VALIDATION REPORT

Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China

30 March 2010

Japan Consulting Institute

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Approved by Akio Yoshida, Executive Director	Organizational Unit JCI CDM Center, Japan Consulting Institute (JCI)
Client	Client ref.,
Mitsubishi Corporation	Mr.Tsuyoshi Nakamura
Project name	Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China
Host Country	Methodology version
People's Republic of China	ACM0006(Version 09)
Size	ER estimate
Large Scale	123,324 tonCO2e (annual average)
GHG Reducing Measure/	Grid-connected biomass power generation

A summary of the validation process and its conclusions, validation opinion

Japan Consulting Institute (JCI) has performed a validation work of the "Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China". The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

- The review of the PDD and the subsequent follow-up interviews have provided JCI with sufficient evidence, to determine the fulfilment of stated criteria.
- The host country is People's Republic of China and the Annex I country is Japan. Both countries fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from People's Republic of China confirmed that the project assists in achieving sustainable development.
- The project correctly applies "ACM0006 Consolidated methodology for electricity generation from biomass residues (version 09)", and referenced Tool.
- The total emission reductions from the project are estimated to be on the average 123,324 t-CO_2e per year over the selected 7 years 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 training and monitoring procedures have been implemented.
- In summary, it is JCI's opinion that the Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China as described in the PDD version 05 of "29/03/2010" meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the methodology ACM0006. version 09.
- JCI thus provides a positive opinion and requests the registration of the proposed project as a CDM project activity.

Date of revision	
30 March 2010, Revision 02	
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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CL	Clarification Request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
EF	Emission Factor
CERs	Certified Emission Reductions
GPISDesignRI	Guangxi Power Industry Survey Design and Research Institute
CM	Combined Margin
CNY	China Yuan (Unit of Chinese currency)
CO_2	Carbon dioxide
DOE	Designated Operation Entity
DNA	Designated National Authority
DRC	Development and Reform Commission
DRB	Development and Reform Bureau
EIA	Environmental Impact Assessment
ERPA	Emission Reduction Purchase Agreement
ERs	Emissions Reductions
EB	Executive Board
EPB	Environmental Protection Bureau
FSR	Feasibility Study Report
GHG	Greenhouse Gas
PDD for GSC	Project Design Document for Global Stakeholder's consultation
JCI	Japan Consulting Institute
KP	Kyoto Protocol
LoA	Letter of Approval
NDRC	National Development and Reform Commission
OM	Operating Margin
PDD	Project Design Document
PP	Project Participants
PRC	People's Republic of China
SCPG	South China Power Grid
Liuzhou BPGCo	Liuzhou City Xin'neng Biomass Power Generation Co., Ltd.
Mitsubishi	Mitsubishi Corporation
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Clean Development Mechanism Validation and Verification Manual

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I. VALIDATION OPINION

Japan Consulting Institute (JCI) has performed a validation of "Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China." The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.
The review of the project design documentation and the subsequent follow-up interviews have provided JCI with sufficient evidence to determine the fulfillment of stated criteria.

The host country is People's Republic of China and the Annex I country is Japan. Both countries fulfill the participation criteria and have approved the project and authorized the project participants. The DNA from People's Republic of China confirmed that the project assists in achieving sustainable development.

The project correctly applies ACM0006 "Consolidated methodology for electricity generation from biomass residues (version 09)", and referenced Tool "Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2)".

The total emission reductions from the project are estimated to be on the average 123,324 tCO_2e per year over the selected 7 year 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 training and monitoring procedures have been implemented.

In summary, it is JCI's validation conclusion that the "Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China" as described in the PDD version 05 of 29/03/2010 meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0006 version 09. JCI thus provides a positive validation opinion and requests for the registration of the proposed project as a CDM project activity.

II. INTRODUCTION OF CDM VALIDATION

The Client has commissioned to perform a validation of the "Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China" project in country (hereafter called "the project"). This report summarizes 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.

1. Objective of CDM Validation

The purpose of validation is to ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.

The DOE shall report the results of its assessment in a validation report. The DOE shall submit this validation report, along with the supporting documents to the CDM Executive Board as part of the request for registration of a project activity as a proposed CDM project activity.

The validation report shall include a positive validation opinion only if the proposed project activity complies with the applicable CDM requirements.

2. Validation approach

The CDM is a rules-based mechanism. Therefore, it shall be the DOE's responsibility to ensure that, in accordance with the Validation and Verification Manual vesrsion 01.1 and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.
During validation, the DOE shall assess whether the project design of the proposed CDM project activity meets the CDM requirements. For this, the DOE shall, using objective evidence, assess the completeness and accuracy of the claims and conservativeness of the assumptions made in the project design document (PDD). The evidence used in this assessment shall not be limited to that provided by the project participants.

In assessing evidence, the DOE shall not omit evidence that is likely to alter the validation opinion. In the assessment of evidence, the DOE shall use the acceptable approaches as specified in section II to IV, below, and the DOE shall ensure that the project activity complies with the relevant requirements set out in the CDM modalities and procedures, the applicability conditions of the selected methodology and guidance issued by the CDM Executive Board before submitting a request for registration.

In case the validation report includes a negative validation opinion the validation report shall be sent to the CDM Executive Board.

