	Sequoia (Qingxing)	TÜV Rheinland (Shanghai) Co., Ltd.
Trainee/ MEng	ZHU	Jiang	TÜV Rheinland (China) Ltd.
Technical Reviewer PhD	Brinkmann	Manfred	TÜV Rheinland Japan Ltd.



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### 4 VALIDATION FINDINGS

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

The final validation findings relate to the project design shall be documented and described in the revised and resubmitted project design documentation.

#### 4.1 Approval and Participation

The below table summarizes the project participants and parties involved. The authenticity of the letter of approval from host country has been validated by checking on Chinese DNA's website. The authenticity of the letter of approval from Annex I country United Kingdom of Great Britain and Northern Ireland has been checked by making a comparison to the LoA issued by International Climate Change, to the latest registered CDM project. These LoA(s) are regarded as valid and meeting the requirements.

<b>Project participants</b>	<i>1. Jianli Kaidi Green Energy Development Co., Ltd</i>	<i>2. Camco International Limited</i>	<i>3. Camco Carbon Limited</i>
<b>Parties involved</b>	<i>P.R.China (host)</i>	<i>United Kingdom of Great Britain and Northern Ireland</i>	<i>United Kingdom of Great Britain and Northern Ireland</i>
<b>Ratification status of the parties</b>	<i>China ratified the Kyoto Protocol on 30 August 2002.</i>	<i>United Kingdom of Great Britain and Northern Ireland, the Annex I party, ratified the Kyoto Protocol on 31 May 2002</i>	
<b>APPROVAL</b>			
LoA received	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Date of LoA	<i>Jan. 2009</i>	<i>13 Feb. 2009</i>	<i>13 Feb. 2009</i>
Reference to document	<i>Ref./3/</i>	<i>Ref./4/</i>	<i>Ref./5/</i>
LoA received from	<i>The project participants</i>	<i>The project participants</i>	<i>The project participants</i>
Validation of authenticity	<i>All approved CDM projects by DNA of China NDRC will be published on: 'http://cdm.ccchina.gov.cn/'.</i>	<i>The Audit Team made a comparison between the LoA of the Project with that of the latest registered CDM project as UK as</i>	<i>The Audit Team made a comparison between the LoA of the Project with that of the latest registered CDM project as UK as the</i>

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	<i>The Project is indicated as approved by China DNA, source: <a href="http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3284">‘http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=3284’</a></i>	<i>the Annex I party and no doubts were found.</i>	<i>Annex I party and no doubts were found.</i>
Validity of LoA	<i>Valid</i>	<i>Valid</i>	<i>Valid</i>
<b>PARTICIPATION</b>			
Party is party to Kyoto Protocol	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Voluntary participation	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Diversion of official development aid towards host country	<i>No</i>		
Project contribution to SD	<i>Yes</i>	<i>N/A</i>	<i>N/A</i>

### 4.2 Project Design Document

The Project Design Document is based on the currently valid PDD template/12/and is completed in accordance with the applicable guidance document /13/.

### 4.3 Project Description

Based on the project Feasibility Study Report/15/ (FSR), the proposed project, located at Chengdong Industry Zone of Jianli County, is to utilize the biomass material (mainly consists of rice husk) as the fuel for two sets of 65t/h Circulating Fluidized Bed (CFB) boiler and two units of 12 MW steam turbine and 15 MW generator. There are three operational conditions for the steam turbine generator unit as the following. 1) Rated operation condition, 12MW power generation and 15t/h heat supply. 2) Maximum condensing condition, 15MW power generation and 0t/h heat supply. 3) Maximum extraction condition, 6.59MW power generation and 45t/h heat supply. The install configuration is confirmed by the Audit Team by reviewing the project approval/16/ and the CFB and steam turbine generator's purchasing contract /26//27//28/. By the time of on site assessment, the CFB and the workshop was under construction.

Starting date of project activity	Expected project operational lifetime	Crediting period
<i>6 November 2007</i>	<i>20 Years as applied in the financial analysis</i>	<i>7 years</i>

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The project annual net generated electricity amount is expected to be 126,720MWh. The project will connect with Central China Power Grid (CCPG) at the 110kv Yusha Substation through 110kv transmission line /29/. According to the interview with Mr.WU Zunlian /V/, the vice director from the local Development and Reform Bureau, the enterprises located at Chengdong Industry Zone depend on installation the fossil fired boilers of their own to meet their heat demand. The Project is expected to deliver 541,602GJ annually of heat to those heat consumers located in the Chengdong Industry Zone.

All the training records /30/ have been provided by the project proponent and verified by the Audit Team. It shows that the project operational staffs have received theory, practice and management training.

In Audit Team's opinion, the project description is accurate and complete.

### 4.4 Baseline and Monitoring Methodology

#### 4.4.1 Applicability of the selected methodology to the project activity

The Project activity applies the ACM0006, Version 06.2, "*Consolidated methodology electricity generation from biomass residues*". The compliance of the Project is presented as follows:

1. The main fuel consumed by the project is biomass residues, which can be evidenced by the project FSR. According to the FSR/15/, except some small part of diesel will be used for project start up, no other fossil fuel is expected to be consumed by the project.
2. Only biomass from local agricultural residues will be used by the project, not from production process.
3. All biomass residues won't be stored more than one year. The rice husks are directly bought from the rice mills and transported to the plant and the straws are directly bought from the farmers at the temporary storage stations.
4. According to the FSR/15/ and on site assessment, it can be confirmed except for transportation of biomass and mechanical pre-treatment biomass, no-significant energy quantities will be used.

Moreover, for the indicative applicability of different scenarios, the proposed project activity meets the requirement of Scenario 2 because of the following,

1. The proposed project activity is a Greenfield project.
2. The proposed project activity is a cogeneration project.
3. The baseline scenario of Power generation is identified as P4.
4. The baseline scenario of Biomass usage is identified as B1 and B3.
5. The baseline scenario of Heat supply is identified as H6.

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The following tools are employed for the proposed project activity, “Combined tool to identify the baseline scenario and demonstrate additionality, Version 02.2”, “Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion, Version 02”, “Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01” and “Tool to calculate the emission factor for an electricity system, Version 01.1”. The Audit Team have verified and can confirm the project activity meets each of the applicability conditions of these tools.

### 4.4.2 Project Boundary

During on site assessment, the Audit Team could confirm the project location. The physical project boundary also includes the means of biomass residues transportation, the heat users, the power system of the project, the sites where the biomass residues would have been left decay or dumped and the biomass collection sites where the straws will be pre-treated. The biomass residues transportation means is the trucks. The heat users are mainly targeted those enterprises located in the Chengdong Industry Zone and the sites where the biomass residues are dumped in Jianli County. During on site assessment, the Audit Team also interviewed the heat consumers like *Jianli Grandmother Pharmaceutical Co., Ltd./X/*, *Double Crane Pharmaceutical Co., Ltd./XI/*, *Maxleaf/XII/* and *Qixin Rice Corporation/XIII/*. The grid system boundary includes all the power plants connecting to the CCPG, which geographical range includes the Henan Power Grid, Sichuan Power Grid, Chongqing Power Grid, Hubei Power Grid, Jiangxi Power Grid and Hunan Power Grid. The project has included the CH<sub>4</sub> both in baseline emissions and in project emissions as required by the methodology. The Audit Team can confirm that the identified boundary and the selected sources and gases are justified for the project activity.

The emissions sources included in the project boundary are identified as the following table.

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	<b>GHGs involved</b>	<b>Description</b>
<b>Baseline emissions</b>	<i>CO<sub>2</sub>, CH<sub>4</sub></i>	<i>CO<sub>2</sub> is the main emission source from fossil fired power plants in CCPG and the heat consumers located in Chendong Industry Zone. CH<sub>4</sub> is the main emission source from uncontrolled burning or decay of biomass</i>
<b>Project emissions</b>	<i>CO<sub>2</sub>, CH<sub>4</sub></i>	<i>CO<sub>2</sub> is the main emission source from on site biomass treatment or boiler start up or biomass transportation. CH<sub>4</sub> is the main emission source from biomass combustion for electricity or heat generation.</i>
<b>Leakage</b>	<i>Not involved</i>	<i>Leakage is excluded in the PDD by demonstration that there is an abundant surplus of the biomass residue in the region of the project activity which is not utilized. See discussion in section 4.4.4 of this report.</i>

### 4.4.3 Baseline Identification

The baseline of the Project is identified by applying the approved consolidated monitoring methodology ACM0006, version 06.2-“*Consolidated methodology electricity generation from biomass residues*” . The baseline scenario of the project is in compliance with scenario 2 as indicated in Table 2 of ACM0006, version 06.2. A detailed account of the how scenario 2 is selected has been given in the PDD. The Audit Team has examined it by on site assessment, interviewing the local stakeholders and documents review.