3. VALIDATION METHODS

3.1 Means of validation

The DOE shall apply standard auditing techniques to assess the correctness of the information provided by the project participants, including, where appropriate, but not limited to:

(a) Document review, involving:
(i) Review of data and information to verify the correctness, credibility and interpretation of presented information;
(ii) Cross checks between information provided in the PDD and information from sources other than that used, if available, and if necessary independent background investigations

(b) Follow-up actions (e.g., on site visit and telephone or email interviews), including:
(i) Interviews with relevant stakeholders in the host country, personnel with knowledge of the project design and implementation;
(ii) Cross-check of information provided by interviewed personnel (i.e. by checking sources or other interviews) to ensure that no relevant information has been omitted from the validation;

(c) Reference to available information relating to projects or technologies similar to the proposed CDM project activity under validation; and

(d) Review, based on the approved methodology being applied, of the appropriateness of formulae and correctness of calculations.

3.2 Clarification requests, corrective action requests and forward action requests

If, during the validation of a project activity, the DOE identifies issues that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, the DOE shall ensure that these issues are correctly identified, discussed and concluded in the validation report.

The DOE shall raise a corrective action request (CAR) if one of the following occurs:
(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
(b) The CDM requirements have not been met;
(c) There is a risk that emission reductions cannot be monitored or calculated.

The DOE shall raise a clarification request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

The DOE shall raise a forward action request (FAR) during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

The DOE shall resolve or "close out" CARs and CLs only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidence that satisfies the DOE's concerns. If this is not done, the DOE shall not recommend the project activity for registration to the CDM Executive Board.

The DOE shall report on all CARs, CLs and FARs in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD or supporting annexes.

The validation protocol consists of two tables. The different columns in these tables are described as followings.

Validation protocol tables

Table 1: Requirements checklist

- ✧ **Requirement (Checklist Question) :**
  The various requirements in Table 1 are checklist questions the project should meet. The checklist is organised in different sections, following the logic of the latest VVM, the PDD Guidelines and the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.
- ✧ **Reference :**
  Gives reference to documents where the checklist question or item is found. Paragraph No. of VVM is refered.
- ✧ **Check Comment :**
  The column is used to elaborate and discuss the checklist question and/or the conformance to the question.
- ✧ **ID No. of CAR, CL and FAR :**
  - · ***ID No. of CAR, CL and FAR is described.***
  - · ***Corrective Action Request (CAR)*** *is used due to non-compliance with the checklist question.*
  - · ***Clarification Request (CL)*** *is used when the validation team has identified a need for further clarification.*
  - · ***Forward ActionRrequest (FAR)*** *is used to highlight issues related to project implementation that require review during the first verification of the project activity.*

Table 2: Resolution of Corrective Action and Clarification Requests

- ✧ **Clarifications and corrective action requests :**
  *If the conclusions from the draft Validation are either a **CAR,** a **CL** or a **FAR**, these should be listed in this section.*
- ✧ **Ref. to checklist question in Table1 :**
  *Reference to the checklist question number in Table1 where the **CAR, CL** or **FAR** is explained.*
- ✧ **Summary of project owner response :**
  The responses given by the project participants during the communications with the validation team should be summarised in this section.
- ✧ **Validation team conclusion :**
  This section should summarise the validation team's responses and final conclusions.

The completed validation protocol for the Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China is enclosed in Appendix A to this report.

4. STAKEHOLDER CONSULTATION PROCESS

The DOE shall make the PDD of the project activity under consideration publicly available in accordance with the latest version of the "Procedures For Processing And Reporting On Validation Of CDM Project Activities"*[1].

[*1] <http://cdm.unfccc.int/Reference/Procedures/valid_proc02.pdf>.

During the validation of the project activity, the DOE shall take into account the comments received and the validation report shall include details of actions taken to take due account of the comments during the validation process.

If comments are not sufficiently substantiated or indicate that the project activity does not comply with the CDM requirements, then the DOE shall request further clarification from the entity providing the comment. However, the DOE is not required to enter into a dialogue with Parties, stakeholders or NGOs that comment on the CDM requirements. If no additional information or substantiation is provided in response to a request for clarification, the DOE shall proceed to assess the comments as originally provided.

III. VALIDATION WORK

JCI carried out the validation work to ensure that the project activity complies with the requirements of paragraph 37 of the CDM modalities and procedures.

1. Validation Team

Details of the validation team are shown in below Table.

Table 3. Details of Validation Team members

Name	Role/Qualification	Expertise/ Experience of Audit
Masaki Okada	All relevant issues / Team Leader	Mechanical Eng./ LFG recovery power generation, Waste gas recovery power generation, Biomass boiler
Haruo Sawada	CDM auditor / Team Member	Chemical Eng., / Hydropower generations

2. Appointment certificate of the DOE's validation team member

The certificate of appointment of validation team member is attached in Appendix B to this report.

3. Quality Control within the team of the validation process

The validation report worked out by the team underwent an internal review process to ensure the compliance with the applicable requirement of the latest version of VVM.

JCI applies internally established Quality Management Program for the required review process, which is defined as follows;

1. Internal Review for the interim check by the internal audit team and the interim technical review by the technical reviewer
2. The evaluation of the validation work in the CDM evaluation committee consists of outside experts
3. Internal review for the final check by internal audit team and the final technical review by the technical reviewer

The review and evaluation including the technical review are implemented for every validation work by the competent personnel assigned in accordance with JCI's qualification scheme for CDM validation and verification.

4. Desk Review

The following table outlines the documentation reviewed during the validation:

Table 4. Document list

No.	Title
PDD, Methodology, Tools, Guidance, Guidelines, Code	
/1/	PDD of Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China. version 01, completed on 03/08/2009
/2/	PDD of Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China., version 05, completed on 29/03/2010
/3/	ACM0006 version09 ,"Consolidated methodology for electricity generation from biomass residues"
/4/	"Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2)
/5/	ACM0002 version10 "Consolidated methodology for grid-connected electricity generation from renewable sources"
/6/	"Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion"(version 02)
/7/	"Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site";
/8/	"Tool to calculate baseline, project and/or leakage emissions from electricity consumption"(version 01)
/9/	GUIDELINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES (CDM-NM) (Version 07)
/10/	Guidelines on the Assessment of Investment Analysis (Version 03)
/11/	GUIDANCE ON THE DEMONSTRATION AND ASSESSMENT OF PRIOR CONSIDERATION OF THE CDM (Version 02)
/12/	Glossary of CDM terms (Version 05)
/13/	Clean Development Mechanism Validation and Verification Manual (version 01.1)
/14/	The paragraph 54 of the 38th meeting report of CDM EB
/15/	Guidelines for objective demonstration and assessment of barriers (version 01)
/16/	Tool to calculate the emission factor for an electricity system (Version 02)

No.	Title
General Reference	
/19/	Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project:China Electric Power Press, 2003
/20/	Notice on Strictly Prohibiting the Installation of Fuel-fired generators with the Capacity of 135MW or below Issued by State Council office (Decree No. 2002-6 of PRC)
/23/	Technical administrative code of electric energy metering (DL/T448-2000), approved by State Economic and trade commission of PRC on 03/11/2000
/24/	National Bureau of Statistics of China : http://www.stats.gov.cn
/25/	The registered CDM projects of Biomass Power Generation in China : Data source UNFCCC website
/26/	Projects approved by DNA of China published by Department of Climate Change : http://cdm.ccchina.gov.cn
/27/	China's Regional Grid Emission Factors : http://cdm.ccchina.gov.cn
/28/	China Electric Power Year Book 2006-2009
/29/	China Energy Statistical Year Book 2004-2008
/30/	China Statistical Yearbook for 2007 data issued in 2008 : http://www.stats.gov.cn/tjsj/ndsj/2008/html/E0423c.htm
/32/	The interest rate of the People's Bank of China: http://test.pbc.gov.cn/publish/zhengcehuobisi/631/1269/12693/12693_.html
/33/	Technical rule for designing auxiliary power system for fossil fuel power plants in DL/T 5153-2002 issued by NDRC
/34/	Interim Regulation for Tariff of Renewable Energy Power Generation and Allocation of Expenses, issued by NDRC on 04/01/2006
/35/	Notice on trial implementation of project fund system by General Office of the State Council of China (Guofa [1996] No.35) http://tzs.ndrc.gov.cn/xkxmql/xkxmyj/t20060802_78919.htm
/36/	Notice on the residual value determination for depreciation of fixed assets, issued by Tax Department of PRC (2005-No.883) on 14/09/2005
Evidence and Documents provided by the Project Participant and others	
/40/	LOA (Letter of Approval) by China DNA on 30/04/2009
/41/	LOA (Letter of Approval) by Japan DNA issued on 09/12 /2009
/42/	Approval Letter for Feasibility Study Report by DRC of Guangxi Zhuang Autonomous Region, China on 04/02/2008
/43/	Approval Letter of EIA Report by the EPB on 29/12/2007
/44/	Permission to start construction by Liucheng County on 24/02/2009
/45/	Business License for the PO by Commerce & Industry Administration Bureau issued on 23/03/2007
/46/	Approval by the Local Water Resource Bureau for Water/Soil Preservation Report on 27/09/2007
/47/	Feasibility Study Report by Guangxi Power Industry Survey Design and Research Institute reported on September 2007
/48/	EIA (Environmental Impact Assessment) Report by Environmental Sciences Research Institute in Guangxi Zhuang Autonomous Region reported on November 2007
/51/	Construction Contract on February 2009
/52/	Turbine/Generator Purchase Contract on 28/08/2008
/53/	Biomass Boilers Purchase Contract 25/10/2008

No.	Title
/54/	Emission Reduction Purchase Agreement on 09/09/2008
/61/	Grid Connection Agreement 22/05/2009
/63/	Minutes of Board Meeting for investment decision for CDM on 10/09/2007
/64/	Application for CDM to NDRC 10/01/2009
/65/	Acceptance Letter by NDRC 20/01/2009
/66/	Letter on the tariff determination with the incentives for the project issued by Price Bureau of Guangxi Zhuang Autonomous Region on 18/09/2007
/69/	Record of Stakeholders' Meeting on 05/09/2007
/70/	Questionnaire and Reply (Stakeholders' comments) compiled on 05/09/2007
/71/	General Arrangement Drawings of the plant issued by the design institute
/72/	Electrical Single Line Diagram issued by the design institute
/73/	Summary of Onsite Assessment by DOE(JCI) 10/09/2009
/74/	Contract of Validation/Registration service to Mitsubishi Corporation by DOE(JCI) on 28/05/2009
/80/	Analysis report of sugarcane leaves and mulberry leaves issued by Guanxi Electric Power Test & Research Institute CO.,LTD. on 17/05/2007
/81/	The technical report on the performance of CFB type boiler edited by Zhejiang University Heat Energy Process Laboratory in 2009
/82/	Article on the project in Guanxi Daily newspaper on 14/03/2008
/83/	*Directive Catalogue on Renewable Industry Development*, Degree No. 2517 of NDRC Energy. http://nyj.ndrc.gov.cn/zywx/t20060206_58771.htm,
/84/	The survey report by the project participant on the purchasing price of the Biomass Residues

Major changes of the content from the PDD/1/ to the PDD/2/ are summarized in the below table.