<i>The approved baseline methodology applicable to the project</i> - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>As discussed in Section 4.4.1, the compliance of the methodology has been justified in the PDD and verified by the Audit Team.</i>
<i>PDD includes all assumptions and data used by project participants</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>All assumptions regarding the power generation, heat supplying and biomass disposal are included in the PDD.</i>

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<i>All the references and documents used are relevant for establishing the baseline scenario</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>All the references and documents used are correctly quoted and conservatively interpreted in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>All relevant policies / regulations considered are listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Regulation like 'Notice on Strictly Prohibiting the Illegal Installation of coal-fired Generators with the Capacity of 135MW or below issued by the General Office of the State Council' 21/ is clearly listed in the PDD.</i>
<i>Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Yes.</p> <ul style="list-style-type: none"> <li>- For power generation, it is confirmed by the Audit Team during on site assessment and interview with the local government officer/V/ that the project is a greenfield one installed at where no power generation occurs before. Without the project, power would be purchased from CCPG.</li> <li>- For heat supplying. By interviewing the local government officer/V/ and the heat consumer /X//XI//XII/at the Chengdong Industry Zone, the, and by heat supplying condition introduction letter issued by Wuhan Kaidi Electric Power Engineering Co., Ltd./39/ the Audit Team can confirm that there is no district heat supplying network. Heat supplying has always been installing fossil fired boilers.</li> <li>- For biomass disposal, it is evidenced by interviewing the officer/VI/ from Environment Protection Bureau of Jianli County and the officer/VII/ from</li> </ul>

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		<i>Agriculture Bureau of Jianli County that dumping or uncontrolled burning has always been a common phenomena/40/. It is also evidenced by the local merchants bureau/32/ that except the project, there is no other biomass processing plants.</i>
<i>The baseline scenario selection is appropriate and determined according to the methodology</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>'Combined tool to identify the baseline scenario and demonstrate additionality, Version 02.2' is applied to determine the baseline scenario.</i>
<i>The approved methodology used is applicable to the identified baseline scenario</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

To the Audit Team's opinion, the baseline scenario is determined according to the methodology and is reasonable.

### 4.4.4 GHG Emission Reductions

The GHG emission reductions calculation is based on the methodology ACM0006, version 06.2- "Consolidated methodology electricity generation from biomass residues". The emission reduction  $ER_y$  by the project during a given year  $y$  is the difference between the emission reductions through substitution of electricity generation with fossil fuels ( $ER_{electricity,y}$ ), the emission reductions through substitution of heat generation with fossil fuels ( $ER_{heat,y}$ ), baseline emissions due to the natural decay or burning of anthropogenic sources of biomass residues ( $BE_{biomass,y}$ ), project emissions ( $PE_y$ ), emissions due to leakage ( $L_y$ ).  $CH_4$  emission has been concluded both in project boundary and project baseline.

The Audit Team has verified the emission reductions calculation by document review.

<i>All assumptions made for estimating GHG are listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>All data used by project participants are listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>Their references and sources are also listed in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<i>Formulas, parameters, values are complete, accurate, transparent</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1. For $ER_{heat,y}$ - The emission factor is from the



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and conservative		<p>IPCC default value and the boiler's efficiency is assumed to be 100%, which is conservative and <math>ER_{heat,y}</math> will be achieved in a minimum value.</p> <p>2. For <math>ER_{electricity,y}</math></p> <ul style="list-style-type: none"> <li>- The grid emission factor OM and BM value is referred from and is consistent with the publications of Chinese DNA/24/.</li> </ul> <p>3. For <math>BE_{biomass,y}</math></p> <ul style="list-style-type: none"> <li>- The project proponent applies the max moisture content for rice husk and straw/23/ to approach the dry biomass residue amount to calculate the smallest emission reduction, which is conservative.</li> <li>- The project proponent applies the emission factor value accordingly with the methodology ACM0006, version 06.2</li> </ul> <p>4. For <math>PE_y</math></p> <ul style="list-style-type: none"> <li>- Both the fossil fuel emission factor and the <math>CH_4</math> emission factor is referred from IPCC default value and is conservative.</li> </ul> <p>5. For <math>L_y</math></p> <ul style="list-style-type: none"> <li>- The project proponent applies option L2 of the methodology ACM0006, version 06.2 and the leakage is expected to be zero. The biomass availability amount can be evidenced by the Biomass Availability Report /19/ and Jianli Statistical Yearbook/33/;</li> </ul>
All the references and documents used are correctly quoted and conservatively interpreted in the PDD	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	All formulas are applied accordingly with the methodology.



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<i>reductions</i>		
<i>All the emissions of baseline emissions can be replicated using information provided in the PDD</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>All the applied data is listed out in section B.6 and Annex 3 of the PDD. The baseline emissions can be replicated.</i>

The emission reduction calculation sheet/23/ has been assessed by the Audit Team. The project is expected to achieve emission reduction amount of 164,694 tCO<sub>2</sub>/year during the first crediting period. As discussed above, the heat supplying network has not been finalized by the time of on site assessment and emission reductions due to heat supply shall be depended on the heat supplying network's finalizing.

### 4.5 Additionality

The additionality of the project is demonstrated by applying 'Combined tool to identify the baseline scenario and demonstrate additionality, version 02.2' and 'Tool for the demonstration and assessment of additionality, version 05.2'

#### 4.5.1 CDM Consideration

Regarding the project starting date, the Audit Team determine that by desk review and on site assessment. The project got approval on 5 November 2007/16/. On 6 November 2007, the steam turbines purchasing contract was signed/27/. On 27 November, the Construction Contract was signed/47/. On 14 April 2008, the construction of the project got permits/45/. Among the above activities, date 6 November 2007 is considered to be the earliest date of project real action since the cost of steam turbines constitute significantly of the project investment.

The FSR of the Project was finalized in September 2007. And the Project is considered financial unattractive in the financial analysis of the FSR/15/ and is suggested to apply CDM activity to conquer the financial difficulty. In section 4.8 of the financial analysis of the FSR it is stipulated that to apply CDM activity for the project would be the key factor for the project's implementation. Based upon the FSR, the board of the project investor Wuhan Kaidi Investment Holding Ltd. issued a resolution/46/ on 21 September 2007 to indicate that CDM activities would be applied for all invested biomass projects. On 1 November 2007, the project owner signed CDM Consultation Agreement/48/ with Camco International Ltd. The CDM incentive consideration can be demonstrated by the above activities.

<b>Starting date of project</b>	<b>Justification of and evidences (references) on the starting date of project</b>	<b>Date of CDM consideration</b>
6 November 2007	/26//27//28/ /45//47/	September 2007/15/, data of FSR was finalized. CDM revenue is incorporated in

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		<i>the FSR.</i>
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### 4.5.2 Alternatives

The project proponent applies ‘*Consolidated methodology electricity generation from biomass residues*’, Version 06.2’ to define all plausible baseline alternatives.

For Power generation, nine alternatives are identified and the Audit Team have verified the elimination process as the following table.

Alternatives	Selection in the PDD	DOE’s opinion
<b>P1</b> The project not undertaken as a CDM project activity.	<b>Yes.</b> Despite the fact that this alternative is economically unattractive, as analysed in step3, this alternative is a plausible scenario for further analysis.	
<b>P2</b> The continuation of power generation in an existing biomass residue fired power plant at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as (co-)fired in the Project.	<b>No.</b> Since the proposed project is a greenfield project and there is no existing biomass residues fired power plant at the project site, therefore this alternative is excluded.	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired power plant at the project site, and the proposed project is a Greenfield type. The alternative can be eliminated.
<b>P3</b> The generation of power in an existing captive power plant, using only fossil fuels.	<b>No.</b> Since there is no existing captive power plant, using fossil fuels near the project site, therefore this alternative is excluded.	During the site visit, the Audit Team can confirm that there is no existing captive fossil fuel fired power plant at the project site, and the proposed project is a Greenfield type. The alternative can be eliminated.
<b>P4</b> The generation of power in the grid	<b>Yes.</b> This alternative is a plausible scenario for further analysis.	
<b>P5</b> The installation of a new biomass residue fired power plant, fired with the same type and with the same	<b>No.</b> Since biomass power plants including the lower efficiency ones are not	Based on the results of the common practice analysis, the biomass residue fired power plant is not common in

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annual amount of biomass residues as the Project, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant Industrial sector) than the Project plant and therefore with a lower power output than in the Project case.	common practice in the local area. There is no on-grid installed capacity from Biomass Power plant before 2007 in Hubei Province. Therefore, this alternative is excluded.	local industrial sector. The alternative can be eliminated.
<b>P6</b> The installation of a new biomass residue fired power plant that is fired with the same type but with a higher annual amount of biomass residues as the Project and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant Industrial sector) than the Project. Therefore, the power output is the same as in the Project	<b>No.</b> Since biomass power plants are not common practice in the local area. There is no installed capacity from Biomass Power plant before 2007 in Hubei Province. Therefore, this alternative is excluded.	Based on the results of the common practice analysis, the biomass residue fired power plant is not common in local industrial sector. The alternative can be eliminated.
<b>P7</b> The retrofitting of an existing biomass residue fired power, fired with the same type and with the same annual amount of biomass residues as the Project, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant Industrial sector) than the Project plant and therefore with a lower power output than in the Project case.	<b>No.</b> Since the proposed project is a greenfield project and there is no existing biomass residues fired power plant at the project site, therefore this alternative is excluded.	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired power plant at the project site, and the proposed project is a Greenfield type. The alternative can be eliminated.
<b>P8</b> The retrofitting of an existing biomass residue fired power that is fired with the same type but with a	<b>No.</b> Since the proposed project is a greenfield project and there is no existing biomass	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired power plant at

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higher annual amount of biomass residues as the Project and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant Industrial sector) than the Project.	residues fired power plant at the project site, therefore this alternative is excluded.	the project site, and the proposed project is a Greenfield type. The alternative can be eliminated.
<b>P9</b> The installation of a new fossil fuel fired captive power plant at the project site	<b>Yes.</b> This alternative is a plausible scenario for further analysis.	

According to the reasonable analysis, only P1, P4 and P9 are remained. However, P9 cannot meet the requirement of the regulation *Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below* /34/. Finally, the realistic and credible alternatives of Power generation are P1 and P4. In Audit Team's opinion, the list of alternatives for power generation is complete.

For Heat generation, eight alternatives are identified and the Audit Team have verified the elimination process as the following table.