Table 5. Major Changes in the Content of the PDDs

Subject and section in the PDD	Original content in the PDD/1/	Revised content in the PDD/2/	Relevant tool, guidance, or guidelines applied
Confirmation of a New Project	The Notification of CDM project to Host party DNA was not explicitly described	The Notification Letter by PP and Acceptance Letter by NRDC were confirmed to be complying with the requirement.	CAR-3 by CDM-VVM Para.99 &100 and by EB41Annex46.
Issuance of LOA	The LOA from Japan was not issued yet.	LOAs of both parties were confirmed to be complying with the requirement.	CAR-1 by CDM-VVM Para. 45,52,53,125.
Emission Reduction Appropriateness of data used for Emission Reduction calculation PDD B.6.	Consistency of parameters such as NCV_k and Moisture values of Biomass between FSR and PDD were not clear. Annual emission reduction value was 123,196 tCO_2	NCVk and Moisture values and Amount of Available Biomass applied in the PDD were revised to comply with those in the FSR. Accordingly the emission reduction value were corrected to 123,324 t, but IRR result with CER was not changed due to small value change of ER.	CL-10, CL-11, CL-12 by CDM-VVM Para.90.
Investment Analysis PDD B.5.	The IRR spreadsheet was not included.	The appropriateness of Tariff, Biomass price, Internal consumption and others were verified through crosschecking with relevant information.	CAR-2, CAR-4.3, -4.5,-4.6, by CDM-VVM Para.107,108,109,110 & 112.
Monitoring plan PDD B.7.2.	The description of monitoring parameters and QAQC procedures were not appropriately described..	The figure was generated to clarify measuring points with related parameters. CDM monitoring organization was revised to ensure practical execution	CL-16, CL-19 by CDM-VVM Para.122.
Barrier Analysis PDD B.4.Step 2	The four Barriers were demonstrated in the PDD.	One Barrier of Lack of Prevailing Practise was appropriately demonstrated as complying with the	CL-8 by CDM-VVM Para.114& 115. The Guidelines introduced at EB50 Annex 13.

		Guidelines.	

5 Follow-up actions (Interviews with relevant stakeholders in the host country)

The on-site assessment and interviews with project stakeholders were held from 07 to 10 September 2009 at the project site in Liucheng County, Guangxi Zhuang Autonomous Region, China.

The names of interviewees are listed as following table.

Table 6. List of interviewees

No.	Date	Name	Organization	Topic
/73/	09/09/2009	Mr. Wu Ji Guang Ms.Sun Yu Ping Mr.Takeshiro Tanaka Ms.Wang Ying Ms.Wang Wei	The project owner company (Liuzhou City Xin'neng Biomass PGCo) PP (Japan) (Mitsubishi Co.)	**Interview with PP** · Company profile and Scheme of Project · Investment scheme · Project history/milestones · Serious Consideration of CDM · LoA /PPA application status · Purchase Contract/ Specification of major equipments · Record of Stakeholders' comment · Social contribution of Project
/73/	08/09/2009	Mr.Jiang Hua Fei Mr.Lon Tien Fei Mr.Han Xu Kun Ms.Zhong Lan Mr.Liang Min Sheng	Farmer Farmer Farmer Merchant Merchant	**Interview with Local Residents** · Stakeholders comment · Living condition · Environmental Affect · Contribution by Project to Local society/economy
/73/	09/09/2009	Mr. Lin Hua Qiang	Guangxi Power Industry Survey Design and Research Institute	**Interview with Design Institute** · Outline of Institute & and the role in the project · History and content of FSR · Design base of FSR · Electricity to the grid
/73/	08/09/ 2009	Mr. Wu Zhan Li	Liucheng County Power Grid Co.,Ltd.	**Interview with Local Grid** · Outline of Grid Company · Overview of Grid operation · Policy/Regulation for purchasing power · Information on tariff

No.	Date	Name	Organization	Topic
				determination scheme · Contractual issue with PP
/73/	08/09/ 2009	Mr.Gao Wen	Development and Reform Commission of Liuzhou City	**Interview with Local DRB** · Evaluation of the project · Approval history of the project · Compensation scheme and rule for the project · Major industry and economic policy of the area.
/73/	08/09/ 2009	Mr.Zang Ming Lang	Environmental Protection Bureau of Liucheng County	**Interview with Local EPB** · Evaluation of the project and monitoring result of the project · Criteria and regulation for EIA approval of the project

IV. VALIDATION FINDINGS

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

Findings issued through the validation

JCI issued the four (4) CARs and twenty five (25) CLs and one (1) FAR as shown in the Validation Protocol, Appendix A Table-1 and Table-2 of this report.
All the four CARs, and twenty five CLs, which were raised during validation process, were finally resolved and then closed as shown in the Table 2 of the Appendix A, their major changes from PDD version 01(PDD for GSC)/1/ to PDD version 05/2/ are summarized in Table 5. in the previous Chapter of this report.
Major issues and its resolution process through the validation are described in following items, according to Clean Development Mechanism Validation and Verification Manual (version 01.1), /10/.

1. Approval

JCI received copies of the two LoAs from PP : one is from DNA of PRC issued on 30/04/2009/40/, and for the other from DNA of Japan issued on 09/12/ 2009/41/.

JCI also has confirmed the following:

1. With the LoA, DNA of PRC approved Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region and authorized Liuzhou City Xin'neng Biomass

Power Generation Co., Ltd. as a voluntary participant to the project, and addressed its assistance to sustainable development in the host country.

2. Japanese government, as the DNA for Japan, approved Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region and authorized Mitsubishi Corporation as a voluntary participant to the project.

There found no indication during the validation process that the project used the official development assistance funding for PRC.
JCI concluded that the two LoAs are credible and fully comply with the requirements by the CDM.

2. Participation

JCI confirmed that Liuzhou City Xin'neng Biomass Power Generation Co., Ltd. is the sole project participant of PRC, and that Mitsubishi Corporation is the sole project participant of Japan as being listed in tabular form in section A.3 of the PDD/2/, and also confirmed that this information is consistent with the contact details provided in Annex 1 of the PDD/2/. It is also confirmed that no entities other than those approved as project participants are included in these sections of the PDD/2/.
As described above, the project participants are authorized with the LoAs issued by the relevant DNA as a voluntary participant to the project activity.

3. Project Design Document

Through desk reviews and Q&A sessions with the PDD author, JCI confirmed that the PDD/2/ was described based on and referring to the following relevant tools, guidance, guidelines, and manual:

(1) Tool to calculate the emission factor for an electricity system (Version 02)
(2) Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2)
(3) GUIDLINES FOR COMPLETING THE PROJECT DESIGN DOCUMENT (CDM-PDD) AND THE PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES(CDM-NM) (Version 07)
(4) Guidelines on the Assessment of Investment Analysis (Version 03)
(5) Guidelines for objective demonstration and assessment of barriers (version 01)
(6) GUIDANCE ON THE DEMONSTRATION AND ASSESSMENT OF PRIOR CONSIDERATION OF THE CDM (Version 02)
(7) Glossary of CDM terms (Version 05)
(8) CDM VVM (Version 01.1)

The project design was described using the PDD template of the latest version 07 as shown in the PDD/2/, that was confirmed through comparison with the template listed on the UNFCCC website.

As described above, JCI judged that the PDD/2/ was compiled with the appropriate format and is described based on appropriate tools, guidelines, manual and guidance which are specified and requested by the CDM procedures.

4. Project Description

JCI conducted on-site assessment from 07 through 10 September 2009 to confirm the context of the PDD/1/ with the following measures:

1) Observation of the project site
2) Cross-check of the plant design work with relevant drawings provided by the project participant
3) Interviews with the project participant, relevant organizations/entities, and local stakeholders shown in Table 6 of section 5 of the previous Chapter.

As the result of the above observations and findings and through the clarifications of descriptions of the PDD after the on-site assessment, JCI judged that the descriptions of the PDD/2/ were correct and its context was sufficient, and well outlined the nature and technical aspects of the project activity.

The major features of the project activity described in the PDD/2/ are summarized below:

- Project type: the construction of a biomass residue power generation plant utilizing mulberry leaves and sugarcane leaves discarded by the local farmers
- Installed capacity : 30 MW (15MW x2units of Biomass boilers and generators).
- Connecting grid : South China Power Grid (SCPG)
- Estimated delivered electricity: 157,860 MWh/year
- Estimated emission reductions: 123,324 t-CO2e/year
- Operational lifetime : 20 years
- 1st crediting period : 7years (a total of 21 years: 7years x 3)

5. Baseline and monitoring methodology

5.1. Applicability of selected methodology to the project activity

JCI judged that application of methodology ACM0006 (version 09) , Consolidated methodology for electricity generation from biomass residues /3/ to the project activity is appropriate, and justified through documents review and onsite assessment that they are correctly quoted and interpreted in the PDD/2/ .

The project meets the following conditions for the application of the methodology ACM0006 version 09/3/:

1) The installation of a new biomass residue fired power plant at a site where currently no power generation, and its operation is as an independent plant supplied by biomass residues coming from the nearby area or a market.
   Note-1: JCI confirmed the project is *a Greenfield project* as stated in the PDD A.2 and A.4.3 /2/ through site visit during the onsite assessment/73/

2) No other biomass types than *biomass residues* are used, these biomass residues are predominant fuel used in the project plant.
Note-2: JCI confirmed the project utilizes only the biomass residues such as mulberry leaves and sugarcane leaves discarded by the local farmers who cultivate them for silk industry and sugar industry in the district. The description in the PDD A.2 and A.4.3 /2/ and FSR/47/ was verified through site visit during the onsite assessment/73/
3) The biomass residues used by the project facility are not stored for more than one year, and no significant energy quantities are required in operation.
Note-3: JCI verified that stock period is not more than one year.The stock period was estimated through site visit during the onsite assessment73/ as two to four months including plant site as well as stock terminals in the agriculture area within 50km radius.
4) The PDD explained by the baseline scenarios identified in Table 2 described in the methodology,which will be verified in the following sections of this report.

5.2. Project boundary

The PDD/2/ defined the system boundary to include the power station, the transportation process of the biomass residues, the sites where biomass residues would have been left for decay or dumped, and the relevant electricity grid which encompass the physical, geographical site of the renewable generation source. The electricity generated by the project activity replaces part of electricity from the relevant electricity grids which have many fossil fuel-fired power plants within the network.
The PDD/2/ defined this relevant electricity grid as South China Power Grid (SCPG) plus Central China Power Grid (CCPG) which exported electricity to SCPG as adequately quoted in the PDD/2/ B.3. and B.6.1.
The system boundary and associated emissions are summarized in the below table, according to the selected methodology ACM0006 version 09/3/.