Alternatives	Selection in the PDD	DOE's opinion
<b>H1</b> The Project not undertaken as a CDM project activity.	<b>Yes.</b> Despite the fact that this alternative is economically unattractive, as analyzed in Step3, this alternative is a plausible scenario for further analysis.	
<b>H2</b> The proposed project activity (installation of a cogeneration power plant), fired with the same type of biomass residues but with a different efficiency of heat generation (e.g. an efficiency that is common practice in the relevant industrial sector)	<b>No.</b> Since at present the technology of biomass cogeneration in China is just started and it is not common practice in China no matter lower efficiency or higher efficiency, therefore this alternative is excluded.	Based on the results of the common practice analysis, the biomass residue fired power plant is not common in local industrial sector. The alternative can be eliminated.
<b>H3</b> The generation of heat in an existing captive	<b>No.</b> Since there is no fossil fuel	During the site visit, the Audit Team can confirm

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cogeneration plant, using only fossil fuels.	fired cogeneration plant or any other cogeneration plant at or around the project site.	that there is no existing captive fossil fuel fired cogeneration plant at the project site, and the proposed project is a Greenfield type. The alternative can be eliminated.
<b>H4</b> The generation of heat in boilers using the same type of biomass residues.	<b>No.</b> Since there is no heat boiler using biomass residues in the local area, while using small coal-fired boiler is common practice to meet the process heat demand for the plants in the industrial park, besides, it is not feasible for the individual enterprise to be equipped with expertise on the biomass collection or biomass-boiler operation.	It is common that coal-fired boilers are always preferable option in order to supply heat for industrial process in China. Furthermore, collection of biomass residues and operation of biomass residues fired boilers is too difficult for individual enterprise. The alternative can be eliminated.
<b>H5</b> The continuation of heat generation in an existing biomass residue fired cogeneration plant at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as in the Project.	<b>No.</b> Since there is no biomass residue fired cogeneration plant at or around the project site. Therefore, therefore this alternative is excluded.	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired cogeneration plant at the project site, and the proposed project is a Greenfield type. The alternative can be eliminated.
<b>H6</b> The generation of heat in boilers using fossil fuels.	<b>Yes.</b> As discussed in section A4.3, existing heat demand is met by small coal fired boilers and the remaining lifetime of these boilers is at least covering the first crediting period.  In the absence of the proposed project, the industrial process heat will continue to be met the individual small coal fired boilers. It is unlikely for the individual plant owner to	For the proposed project, the heat generation will only take the place of the existing coal-fired boilers in the Industrial Area. If the proposed project is not implemented, the existing boilers would be operated normally. Therefore, this alternative is the generation of heat in boilers using coal only, which is realistic and creditable.

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	replace their small coal fired boiler with natural gas or oil fired boiler when the small coal fired boiler doesn't retire as the price of oil and gas per joule are much higher than that of coal, therefore it is more cost effective to use coal rather than oil, natural gas or other measures to provide the qualified process heat. The operational cost of coal-fired boiler, oil-fired boiler and gas-fired boiler are also compared in some literatures which also shows that coal-fired boiler is much more cost effective than oil-fired or gas-fired boiler	
<b>H7</b> The use of heat from external sources, such as district heat.	<b>No.</b> Since there is no district heat supply in the local area, heat sources from external sources such as district heating do not exist. Besides, there is no plan to build district heat system in Jianli County	During the site visit, the Audit Team can confirm that there is no district heat supply in the local area. The alternative can be eliminated.
<b>H8</b> Other heat generation technologies (e.g. heat pumps or solar energy).	<b>No.</b> Since the heat consumers for the project are those enterprises located in the industrial park. They require a huge amount of qualified steam, therefore neither solar energy nor heat pumps are feasible heat supply alternatives that could meet the quality nor the quantity of the process heat needed in the industrial park.	It is common that coal-fired boilers are always preferable option in order to supply heat for industrial process in China. The heat pumps and solar energy can not provide similar services, high temperature steam and the relevant pressure. The alternative can be eliminated.

According to the reasonable analysis, the realistic and credible alternatives of Heat generation are H1 and H6. In Audit Team's opinion, the list of alternatives for heat generation is complete.

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For the use of Biomass residues, eight alternatives are identified for rice husk and straws respectively and the Audit Team have verified the elimination process as the following table.

Alternatives	Selection for Rice husk	Selection for Straws ( <i>Including Wheat straw, Rice straw, Oil seed rape straw, Cotton Straw</i> )	DOE's opinion
<b>B1</b> The biomass residues are dumped or left to decay under mainly aerobic conditions. This applies, for example, to dumping and decay of biomass residues on fields.	<p><b>Yes.</b> A certain amount of rice husk are currently dumped or left to decay under mainly aerobic conditions and burned in an uncontrolled way which is common practice in the local area.</p> <p>The rice mills have limited room for the rice husk and they have to burn it or dump it to leave room for the rice.</p> <p>Therefore, this alternative is a plausible scenario for further analysis.</p>	<p><b>Yes.</b> A certain amount of straws are currently dumped or left to decay under mainly aerobic conditions and burned in an uncontrolled way outside in the fields which is common practice in the local area.</p> <p>The local farmers have to get rid of a huge amount of straws in order to keep the land free for the next season's planting, so they burn the straw in the field.</p> <p>Therefore, this alternative is a plausible scenario for further analysis.</p>	
<b>B2</b> The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to deep landfills with more than 5 meters. This does not apply to	<p><b>No.</b> It is common that the biomass residues are dumped or left to decay under mainly aerobic conditions and burned in an</p>	<p><b>No.</b> It is common that the biomass residues are dumped or left to decay under mainly aerobic conditions and burned in an uncontrolled way</p>	The Biomass residues are produced in the rural area where there are no landfill services. The alternative can be eliminated.



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biomass residues that are stock-piled or left to decay on fields.	uncontrolled way outside in the fields. In China, landfill plant only collects and processes the residential waste which does not cover the waste from agricultural and industrial sector, like the rice husk.	outside in the fields. In China, landfill plant only collects and processes the residential waste which does not cover the waste from agricultural and industrial sector, like the straws.	
<b>B3</b> The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes.	<b>Yes.</b> This alternative is a plausible scenario for further analysis.	<b>Yes.</b> This alternative is a plausible scenario for further analysis.	
<b>B4</b> The biomass residues are used for heat and/or electricity generation at the Project site	<b>No.</b> Since there is no heat or power generation plant using rice husk at the project site, therefore, this alternative is not plausible.	<b>No.</b> Since there is no heat or power generation plant using straw at the project site, therefore, this alternative is not plausible.	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired boilers or power plants at the project site. The alternative can be eliminated.
<b>B5</b> The biomass residues are used for power generation, including cogeneration, in other existing or new grid-connected power plants	<b>No.</b> Using biomass to generate electricity or heat is not common practice in this region: near the project site, there are no existing power plants (including) cogeneration projects or boilers which are using rice husks to generate energy. Besides,	<b>No.</b> Using biomass to generate electricity or heat is not common practice in this region: near the project site, there are no existing power plants (including) cogeneration projects or boilers which are using straws to generate energy. Besides, confirmed by Jianli Investment	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired power plants or cogeneration plants at the project site. Furthermore, the Audit Team have verified the Confirmation Letter Regarding No Other Biomass Project Existing in Jianli Country /32/, issued by Merchants Bureau of Jianli Country on 10 December 2008, and can confirm there are no plans about new biomass



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	confirmed by Jianli Investment Promotion Bureau, there will be no other biomass power plant except the proposed project and there will be no other biomass energy projects in Jianli County.	Promotion Bureau, there will be no other biomass power plant except the proposed project and there will be no other biomass energy projects in Jianli County.	residues fired power plant other than the proposed project activity in Jianli County. The alternative can be eliminated.
<b>B6</b> The biomass residues are used for heat generation in other existing or new boilers at other sites.	<b>No.</b> As for Alternative B5.	<b>No.</b> As for Alternative B5.	During the site visit, the Audit Team can confirm that there is no existing biomass residue fired boilers for heat generation at the project site. Furthermore, the Audit Team have verified the Confirmation Letter Regarding No Other Biomass Project Existing in Jianli Country /32/, issued by Merchants Bureau of Jianli Country on 10 December 2008, and can confirm there are no plans about new biomass residues fired boilers other than the proposed project activity in Jianli County. The alternative can be eliminated.
<b>B7</b> The biomass residues are used for other energy purposes, such as the generation of biofuels	<b>No.</b> There are no projects using biomass residues like rice husk for other energy purposes at the project site now or in Jianli County's development plan.  Besides, due to	<b>No.</b> There are no projects using biomass residues like straws for other energy purposes at the project site now or in Jianli County's development plan.  Besides, due to the high cost in the biofuels projects,	The official letter from the Merchants Bureau of Jianli Country was provided by the project proponent and assessed by the Audit Team. It is confirmed by the local government that except the Project, there is no others projects are planned to apply the local biomass resource. The alternative can be eliminated.

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	the high cost in the biofuels projects, the biofuel industry in China just started development and the biomass used for the biofuels are crops or non-crops plants mainly including the broomcorn, cassavas, sweet potato, Coptis chinensis, hairy chestnut, tung tree, palm oil or waste cooking oil and/or waste fat from biogenic origin. The biomass residues used in the proposed project are not common raw material to produce biofuel.	the biofuel industrial in China just started development and the biomass used for the biofuels are crops or non-crops plants mainly including the broomcorn, cassavas, sweet potato, Coptis chinensis, hairy chestnut, tung tree, palm oil or waste cooking oil and/or waste fat from biogenic origin. The biomass residues used in the proposed project are not common raw material to produce biofuel.	
<b>B8</b> The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in processes (e.g. in the pulp and paper Industrial)	<b>No.</b> Around 1,000 tons of rice husk within the collection radius are used as feedstuff, which only accounts for 5% of the total rice husk availability and according to the leakage analysis in Section B.6.1, the rice husk is quite abundant surplus, the project will not change the use of	<b>No.</b> Around 95,000 tons of the straws within the collection radius are used as household fuel, feedstuff and fertilizer which only accounts for 8% of the total straws availability and according to the leakage analysis in Section B.6.1, the straws are quite abundant surplus, the project will not change the use of straws as their non-	The relevant data are sourced from Biomass Availability Report /19/, which has been verified by the Audit Team. The alternative can be eliminated.