Table 7. System Boundary and Emissions

	Source	GHGs Involved	Justification in PDD	Justification by DOE
Baseline	Electricity generation by SCPG	CO_2	Included as Main emission source	Comply with Methodology
	Heat generation	CO_2	Excluded as the project is not for heat supply	Confirmed during the onsite assessment
	Uncontrolled burning or decay of surplus biomass residues	CH_4	Included since B1 and B3 have been identified as the most likely baseline scenarios for the proposed project.	Confirmed by visiting supply site of the biomass residues during the onsite assessment. **Justification was by Note-2 in Chapter IV Section 5.1 (2) of this report**
Project Activity	On-site fossil fuel and electricity	CO_2	Included as Main emission source	Comply with Methodology

	consumption due to the project activity			
	Off-site transportation of biomass residues	CO_2	Included as the emission source	Comply with Methodology **Justification was by Note-4 in below Remarks of this Table.**
	Combustion of biomass residues for electricity and/or heat generation	CH_4	Included because CH4 emissions from decay of biomass residues in the baseline scenario have been included	Comply with Methodology
	Storage of biomass residues	CH_4	Excluded since biomass residues are stored for not longer than one year	Confirmed quantitatively during the onsite assessment **Justification was by Note-3 in Chapter IV Section 5.1 (3) of this report**
	Waste water from the treatment of biomass residues	CH_4	Excluded as the treatment of biomass residues of the proposed project is not referred to the waste water.	Confirmed during the onsite assessment that no anaerobic treatment in the plant
Remarks: **Note-4: The extensive survey was carried out by the project participant on the amount and collecting area of the biomass residues, within 50km radius.**				

As shown in the above Table, JCI judged through the onsite assessment/73/that the definition and GHGs emissions within the project boundary as a result of implementation of the project activity is appropriate and fully complies with the methodology ACM0006 version 09.

5.3. Baseline identification

JCI verified that the PDD/2/ appropriately identified that the credible and feasible baseline scenario according to the methodology ACM0006 version 09, also applying the tool "Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2).
For baseline identification, alternatives are identified according to "Power Generation", and "Biomass residues" , as shown in the following Tables, as guided by chapter II of the methodology.

As for "Power Generation": **Table 8. Identification of alternatives for Power Generation**

Series	Alternatives	Included?	Justification by PP	Justification by DOE
P1	The proposed project activity not undertaken as a CDM project activity.	**Yes**	It seems to be a plausible alternative.	OK

P2	The continuation of power generation in an existing biomass residue fired power plant at the project site, in the same configuration, without retrofitting and fired with the same type of biomass residues as (co-) fired in the project activity.	No	The proposed project is a new power plant, so P2 is excluded.	Confirmed by site visit during the onsite assessment. Justification was by Note-1 in Chapter IV Section 5.1 (1) of this report.
P3	The generation of power in an existing captive power plant, using only fossil fuels.	No	There is none such plants, so P3 is excluded.	Ditto
P4	The generation of power in the grid (SCPG).	**Yes**	The generation of power from SCPG will meet the requirement of national laws, also financially viable. Hence, P4 is a feasible alternative.	OK
P5	The installation of a new biomass residue fired power plant, fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation than the project plant and therefore with a lower power output than in the project case.	No	According to national strategy of saving energy and reducing emission, power industry generally adopts advanced technologies, so P5 is excluded.	Confirmed by the specification of the boiler, also crosschecked with the reference report./81/
P6	The installation of a new biomass residue fired power plant that is fired with the same type but with a higher annual amount of biomass residues as the project activity and that has a lower efficiency of electricity generation than the project activity. Therefore, the power output is the same as in the project case.	No	Ditto, P6 is excluded.	Ditto
P7	The retrofitting of an existing biomass residue fired power, fired with the same type and with the same annual amount of biomass residues as the project activity, but with a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project plant and therefore with a lower power output than in the project case.	No	The proposed project is a new power plant and there is none of existing biomass residue fired power plants on-site or nearby the project site, so P7 is excluded.	Confirmed by site visit during the onsite assessment. Justification was by Note-1 in Chapter IV Section 5.1 (1) of this report.
P8	The retrofitting of an existing biomass residue fired power that is fired with the same type but with a higher annual amount of biomass residues as the project activity and that has a lower efficiency of electricity generation (e.g. an efficiency that is common practice in the relevant industry sector) than the project activity.	No	The proposed project is a new power plant, so P8 is excluded.	Confirmed by site visit during the onsite assessment. Justification was by Note-1 in Chapter IV Section 5.1 (1) of this report.
P9	The installation of a new fossil fuel fired captive power plant at the project site.	No	According to the national regulation, any fossil fuel fired plant less than 135MW is forbidden./20/	Confirmed by the evidence./20/ Consistency with mandatory laws
P 10	The installation of a new single- (using only biomass residues) or co-fired (using a mix of biomass residues and fossil fuels) cogeneration plant with the same rated power capacity as the project activity power plant, but that is fired with a different type and/or quantity of fuels (biomass residues and/or fossil fuels). The annual amount of biomass residue used in the baseline scenario is lower than that used in the	No	First, the proposed project is only a power generation plant, and second, as per the FSR there are no other different biomass residues abundant for power generation at the project site.	Confirmed by site visit during the onsite assessment./73/

	project activity;			
P 11	The generation of power in an existing fossil fuel fired cogeneration plant co-fired with biomass residues, at the project site.	No	There are no existing fossil fuel fired cogeneration plants at the project site, so P11 is excluded.	Ditto

As for "Biomass residues": **Table 9. Identification of alternatives for Biomass Residues**

The description at B.4 in the PDD/2/ on the usage and amount of each type of the biomass residues in the absence of the project activity was appropriate in accordance to the methodology./3/

JCI also confirmed through the interview and site visit during the onsite assessment/73/ that the overgrown mulberry and sugarcane leaves and stems have been trimmed and dumped nearby farm ridges constantly for better harvest of main stems during the period in-between twice plantings in a year. The main sugarcane stems and fresh mulberry leaves have been sold out for sugar industry and silk worm culture respectively, thus no anaerobic digester-type installations for such trimmed biomass residues were observed in the district.

Series	Alternatives	Included?	Justification by PP	Justification by DOE
B1	The biomass residues are dumped or left to decay under mainly aerobic conditions. This applies, for example, to dumping and decay of biomass residues on fields.	**Yes**	It seems to be a plausible alternative.	Confirmed by site visit during the onsite assessment./73/ Justification was by Note-2 in Chapter IV Section 5.1 (2) of this report
B2	The biomass residues are dumped or left to decay under clearly anaerobic conditions. This applies, for example, to deep landfills with more than 5 meters. This does not apply to biomass residues that are stock-piled or left to decay on fields.	No	It should be in a suitable temperature and moisture condition, which needs to be invested, and costs high. So B2 is excluded.	Anaerobic digester-type installations were not observed at farmers in the district of the project during the onsite visit
B3	The biomass residues are burnt in an uncontrolled manner without utilizing it for energy purposes.	**Yes**	It seems to be a plausible alternative.	Confirmed by site visit during the onsite assessment./73/ Justification was by Note-2 in Chapter IV Section 5.1 (2) of this report
B4	The biomass residues are used for heat and/or electricity generation at the project site	**Yes**	It seems to be a plausible alternative.	Confirmed by site visit during the onsite assessment./73/
B5	The biomass residues are used for power generation, including cogeneration, in other existing or new grid-connected power plants	No	There is no power generation project using biomass residues as fuel close to proposed project. Considering the cost of biomass residues transportation, other existing or new grid-connected power plants will not use these surplus biomass residues.	Confirmed by site visit during the onsite assessment./73/, Also by the public information of the district./82//28/.

B6	The biomass residues are used for heat generation in other existing or new boilers at other sites	No	The biomass residues used in the proposed project don't sale for heat supply, because there is none of existing biomass residue fired power plants on-site or nearby the project site.	Ditto
B7	The biomass residues are used for other energy purposes, such as the generation of biofuels	No	The biomass residues used in the proposed project are not the raw material for biofuel production.	Confirmed by site visit during the onsite assessment./73/
B8	The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in processes (e.g. in the pulp and paper industry)	No	Currently, there is no company using biomass residues for non-energy purpose around the project site such as fertilizer or as feedstock in processes. Furthermore, it is difficult for the biomass residues to be used as fertilizer. So alternative B8 is excluded.	Ditto

As shown in the above Table 8 and Table 9, the PDD selected the two alternatives (P1 and P4) for power generation and the three alternatives (B1, B3 and B4) for biomass residues, and JCI validated that their selection were reasonable and justified through reviewing of the FSR/ 47/ and site-visit during the onsite assessment/73/.
The PDD then concluded the two baseline scenarios as the combination 1(P1+B4) and the combination 2 (P4 + (B1+ B3)) according to the Steps guided by the Tool "Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2)/4/, and consequently one baseline scenario as combination 2 (P4 + (B1+ B3)) , which is Scenario 2 of the applied methodology ACM0006./3/.
JCI confirmed this approach was adequate and fully met with the context of the applied Tool /4/, thus justified the Scenario 2 was a realistic credible alternative for the project.

5.4. Algorithms and/or formulae used to determine emission reductions

The algorisms and/or formulae are validated with the following steps:

5.4.1. Application of baseline and monitoring methodology

JCI confirmed that the PDD/2/ fully complies with the methodology ACM0006 version 09 /3/ and the relevant tool/4/ based on the baseline scenario selected. The calculation formula of baseline emissions, project emissions, leakage emission and accordingly emission reductions were conducted based on Scenario 2 in the methodology/3/.
JCI also confirmed that the data and parameters used in the calculations are sourced from the FSR/47/ and correct interpretation and application of the data of CDM China/27/.

5.4.2. Project emission (PE_y)

The project emission was estimated by the following formula, and application of each equation and value were verified as below.

$PE_y = PET_y$ *(Transport)* + $PEFF_y$ *(Co-fired fossil fuels)* + $PE_{EC,y}$ *(Electricity consumption)* + $GWP_{CH4} * PE_{Biomass,CH4,y}$ *(CH_4 emission from the combustion of biomass residues)*

(1) PET_y (Transport)

The PDD adopted the equation 4 (Ex-ante estimation) and the equation 3 (Ex-post and monitoring purpose) under Option 1 in the methodology ACM0006. /3/.

JCI judged with the methodology/3/ and the FSR/4/, that the PDD/2/ has been correctly calculated based on the methodology/3/ using appropriate data , and of which result is also correctly applied to the PET_y calculation.

The validity of the adopted parameters :

According to the FSR, average round trip from the supply site to the project plant is 100km with the average truck load 5tons, transporting annual biomass residues 178,198 tons, thus km

PET_y = (178,198 / 5) * 100km * $EF_{kmCO2,y}$ (tCO_2/km), where $EF_{kmCO2,y}$ (tCO_2/ km) was estimated by IPCC default value for heavy load transportation truck (1.011x 0.001 tCO_2/ km) = 3603 (tCO_2/yr)

The conservativeness of $EF_{kmCO2,y}$(1.011x 0.001 tCO_2/ km) was confirmed by the local data collected during the onsite assessment that an average fuel consumption of the local diesel engine trucks was 0.25 liter/ km, thus $EF_{kmCO2,y}$ (tCO_2/ km) = 0.25 x 10^{-3} kl / km * 37.7 GJ/kl * 0.0187 tC/GJ (Dieasel fuel) * 44/12 = 0.65 x 10^{-3} (tCO_2/ km) < 1.011x 10^{-3} Thus $EF_{kmCO2,y}$(1.011x 0.001 tCO_2/ km) by IPCC default value was conservative.