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	rice husk as feedstuff.	energy uses as household fuel, feedstuff and fertilizer.	
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According to the reasonable analysis, only B1 and B3 are remained not only for rice husk but also for straws. In Audit Team's opinion, the list of alternatives for the use of biomass residues is complete.

The result is identified as the two combined scenarios. One is the project not undertaken as a CDM project activity, i.e. combination of P1 and H1 and B1/B3.

The other is the combination of P4, H6 and B1/B3, i.e. the Scenario 2, exporting electricity from the grid; generating heat from fossil fuel fired boilers; and dumping biomass residues to naturally decay or burnt in an uncontrolled manner without utilizing it for energy purposes.

### 4.5.3 Investment analysis

Investment analysis is applied in the PDD to demonstrate that the Project is not the most economically or financially attractive or economically feasible one. And the project will benefit from selling electricity to the grid and heat to its neighbor so a benchmark analysis is applied in the PDD.

For the Project, a Project IRR of 8% has been selected as the benchmark rate according to the '*Interim Rules on Economic Assessment of Electric Engineering Retrofit Projects*' /35/, which has been verified by the Audit Team. The Audit Team confirmed in Section 2, Appendix B of this Rule that a Project IRR of 8% (after tax) is applied by power industry or power transmission& dispatching industry. In the financial analysis of the FSR/15/, Project IRR of 8% is also applied as the benchmark.

According to the financial analysis, the IRR (after tax) of total investment of the Project is only 2.19% without the CERs revenues, which shows the Project can not be considered financially attractive. However, if the Project could be registered as a CDM project, the IRR may reach 9.01%.

Moreover, a sensitivity analysis, covering a fluctuation range of 10%, is discussed with regards to Static total investment, Electricity Tariff, Heat Price, Operational Hours and Biomass Residue Cost. The sensitivity analysis shows that without the income from CERs sales the IRR of the Project is still lower than the benchmark.

The Audit Team has assessed the IRR calculation sheet/15/. The Audit Team compared the input value in the IRR calculation sheet and confirmed that all values are quoted from the FSR/15/. The FSR was developed by Wuhan Kaidi Electric Power Engineering Co., Ltd, which is certified to compile design reports for power projects with the highest grade A issued by Ministry of Construction P.R.China. The FSR was approved/16/ by local authority on 5

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November 2007. As discussed above, the project starting date is considered to be 6 November 2007, hence to the Audit Team's opinion, the FSR is deemed to be the foundation of Project investment. The main input data in the IRR are cross checked and validated by the Audit Team as below.

### Project Output

The project installation is 24 MW. The Audit Team can confirm that by reviewing the project's FSR and the approval/16/.

The Net Power Generation Output is 126,720 MWh, excluding 12% of in-house load, and this is expected based on the 6,000 operation hour of the Project. The in-house load 12% is a lower load factor for Circulating Fluidized Bed boilers, especially for a cogeneration power plant. In Audit Team's opinion, the value 12%, from the Feasibility Study Report, is reasonable. The operation hour is based on the *Introduction Letter Regarding the Operation Hour*, issued by Wuhan Kaidi Electric Power Engineering Co., Ltd./54/, and the *equipment availability rate, generation load rate and Backup ration for load or accident*. The scheduled equipment maintenance days are 54 days and a corresponding *equipment availability rate* is 0.852. The average load factor is 0.9 depending on the type of biomass and the *Backup ration for load or accident* is expected to be 0.1. The result of the annual operation hours is 6045 hours. Thus the project annual operation hour is expected to be 6000. To the Audit Team's opinion, this value is approached in a scientific way. By comparing the annual operation hour of already registered biomass projects during 2007 to 2008 from '<http://UNFCCC.int>', the Audit Team found out this figure is between 5,500 to 6,500 hours, which is the case for this project. Also by put this value in the sensitivity analysis of 10%, which means 5400 to 6600 hours, the project IRR can still not reach the benchmark. Hence 6,000 hours of operation hour is a reasonable value for this biomass project.

### Project Investment

The project static total investment is 264,770,000 RMB. The value is consistent with that of the FSR. The Audit Team referred to the project's approval/16/, on which the project total investment is 275,660,000 RMB, which incorporates the static total investment of 264,770,000 RMB and the interest of raised from the construction period based on the financial analysis of the FSR. Financial analysis in the FSR was evaluated by sector experts designed by the local government before the project got approval. To the Audit Team's opinion; the project total investment is reasonable.

### Electricity Tariff

The electricity tariff in the first 15 years of project operation is 540.17 RMB/MWh (excluding VAT) and 326.50 RMB/MWh (excluding VAT) after that period. The Audit Team referred to the *Renewable Energy Electricity Tariff and Cost Management Trial Regulations/49/* issued by the National Development and Reform Commission. It is discussed in article 7 of the Regulation that for electricity tariff of a biomass project it is set to be based on the electricity tariff of provincial de-SO<sub>2</sub> coal fired power plants plus with 0.25 RMB per kWh. This tariff will last in the initial 15 years of the project's operation and will be ended after that. The electricity tariff for de-SO<sub>2</sub> coal fired power plant of Hubei Province is 0.382 RMB/kWh/42/, plus 0.25 RMB/kWh under the this policy is 0.632 RMB/kWh. Excluding the VAT (17%), the

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electricity tariff is 540.17 RMB/MWh in the initial 15 years of operation and 326.50 RMB/MWh after that. The electricity tariff applied is reasonable.

### Heat Price

The heat price is 29.85 RMB/GJ (excluding VAT), sourced from the approved Feasibility Study Report. The price is reasonable, compared with the levelised cost 31RMB/GJ of heat supply from small coal-fired boiler, and the calculation result has been verified by the Audit Team. Furthermore, the project IRR can reach the benchmark when the steam price increased by 73 %, indicating fully that the heat price is not a sensitive parameter. And the steam price level is regulated by the local government instead of by the project owner itself, and won't change dramatically.

### Biomass Cost

The biomass cost is assumed to be 241 RMB/t in FSR. Based on the clarification /43/ by Wuhan Kaidi Electric Power Engineering Co., Ltd., the biomass cost 241 RMB/t is approached based on the purchasing price from the supplier (agriculture plants or local farmers) and other costs related with the biomass handling like transportation, uploading and unloading, etc. The clarification has been verified by Audit Team and the biomass cost is appropriate. The Audit Team can cross check the reasonableness of the this value by referring those registered biomass energy projects during 2007 to 2008 from '<http://UNFCCC.int>'. The research found out the biomass cost is between 200 RMB/t to 300 RMB/t. For this project, the biomass cost value of 241RMB/t is between this range. Nevertheless, in the sensitivity analysis of the PDD, it is discussed that only if the biomass cost decreases by 26%, the project IRR can reach to the benchmark. Therefore, the biomass cost is reasonable.

### Tax Rate

The enterprise tax rate is 25%, the VAT for electricity tariff is 17% and 13% for heat price. The Audit Team confirms that they are consistent with relevant host country's regulations/50//51/.

#### 4.5.4 Barrier analysis

No barrier except the financial difficulty is expected by the project proponent in the PDD.

#### 4.5.5 Common practice analysis

A common practice analysis is made in the PDD. The relevant geographical boundary is defined as the CCPG, where the electricity of the Project is delivered to. According to the '*Combined tool to identify the baseline scenario and demonstrate additionality, version 02.2*', the relevant geographical area should include preferably ten facilities that provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity. In China, different provinces have different available resources and different electricity tariffs. CCPG is composed of several provinces and the region selection is appropriate.

In this area, five projects in operation and eleven projects under construction are identified

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within the 15MW to 100MW. All identified projects are either registered as CDM activities or applying CDM activity, except the project “Xuchang Changge Hengguang Cogeneration Project”, which is a retrofit project and not similar with the proposed project activity. The data source is from NDRC and verified by Audit Team. Therefore, the proposed project activity is not common.

In conclusion, the assessment of the arguments presented above is deemed to sufficiently demonstrate that the project is not a likely baseline scenario, and that emission reductions resulting from the project are additional.

### 4.6 Monitoring

The project applies approved monitoring methodology ACM0006, version 06.2- “*Consolidated methodology electricity generation from biomass residues*” . The data monitored and the monitoring interval and frequency is in compliance with the methodology. The monitoring method has been clearly described in section B.7.1 of the PDD and examined by the Audit Team to be appropriate. The project investor has issued the CDM Monitoring & QC Manual/31/ for training the monitoring staff. In Audit Team’s opinion, the project owner is capable of implementing the project monitoring job.

#### 4.6.1 Parameters determined ex-ante

The Audit Team has examined the following parameters that determined ex-ante by document review:

- The baseline grid emission factor is determined ex-ante, based on the most recent information available as published by Chinese DNA/24/, and is calculated as a combined margin, consisting of the weighted average of the OM and BM emission coefficients; The data source are listed clearly in Annex 3 of the PDD;
- $TDL_{j,y}$  , the average technical transmission and distribution losses for providing electricity to source  $j$  in year  $y$ , is determined ex-ante as 20%. The electricity consumed due to the project activity is transmitted from the CCPG and is complies with scenario A of ‘*Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01*’. The value applied is the default value as indicated in the tool and is appropriate.
- $\epsilon_{boiler}$  , the average net energy efficiency of heat generation in the boiler that would generate heat in the absence of the project activity, is determined ex-ante as 100%. In this case the emission reduction claimed from heat distribution would be less and is conservative. The value applied is appropriate.

#### 4.6.2 Parameters monitored ex-post

The Audit Team has examined the following parameters that determined ex-post by document review and on site assessment:

- The biomass residues dry amount transported to the site and the biomass residues dry amount disposed by the project will be monitored by the weight meters installed on site and corrected by the moisture content measured;



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- The net calorific value of biomass residue. The monitoring methods and frequency is in line with the methodology;
- The moisture value of biomass residue. The monitoring methods and frequency is in line with the methodology;
- The average round trip distance from the biomass residue site and the project site. During on site assessment, the Audit Team understood that the biomass residues will be transported from several sites, i.e., the rice factories or the collection site set up by the project owner. Since the collection sites planning are not determined by the time of on site assessment, it is described in the PDD clearly that the longest distance would be applied by the project proponent;
- The number of truck trips for the transportation of biomass. Every truck trips will be counted and recorded in the log books according to the interview with Mr. LUO Xu/IX/, the management representative from the biomass power plant.
- Average CO<sub>2</sub> Emission Factor for transportation of biomass with trucks during year y. The appropriateness of the data will be reviewed annually.
- The fossil fuel combusted in the plant or combusted on site due to the project activity. According to the FSR, fossil fuel is needed to start the boiler. During on site assessment, the Audit Team was explained that the biomass disposal machine such as Cutter could use fossil fuel also. Their consuming amount shall be recorded.
- The net calorific value of the fossil fuel combusted in the plant or on site due to the project activity. The monitoring methods and frequency is in line with the methodology;
- CO<sub>2</sub> emission factor for fossil fuel combusted in the plant or on site due to the project activity. The appropriateness of the data will be reviewed annually.
- Net generated electricity by the project and the on site electricity consumed attributable to the project activity during year y.
- Heat distributed to the heat consumer. The thermal meter's installation configuration shall be provided to the DOE in case of verification phase since the heat distribution network is not finalized.
- Quantity of available biomass residues of type k in the region and quantity of biomass residue type k that are utilized in the defined geographical region will be monitored annually by Surveys or statistics from local agricultural bureau or other official public resource.

### 4.6.3 Management system and quality assurance

A CDM team will be set up by the project owner to carry out the monitoring implementation. As discussed above, all the monitoring staff will be trained against with the CDM Monitoring & QC Manual/31/. The monitoring responsibilities lie on the CDM project director and CDM project manager. The data collection follow has been clearly described in the PDD. The diagram indicating the monitoring position and parameters are also inserted in the PDD. The meters accuracy level, monitoring frequency and monitoring erroneous handling procedures are discussed in the PDD. All important indicators for controlling and reporting of project performance are incorporated in the monitoring plan.

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### 4.7 Sustainable Development

During on site interview, Mr. WU Zunlian /V/, the vice director from local Development and Reform Bureau, introduced to the Audit Team that the Project will bring positive effects to the local community. First of all, the Project can help to dispose the abundant biomass residues and the project will contribute to alleviate the environment pollution caused by uncontrolled burning of biomass residues. Secondly, the project is located in an industry zone, where there is no central heat distribution/39/. Heat consumers there have to install the fossil fired boilers of their own. The implementation of the project will displace these boilers and to meet the heat demand in the community. In this way, the project will contribute to form a better business environment there by providing clean heat source to meet the enterprises demand. Thirdly, the project will meet the energy demand and provide clean and renewable energy to the grid. Finally, implementation of the project can bring more job opportunities for the local people to increase their incoming.

### 4.8 Environmental Impacts

An EIA/17/ has been finalized on July 2007 and got approval/18/ by Environmental Protection Bureau of Hubei Province on 17 July 2007. The environment impacts has been described in Section D.1 of the PDD. According to the EIA, no significant environmental impacts are expected. During on site interview with Mr. HAO Liqiong /VI/, the director from Environment Protection Bureau of Jianli County, that no complaints are received for the construction of the Project. The EIA has been performed in accordance with all relevant local regulations.

### 4.9 Local Stakeholder Consultation

In the EIA/17/ the affected area of the Project is described to be Banludi Villiage, Shenliu Villiage and Peijia Villiage in section 1.8.2. This is also confirmed by interviewing Mr. HAO Liqiong/VI/, the officer from the local environmental protection bureau. The stakeholder survey is incorporated in the EIA.

The local stakeholder survey was carried out in June 2007. Mr. HAO Liqiong/VI/ introduced to the Audit Team that before the stakeholder interview started, the local stakeholders were informed by means of published posters and launched news on the government's website. These means are described clearly in section 12.1 of the EIA and confirmed by Mr. WU Zunlian/V/, the vice director from the local Development and Reform Bureau.

Totally 50 questionnaires were distributed. The survey results and statistics analysis are presented in section E.2 of the PDD. The survey demonstrates that the local community are supportive to the project. The implementation of the project could benefit the local in aspects of environment protection and better business environment for the local industry area zone. The local stakeholder consultation process of the project is adequate.



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### 4.10 Comments by Parties, Stakeholders and NGOs

The PDD of 27 August 2008 was made publicly available on TÜV Rheinland's website (<http://www.tuvdotcom.com/pi/web/TuvdotcomIdSearchResults.xml?TUVdotCOMID=9105048660>) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 25 September 2008 to 24 October 2008.

No comments were received.

## **APPENDIX A**

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### **CDM VALIDATION PROTOCOL**

## VALIDATION REPORT

**Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities**

Requirement	Reference	Conclusion
<b>About Parties</b>		
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	<del>CAR 1</del> (Refer to Table 3)
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	<del>CAR 1</del> (Refer to Table 3)
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK
6. Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
9. The participating Annex I Party shall have in place a national system for	CDM Modalities and Procedures §31b	OK

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Requirement	Reference	Conclusion
estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.		
<b>About additionality</b>		
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	<del>CAR-5</del> <del>CAR-6</del> <del>CAR-7</del> <del>CAR-8</del> <del>CL-1</del> <del>CL-2</del> <del>CL-3</del> <del>CL-4</del> (Refer to Table 3)
<b>About forecast emission reductions and environmental impacts</b>		
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
<b>For large-scale projects only</b>		
12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK
<b>About stakeholder involvement</b>		
13. Comments by local stakeholders shall be invited, a summary of these provided and	CDM Modalities and Procedures §37b	OK

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Requirement	Reference	Conclusion
how due account was taken of any comments received.		
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
<b>Other</b>		
15. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
16. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	<del>CAR-5</del> <del>CAR-6</del> <del>CAR-7</del> <del>CAR-8</del> <del>CL-1</del> <del>CL-2</del> <del>CL-3</del> <del>CL-4</del> (Refer to Table 3)
17. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
18. The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK
19. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK

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**Table 2 Requirements Checklist**

CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
* MoV = Means of Verification, DR= Document Review, I= Interview						
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>						
<b>A.1. Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>						
A.1.1. Are the project’s spatial boundaries (geographical) clearly defined?		/1/ /15/	DR I	Yes. The Project is located is located in Chengdong Industry Area, Jianli County, Hubei Province, P.R. China. The center of plant has geographical coordinates of 112°54’18” east longitude 29°49’30”north latitude.		OK
A.1.2. Are the project’s system boundaries (components and facilities used to mitigate GHGs) clearly defined?		/1/ /15/	DR I	Yes. The power plant, the means for transportation of biomass residue, Central China Power Grid (CCPG) and the site where biomass residue would have been left for decay or dumped is defined as project system boundary.		OK
<b>A.2. Participation Requirements</b> <i>Referring to Part A, Annex 1 and 2 of the PDD as well</i>						

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<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
A.2.1. Which Parties and project participants are participating in the project?	/1/ /15/	DR	Jianli Kaidi Green Energy Development Co., Ltd. is the project participant from the Host Party (P.R. China). Camco International Limited is the project participant from the Sponsor Party (Netherlands).		OK
A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/1/ /3/ /4/ /5/ /15/	DR	No. The letters of approval from the DNAs of China and Netherlands have not been provided.	<del>CAR-1</del>	OK (Refer to Table 3)
A.2.3. Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority	/1/ /3/ /4/ /5/ /15/	DR	Yes. China ratified the Kyoto Protocol on 30 August 2002. United Kingdom of Great Britain and Northern Ireland ,the Annex I party, ratified the Kyoto Protocol on 31 May 2002		OK

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<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			Both of them are voluntary participation. DNA of China is National Development and Reform Commission. United Kingdom of Great Britain and Northern Ireland's DNA is International Climate Change Division		
A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/1/ /15/	DR I	The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards China.		OK
<b>A.3. Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/1/ /15/	DR	The project design engineering reflects current good practice. The FSR of the Project was finalized by Wuhan Kaidi Electric Power Engineering Co., Ltd., which was ranked a Class A engineering company in P.R. China. The FSR was		OK



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<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			approved by NDRC of Hubei Province 5 November 2007.		
A.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/ /15/ /26/ /28/	DR I	The Project use advanced domestic technology. The biomass is directly combusted in a CFB boiler to generate steam, which will be used to drive steam turbine for electricity generating and heat providing.  As per “Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM)” version 7, please add description of scenario prior to the start of implementation of the Project in Section A.2 of the PDD.	CAR-2	OK (Refer to Table 3)
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/1/ /15/	DR I	Please specify the provisions made for meeting project operator’s training and project’s maintenance needs in the PDD and provide all the relevant documents.	CAR-3	OK (Refer to Table 3)

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CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A.4. Contribution to Sustainable Development</b> <i>The project's contribution to sustainable development is assessed.</i>						
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?		/1/ /15/	DR	Not yet. The LoA from the DNA of China has not been provided.	<del>CAR-1</del>	OK (Refer to Table 3)
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?		/1/ /15/	DR I	<p>Yes. The Project will create the following other environmental and social benefits :</p> <ul style="list-style-type: none"> <li>- The Project helps to promote the comprehensive utilization of resources and mitigating emissions caused by decay or uncontrolled fire of the biomass residues;</li> <li>- By purchasing the biomass from local farmers to increase the local residents incoming;</li> <li>- Providing 93 permanent job opportunities;</li> <li>- Decreasing the GHG emission from the fossil-fuel fired power plants as well as the emission of SO<sub>x</sub>, NO<sub>x</sub> and dust.</li> </ul>		OK

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CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>						
<b>B.1. Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>						
B.1.1. Does the project apply an approved methodology and the correct version thereof?		/1/ /15/	DR	<p>The Project applies ACM0002 (Version 06.2)-“Consolidated methodology electricity generation from biomass residues”.</p> <p>Please apply the latest tool relied in the Methodology ACM0006 (version 06.2) in the PDD.</p>	CAR-4	OK (Refer to Table 3)
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?		/1/ /15/	DR I	<p>Yes. The applicability criteria in the baseline methodology are fulfilled as:</p> <ul style="list-style-type: none"> <li>Only biomass residues as rice husk, cotton straw, rice straw and oil seed rape straw will be used by the Project. Only a small amount of diesel will be used to help start-up of</li> </ul>		OK

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<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			the boilers. - All biomass residues won't be stored more than one year. The rice husks are directly bought from the rice mills and transported to the plant and the straws are directly bought from the farmers at the temporary storage stations. - There will be a small amount of energy consumption during the preparation of the biomass residues. Except for that, the proposed project will not have significant consumption of fossil fuels.		
<b>B.2. Baseline Scenario Determination</b> <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
B.2.1. What is the baseline scenario?	/1/ /15/		The baseline is determined as the combination of P4, H6 and B1 or B3, i.e., exporting electricity from the grid; generating heat from fossil fuel fired		OK

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<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			boilers; and dumping biomass residues to naturally decay or burnt in an uncontrolled manner.		
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/ /6/ /7/ /15/	DR	<p>For power generation, nine alternatives are identified totally. P1 and P4 remain.</p> <p>For heat generation, eight alternatives are identified totally.</p> <p>It is to be demonstrated and evidenced further how to eliminate Alternative H2, H4 and H7.</p> <p>Lifetime of current boilers should be discussed and evidenced during the baseline determination.</p> <p>For the use of biomass residues, where the project activity uses different types of biomass residues, the baseline scenario should be identified for each type of biomass residue separately.</p> <p>It is to be demonstrated and evidenced further how to eliminate Alternative B7 for all types of biomass residues used</p>	CL-1  CAR-5  CAR-6  CL-2	OK (Refer to Table 3)

[illegible]

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<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
			'Biomass Purchase Price' into the analysis.  Step 4. Common practice analysis Please define the relevant geographical area, as per the requirement of "Combined tool to identify the baseline scenario and demonstrate additionality".	CAR-8	
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /6/ /7/ /15/	DR	Ditto		OK
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/ /6/ /7/ /15/	DR	Ditto		OK
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/ /6/ /7/ /15/	DR	Ditto		OK

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CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.7. Have the major risks to the baseline been identified?	/1/ /6/ /7/ /15/	DR	Ditto		OK
<b>B.3. Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>					
B.3.1. Is the project additionality assessed according to the methodology?	/1/ /15/	DR	The additionality of the project, is demonstrated by applying the “Combined tool to identify the baseline scenario and demonstrate additionality”, version 02.2.		OK
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/1/ /15/ /22/	DR	See B.2		OK
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/1/ /15/	DR	See B.2		OK
B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to	/1/ /15/	DR	Yes. CDM was considered in the FSR.		OK



## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
proceed with the project activity?					
<b>B.4. Calculation of GHG Emission Reductions – Project emissions</b> <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.4.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /15/ /23/	DR	Project emissions include three parts: 1. CO2 emissions from transportation of biomass residues to the Project site (PET <sub>y</sub> ), 2. CO2 emissions from on-site consumption of fossil fuels due to the Project (PEFF <sub>y</sub> ), 3. CO2 emissions from consumption of electricity (PEE <sub>C,y</sub> ) 4. Methane emission from Biomass residues combustion.		OK
B.4.2. Have conservative assumptions been used when calculating the project emissions?	/1/ /15/ /23/	DR	The transport distance is to be clarified further during the calculation about transportation emission.	<del>CL-5</del>	OK (Refer to Table 3)

## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/1/ /15/ /23/	DR	Ditto	<del>CL-5</del>	OK (Refer to Table 3)
<b>B.5. Calculation of GHG Emission Reductions – Baseline emissions</b> <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /15/	DR	For BE <sub>biomass,y</sub> calculation, please demonstrate in the PDD which steps are taken and how they are justified strictly follow the requirements stipulated in the latest version of methodology ACM0006.	<del>CAR-9</del>	OK (Refer to Table 3)
B.5.2. Have conservative assumptions been used when calculating the baseline emissions?	/1/ /15/	DR	Ditto	<del>CAR-9</del>	OK (Refer to Table 3)
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/1/ /15/	DR	Ditto	<del>CAR-9</del>	OK (Refer to Table 3)
<b>B.6. Calculation of GHG Emission Reductions –</b>					

## VALIDATION REPORT

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<b>Leakage</b> <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /15/	DR	The practical and economical available biomass residues amount shall be further clarified and evidenced.	<del>CL-6</del>	OK (Refer to Table 3)
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/1/ /15/ /33/	DR	Ditto		OK
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/1/ /15/ /33/	DR	Ditto		OK
<b>B.7. Emission Reductions</b> <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/ /15/	DR	The emission reductions are measurable, and give long-term benefits. The project is estimated to reduce on an average of CO <sub>2</sub> emissions of 164,694 tCO <sub>2</sub> /year		OK

## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			during the crediting period.		
<b>B.8. Monitoring Methodology</b> <i>It is assessed whether the project applies an appropriate monitoring methodology.</i>					
B.8.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/ /15/	DR	The project applies the methodology ACM0006 version 06.2.		OK
B.8.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/ /15/	DR	It is to be clarified that all monitored data required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of CERs, which ever occurs later.	<del>CL7</del>	OK (Refer to Table 3)
<b>B.9. Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
B.9.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/ /15/	DR	Yes		OK

## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.9.2. Are the choices of project GHG indicators reasonable and conservative?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.9.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.9.4. Is the measurement equipment described and deemed appropriate?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.9.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.9.6. Is the measurement <i>interval</i> identified and deemed appropriate?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.9.7. Is the <i>registration, monitoring, measurement and reporting</i> procedure defined?	/1/ /15/	DR	Yes		OK
B.9.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK

## VALIDATION REPORT

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
B.9.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
<b>B.10. Monitoring of Baseline Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/ /15/	DR	Yes		OK
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.10.4. Is the measurement <i>equipment</i> described and deemed appropriate?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.10.5. Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on	/1/	DR	Yes. In compliance with the monitoring		OK

## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
how to deal with erroneous measurements?	/15/		methodology ACM0006.		
B.10.6. Is the measurement <i>interval</i> for baseline data identified and deemed appropriate?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.10.7. Is the registration, <i>monitoring</i> , <i>measurement</i> and <i>reporting</i> procedure defined?	/1/ /15/	DR	Yes.		OK
B.10.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /15/	DR	Yes. In compliance with the monitoring methodology ACM0006.		OK
B.10.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /15/	DR	Yes		OK
<b>B.11. Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
B.11.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/ /15/	DR	The leakage is claimed zero by the project proponent. However, this shall be further clarified.	<del>CL-6</del>	OK (Refer to Table 3)

## VALIDATION REPORT

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/1/ /15/	DR	Ditto	CL-6	OK (Refer to Table 3)
B.11.3. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/1/ /15/	DR	Ditto	CL-6	OK (Refer to Table 3)
<b>B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts</b> <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/1/ /15/	DR	Monitoring of sustainable development indicators is not required by the Chinese DNA. The environmental impacts are identified in the EIA that was approved		OK
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/ /15/	DR	Chinese DNA, NDRC, does not require collection and archiving of data related to environmental, social and economic impacts. The environmental impacts will be monitored by local environmental authority.		OK
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host	/1/	DR	Ditto		OK



## VALIDATION REPORT

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview		<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
Country?		/15/				
<b>B.13. Project Management Planning</b> <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>						
B.13.1. Is the authority and responsibility of overall project management clearly described?		/1/ /15/	DR	Yes. The authority and responsibility of overall project management is clearly described.		OK
B.13.2. Are procedures identified for training of monitoring personnel?		/1/ /15/	DR	Please identify the procedures for training of monitoring personnel in Section B.7.2 of the PDD.	<del>CAR 3</del>	OK (Refer to Table 3)
B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?		/1/ /15/	DR	No such information in the PDD	<del>CL 8</del>	OK (Refer to Table 3)
B.13.4. Are procedures identified for review of reported results/data?		/1/ /15/	DR	Yes.		OK
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?		/1/ /15/	DR	Yes		OK

## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>C. Duration of the Project/ Crediting Period</b> <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>						
C.1.1. Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/ /15/	DR		The project starting date is defined as 25 January 2008, the date when key equipment purchase contract was signed.  The operational lifetime of the project is stated as 20 years, which is to be evidenced.	CL-9	OK (Refer to Table 3)
C.1.2. Is the start of the crediting period clearly defined and reasonable?	/1/ /15/	DR		The start of crediting period is chosen to be 1 July 2009 by the project proponent. It is reasonable.		OK
<b>D. Environmental Impacts</b> <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>						
D.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/ /15/	DR		Yes. The impacts are properly described.		OK
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if	/1/ /15/	DR		The EIA has been approved by Local EPB		OK

## VALIDATION REPORT

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
yes, is an EIA approved?					
D.1.3. Will the project create any adverse environmental effects?	/1/ /15/	DR	There is no significant adverse environmental effect.		OK
D.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /15/	DR	There are no transboundary environmental impacts foreseen for the project.		OK
D.1.5. Have identified environmental impacts been addressed in the project design?	/1/ /15/	DR	Yes. The impacts are properly described in PDD.		OK
D.1.6. Does the project comply with environmental legislation in the host country?	/1/ /15/	DR I	Yes		OK
<b>E. Stakeholder Comments</b> <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>					
E.1.1. Have relevant stakeholders been consulted?	/1/ /15/	DR I	Yes. The summary of comments received is included in the PDD.		OK
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/ /15/	DR	It is to be clarified.	CL-10	OK (Refer to Table 3)

## VALIDATION REPORT

<b>CHECKLIST QUESTION</b> * MoV = Means of Verification, DR= Document Review, I= Interview	<b>Ref.</b>	<b>MoV*</b>	<b>COMMENTS</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
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/ /15/	DR	Yes		OK
E.1.4. Is a summary of the stakeholder comments received provided?	/1/ /15/	DR	Yes. The summary of the stakeholder comments received is described in the PDD.		OK
E.1.5. Has due account been taken of any stakeholder comments received?	/1/ /15/	DR	Yes.		OK

## VALIDATION REPORT

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

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR 1 The letters of approval from the DNAs of China and Netherlands have not been provided.	A.2.2 A.4.1	PPs are becoming three (Camco Carbon Limited is added). Besides, Camco Carbon Limited and Camco International Limited have applied for Letters of approval from UK instead of Netherlands; please refer to PDD Section A3 for the revision. The letters of approval from DNAs of China and UK have been provided to the auditor.	All the relevant LoA have been received and verified by the Audit Team. The LoA (s) received are authentic.  The CAR is therefore resolved and closed.
CAR 2 As per “Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM)” version 7, please add description of scenario prior to the start of implementation of the Project in Section A.2 of the PDD.	A.3.2	It is added; please refer to Section A 2 in the PDD.	The scenario existing prior to the implementation of the project has been discussed with regard of power generation, heat generation and biomass disposal.  The CAR is therefore resolved and closed.
CAR 3 Please specify the provisions made for meeting project operator’s training and project’s maintenance needs in the PDD and	A.3.3 B.13.2	The training plan of the project associated with CDM is added in the PDD Section B7.2. There are some training about the power plant	All the training records/30/ regarding the operation staffs of the project have been provided by the project proponent. It is clear that the operation staffs have

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
provide all the relevant documents.		operational have been made, please see the attached training records for the power plant operation. For the detailed training plan, please refer to the "CDM monitoring and quality control manual, draft version, issued in September 2008 by the project owner"(electronic version, the original hardcopy has been shown to the auditor during site visit)	been received both the theoretical training and practical training. Regarding the monitoring staffs' training, the project proponent provides the monitoring training and QC manual /31/, which is reflects the monitoring requirements raised from the monitoring methodology.  The CAR is therefore resolved and closed.
CAR 4 Please apply the latest tool relied in the Methodology ACM0006 (version 06.2) in the PDD.	B.1.1	The latest tool relied in the Methodology ACM0006 (Version06.2) is used in the PDD. Please refer to Section B.1	The correction is to the Audit Team's satisfaction.  The CAR is therefore resolved and closed.
CAR 5 For baseline determination about the heat generation, lifetime of current boilers should be discussed and evidenced during the baseline determination.	B.2.2	The current boilers' lifetime are discussed in Section B.6.1., which is confirmed by Construction bureau in Chengdong Industry Area and by the Senior Engineer Zhu yuqing from Central Southern China Electric Power Design Institute of China Power Engineering Consulting Group. Please	The project proponent refers the statement/37/ of Ms.ZHU Yuqin, the senior engineer from Central Southern China Electric Power Design Institute of China Power Engineering Consulting, that for industry boilers applied the designed life span is 30 years. And if the quality of the boiler

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		refer to Section B.6.1.	<p>passes the local Quality Management Bureau's yearly quality checking, those industry boilers could be used more than 30 years. Besides that, the project proponent demonstrates that based on section 2.2, Manual of Boiler Strength Calculation/38/, the pressure bearing components designed life span is 30 years.</p> <p>The CAR is therefore resolved and closed.</p>
<b>CAR 6</b> For the use of biomass residues, where the project activity uses different types of biomass residues, the baseline scenario should be identified for each type of biomass residue separately.	B.2.2	Each type of the biomass is discussed in the baseline scenario determination, please refer to PDD Section B.4	<p>The correction is to the Audit Team's satisfaction.</p> <p>The CAR is therefore resolved and closed.</p>
<b>CAR 7</b> For the sensitivity analysis, please put the 'Biomass Purchase Price' into the analysis.	B.2.3	It is added; please refer to PDD Section B.4 and the IRR calculation spreadsheet attached.	<p>The correction is to the Audit Team's satisfaction.</p> <p>The CAR is therefore resolved and closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 8</p> <p>For common practice analysis</p> <p>Please define the relevant geographical area, as per the requirement of “Combined tool to identify the baseline scenario and demonstrate additionality”.</p>	B.2.3	<p>CCPG is selected as the relevant geographical boundary of the project activity, which covers Henan Province, Hubei Province, Hunan Province, Jianxi Province, Sichuan Province and Chongqing City and includes more than 10 biomass residues power plants that are implemented or underway.</p> <p>In China, the investment environment for each region is different. Specifically in terms of available resources, labor costs and electricity tariffs, these can vary significantly in different parts of China, even different province of China. Therefore, it is not appropriate to consider activities in the whole of China and CCPG is selected as the appropriate geographical scope for the common practice analysis.</p> <p>The biomass combustion power generation Industrial in China is quite new. Until 2006, no grid-connected</p>	OK. The CAR is therefore resolved and closed.



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>biomass combustion power generation or cogeneration project with similar installed capacity (15-100MW) as the proposed project has been developed in China and the first similar biomass combustion generation power plant in China is the Shandong Shanxian Biomass Power Plant Project which was registered as CDM projects in year 2007.</p> <p>There are 5 similar projects operational and 11 similar projects underway (grid-connected biomass power projects (15-100MW)) in are applying for CDM in CCPG except Xuchang Changge Hengguang Cogeneration Project, which retrofits an existing old coal fired plant into biomass fired plant, the capital cost per kW are not comparable to the proposed project, therefore, the proposed project is not common practice and it is additional. Please refer to PDD page37-41.</p>	

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
<p>CAR 9</p> <p>For BE<sub>biomass,y</sub> calculation, please demonstrate in the PDD which steps are taken and how they are justified strictly follow the requirements stipulated in the latest version of methodology ACM0006.</p>	B.5	<p>The BE<sub>biomass,y</sub> is calculated strictly following the requirements in ACM0006(V06.2) in two steps, for more details, please refer to Section B.6.1</p>	<p>The CAR is therefore resolved and closed.</p>
<p>CL 1</p> <p>For baseline determination about the heat generation, it is to be demonstrated and evidenced further how to eliminate Alternative H2, H4 and H7.</p>	B.2.2	<p>H2 is excluded, because at present the technology of biomass cogeneration in China is just started and it is not common practice in China no matter lower efficiency or higher efficiency so this cannot be considered a plausible baseline scenario.</p> <p>H4 is excluded as there is no heat boiler using biomass residues in the local area, while using small coal-fired boiler is common practice to meet the process heat demand for the plants in the industry park, besides, it is not feasible for the individual enterprise to be equipped with expertise on the biomass collection or biomass-boiler operation.</p>	<p>The CL is resolved and closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>H7 is excluded since there is no district heat supply in the local area, heat sources from external sources such as district heating do not exist and there is no plan to build district heat system in Jianli County.</p> <p>Please refer to Section B.4. in the PDD.</p>	
<p>CL 2</p> <p>For baseline determination about the use of biomass residues, it is to be demonstrated and evidenced further how to eliminate Alternative B7 for all types of biomass residues used here.</p>	B.2.2	<p>Please see the PDD Section B.4 about the baseline analysis and the letter from Jianli Investment Promotion Bureau about the clarification on no biomass power plant except the proposed project or biomass energy project in Jianli County or under plan, besides, due to the high cost in the biofuels projects, the biofuel industry in China just started development and the biomass used for the biofuels are crops or non-crops plants mainly including the broomcorn, cassavas, sweet potato, Coptis chinensis, hairy chestnut, tung tree,</p>	<p>The official letter from the Merchants Bureau of Jianli Country was provided by the project proponent and assessed by the Audit Team. It is confirmed by the local government that except the Project, there is no others projects are planned to apply the local biomass resource.</p> <p>The CL is therefore resolved and closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		palm oil or waste cooking oil and/or waste fat from biogenic origin, not including the biomass types what will be used in the project.	
CL 3 It is to be clarified how the rice husk is dealt with, as per the EIA of these rice plants.	B.2.2	The rice husk is considered as solid residues in the EIA of rice plants and it suggests not to burn it uncontrollably , to utilize it some how, however, most of the rice husk is uncontrolled burned or dumped to decay, which is common practice in the local area. The proposed project will realize the utilization of the rice husk and reduce the air pollution caused by uncontrolled burning of rice husk, which is agreed and supported by EPC of Jianli County. Please refer the EIA from one rice plant and a letter from EPC of Jianli County on clarification about the rice husk uncontrolled burning phenomenon.	The local environment protection bureau explained that the common practice in Jianli Country regarding disposal of rice husk is uncontrolled burning. During on site assessment, the Audit Team has interviewed several rice manufacturing plants' management and confirmed that the rice husk was dealt with uncontrolled burning or dumping since currently there is no sanitation landfill in Jianli County.  The CL is therefore resolved and closed.
CL 4 During the IRR calculation, it is to be clarified and evidenced further how to determine the tariff, the price of biomass	B.2.3	The project owner made the investment decision based on the FSR and all the input values used in the investment analysis were taken from the FSR for	The Audit Team confirms that the key inputs of the IRR are referred from the FSR, which is the foundation for the project implementation. The

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
residues and the annual operational hours.		<p>the project carried out by the FSR Institute, which is certified to compile design reports for power projects with the highest grade A issued by Ministry of Construction P.R.China. All the data in the FSR was assessed by designated independent experts and finally approved by the DRC of Hubei Province. Therefore, the values are considered to be reliable and suitable.</p> <p><b>Power tariff</b> –According to &lt;Renewable energy generated electrical pricing and fee sharing management rules&gt; issued by NDRC of China in 2006, for biomass power plant, the tariff within 15 years since commission is composed by 0.25RMB/KWh subsidy plus the benchmark on-grid tariff (plus the de-sulphur subsidy) in year 2005. After 15 years' operation, the tariff would be cancelled. The benchmark on-grid tariff (with de-sulphur subsidy) for Hubei Province is 0.382RMB/KWh including VAT, which is used after 15</p>	<p>electricity's tariff is according the '<i>Renewable Energy Electricity Tariff and Cost Management Trial Regulations (fagaijiage [2006] 7)</i>'.</p> <p>The biomass cost is sourced from FSR and double-checked based on the purchasing price plus the biomass operation cost such as transportation, uploading and unloading, etc.</p> <p>The coal fired power generation technology is mature in China and the average annual operation hour is round about 7000 to 8000 hrs. Compared with coal fired power generation technology, the biomass energy technology is in an early stage in China and the annual operation hour is expected to be fluctuation around 6000 hrs, which can be evidenced by registered CDM biomass project.</p> <p>The CL is therefore resolved and</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		<p>years' operation. 0.632RMB/KWh( 0.632=0.382+0.250) including VAT is used within the 15 years' operation.</p> <p><b>Operational Hours</b>–6000 hours is the operational hours in the FSR, which takes considerations of the boilers' attribute, the properties of the biomasses, the risk in operation and maintenance, etc. Please see the " Introduction on the operational hour in Jianli Kaidi Biomass Power Project's FSR" which are issued by FSR writing institute and has been provided to the auditor. Besides, the biomass power projects in China registered or under validation (till October 2008, 20projects's operational hour data are available), which shows that 6000h is common used as the operational hour in biomass power projects in China.</p> <p><b>Biomass Cost</b>–The biomass Cost is estimated based on investigation on the local labour cost, transportation cost and</p>	closed.

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		pre-treatment cost, Please see the " Introduction on the Biomass Cost in Jianli Kaidi Biomass Power Project's FSR" which are issued by FSR writing institute and has been provided to the auditor. the value of the project is around the average biomass cost for the biomass power projects in China registered and under validation (till October 2008, 30 projects' data are available), which is 180RMB/t to 350RMB/ t. Please refer to Section B.4.	
CL 5 The transport distance is to be clarified further during the calculation about transportation emission.	B.4.2 B.4.3	The collection sites are still under consideration, not all determined yet. Preliminarily, the farthest biomass collections sites will not farther than 60km away from the project site. Therefore, 120km is used as the average double round transportation distance which is conservative. The real average transportation distance will be monitored ex-post since the project owner begins to collect biomass	The biomass collection sites are still under planning. At this phase, the longest transportation distance is applied in the PDD, which is conservative. 50km as average distance and 60km as the max distance are analysed in the Biomass Available Study. The radius of 60km is confirmed in the updated PDD and won't be changed during the crediting period.

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		residues. Please refer to PDD Section B.6.3 and the Emission Reduction calculation spreadsheet	The CL is therefore resolved and closed.
<p>CL 6</p> <p>The practical and economical available biomass residues amount shall be further clarified and evidenced.</p>	B.6	<p>The biomass residue availability report was done by the FSR writing institute with support from the local authorities. The plantation area and crop yield are from the Jianli County statistic year book, which has been provided to auditor. The values of each ratio grain to straw are official published experienced data. The Rice Husk amount is provided by Agriculture Bureau of Jianli County. The loss rates for straws and rice husk are experienced data. The consumption amount other than the project are done by survey on the local farmers and rice mill owners and confirmed by the Agriculture Bureau of Jianli County and Grain Bureau of Jingzhou City. Please refer to PDD Section B.6.1 and the Emission Reduction calculation spreadsheet.</p>	<p>Besides the biomass availability report/19/, the project proponent provides the biomass amount information from Jianli Statistical Yearbook 2007/33/, which is edited by the local government: Jianli Statistics Bureau. The practical and economical available biomass residues amount is approached and evidenced from a reliable official source.</p> <p>The CL is therefore resolved and closed.</p>



## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CL 7 It is to be clarified that all monitored data required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of CERs, which ever occurs later.	B.8.2	All the monitored data required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of CERs, which ever occurs later. This has been added in the PDD, please refer to Section B7.2	The answer is to the Audit Team's satisfaction.  The CL is therefore resolved and closed.
CL 8 Provide procedures for emergency preparedness for cases where emergencies can cause unintended emissions.	B.13.3	The procedures for emergency and the error handling are added, please refer to PDD section B 7.2	The procedures for erroneous monitoring handling and emergency preparedness are discussed in the PDD. Conservative means will be applied for erroneous monitoring handling; while for emergency preparedness will be detailed in the Operation Manual.  The CL is therefore resolved and closed.
CL 9 The operational lifetime of the project is stated as 20 years, which is to be evidenced.	C.1.1	According to <Economic appraisal guidelines for fossil fuel power plant >, D.1.1 20 years is used as the operational lifetime when appraise the power plant, which is commonly used in the biomass power plants in China. Besides, fixed	The answer is to the Audit Team's satisfaction.  The CL is therefore resolved and closed.

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		assets residues recovery is considered in IRR calculation.	
<p>CL 10</p> <p>It is to be clarified which medias are used to invite comments by local stakeholders.</p>	E.1.2	<p>There are two ways to invite the local stakeholders to give comments on the projects:</p> <p>(1) By websites and posters A summary of the project's introduction, EIA , questionnaires, contact information of the project was published on the website of the People's Government of Jianli County and the main roads near the project site to invite the local stakeholder to give comments on the project during the EIA report compiling period.</p> <p>(2) By questionnaires In June 2007, The project owner carried out the investigation stakeholders in Questionnaire. Questionnaire was implemented by filling the stakeholder comments investigation form. The</p>	<p>The local stakeholders interview was incorporated in the EIA/17/, which was approved by Environment Protection Bureau of Hubei Province/18/. The interviewed stakeholders were those from the villages that affected by the Project as indicated in the EIA. Before the interview was taken, appropriate means were applied to inform the stakeholders, which were confirmed by interview Mr. HAO Liqiong/VI/, the officer from the local environmental protection bureau.</p> <p>The CL is therefore resolved and closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
		comments, from the Jianli government, Jianli Environmental protection Bureau, Feijia Village, Bandilu Village, Shenliu village and other relevant stakeholders , were collected. 50 copies questionnaires were distributed and all of them were collected. Please refer to Section E.1.	

## Qualification

A, Qingxing (Sequoia) /

## Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

Auditor

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:  
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)  
CDM 04 – Manufacturing industries

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

2008/05/20

Valid to:  
(Gültig bis)

2011/05/19

Remarks:

Languages:

Chinese  
English

## Experience Exchange

Date

Location

Remarks

Accreditation(s)

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date: 2008-05-20  
Change: EAC CDM, CDM added  
By: Manfred Brinkmann  
Reason:

## History

Created: 2008/05/19 18:35:31 Sequoia A/Shg/Chn/TUV

Modified: 2008/05/19 18:35:42 Sequoia A/Shg/Chn/TUV

## Qualification

Brinkmann, Manfred /

### Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:  
(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level: Auditor  
(Qualifikationsstufe)

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☒ yes

EAC Scopes:  
(EAC Branchen)

CDM 03 – Energy demand  
CDM 04 – Manufacturing industries  
CDM 05 – Chemical industry  
CDM 10 – Fugitive emissions from fuels (solid; oil and gas)  
CDM 11 – Fugitive emissions from production and consumption  
of halocarbons and sulphur hexafluoride  
CDM 12 – Solvents use  
CDM 01 – Energy industries (renewable – / non-renewable  
sources)  
CDM 06 – Construction  
CDM 13 – Waste handling and disposal

Add. qualification:  
(zus. Qualifikation)

First Appointment: 2004/03/03  
(Erstberufung)

Valid to: 2010/03/03  
(Gültig bis)

Remarks:

Languages:

German  
English  
French

### Experience Exchange

Date

Location

Remarks

Accredita

### Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next  
Monitoring:  
(nächste  
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

### History of scope allocation

Date: 2004-03-05  
Change: EAC CDM, CDM added

By: Klaus-Dieter Fritsch  
Reason:  
  
Date: 2004-03-03  
Change: EAC CDM, CDM, CDM, CDM, CDM, CDM added  
By: Klaus-Dieter Fritsch  
Reason: Qualification is based on the applicant's ISO 14001 auditor qualification.

## History

Created: 2003/12/11 14:27:13 -  
Modified: 2007/11/22 12:00:46 Manfred Brinkmann/Jpn/TUV