(2) $PEFF_y$ (Co-fired fossile fuels)

According to FSR of the proposed project and the actual situation of the project, there is no any fossil fuel as combustion improver and ignition fuels, and the proposed project only uses the biomass residues as fuels.

The PDD adopted 0 tons of diesel for the ex-ante value and the amount of diesel would be monitored ex-post by using the latest approved version of "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" and its Option B due to the availability of the data, namely

$PEFF_y = (FF_{\text{projectplant diesel},y} + FF_{\text{projectsite diesel},y}) \times COEF_{\text{diesel},y}$, where $COEF_{diesel,y}$ would be calculated by $NCV_{i,y}$ x $EF_{CO2,I,y}$

JCI judged with the methodology/3/ and the FSR/4/, that the PDD/2/ has selected the appropriate tool and its option.

(3) $PE_{EC,y}$ (Electricity consumption)

The PDD adopted the equation (1) applicable to Scenario A in the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 03).

$PE_{EC,y}=EC_{PJ,y}\times EF_{grid,CM,y}\times(1+TDL_y)$, where $EC_{PJ,y}$ *(Quantity of electricity by the project electricity consumption source)* was estimated at 10 kWh/tons of the biomass residues as a conservative estimation, and $EF_{grid,CM,y}$ *(CM value of the grid to which the project will deliver or purchese electricity from)* was 0.78795 tCO_2/MWh of South China Power Grid , and TDL_y

(Average technical transmission and distribution losses for providing electricity to the project) was estimated at 0.2 as a default value defined in "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", consequently $PE_{EC,y}$= 1781.98 MWh * 0.78795 * (1 + 0.2) = 1685 (tCO_2/yr).
JCI judged with the methodology/3/ and the FSR/4/, that the PDD/2/ has been correctly calculated based on the appropriate Tools and data , and of which result is also correctly applied to the $PE_{EC,y}$ calculation.
As for $EF_{grid,CM,y}$ = 0.78795, JCI confirmed this value being valid as the most recent date for calculation of the grid emission factor issued in July 2009 year's edition of both China Energy Statistical Yearbook and China Electric Power Yearbook, judging from that the period of making PDD publicly available started on 18 August 2009.
As for the estimation of $EC_{PJ,y}$, the PDD adopted an ex-ante index of 10kWh/tons biomass residues for estimating the Quantity of electricity by the project electricity consumed from collection, storage and utilization by the project. This index value was verified to be conservative when compared with similar registered CDM projects in China, ranging from 0.5 to 10 kWh/tons.

(4) $PE_{Biomass,CH4,y}$ *(CH_4 emission from the combustion of biomass residues)*
The PDD included this source emissions in the project boundary, because the PDD adopted methane emission by the baseline emissions due to natural decay of the biomass residues, thus complying with the methodology/3/.
The PDD adopted the equation

$$PE_{biomass,CH4,y} = EF_{CH4,BF} \cdot \sum_k BF_{k,y} \cdot NCV_k = 93 \text{ (ton}CH_4\text{/yr)}, \text{ thus } 93 \times 21 \text{ (ton}CO_2\text{/ yr)},$$

where $EF_{CH4,BF}$ *(CH_4 emission factor)* was estimated by using IPCC default value as guided in Table 4 and 5 in the methodology, consequently 30 kg CH_4/TJ * 1.37 (conservativeness factor of 300% uncertainty assumption).
The ex-ante values of $BF_{k,y}$ (Quantity of biomass residue type *k* combusted in the project plant) and NCV_k (Net calorific value of the biomass residue type *k*) of the sugarcane leaves and mulberry leaves were calculated using $BF_{sugarcane}$ of 178198 tons/yr * 80% and $BF_{mulberry}$ of 178198 tons/yr * 20%, and the sample analysis values of $NCV_{sugarcane}$ and $NCV_{mulberry}$, which JCI confirmed with the analysis report./80/

As summation, the total project emissions were estimated in the PDD, which was reasonable and conservative , and fully met with the context of the methodology/3/ applying the parameters of the FSR/4/ .
$PE_y = PET_y$ *(Transport)* + $PEFF_y$ *(Co-fired fossil fuels)* + $PE_{EC,y}$ *(Electricity consumption)* + $GWP_{CH4} * PE_{Biomass,CH4,y}$ *(CH_4 emission from the combustion of biomass residues)*
= 3603 + 0 + 1685 + 1953 = 7241 (tonCO_2/ yr)

5.4.3. Emission reduction due to displacement of electricity ($ER_{electricity,y}$)

According to the methodology, Emission reduction due to displacement of electricity is defined as $ER_{\text{Electricity,y}} = EG_y \times EF_{\text{Electricity,y}}$, where $EF_{electricity,y}$ CO_2 emission factor of the relevant grid system, and $EG_y = EG_{project\ plant,y}$ (net power supply by the project power plant) because the proposed project belongs to baseline Scenario 2 which is regulated in methodology ACM0006.

As for estimation of CO_2 emission factor of the relevant grid system, JCI confirmed the PDD appropriately identified the relevant electric power system and calculated CO_2 emission factor ($EF_{electricity,y}$) according to the relevant methodology ,ACM0002 version10 "Consolidated methodology for grid-connected electricity generation from renewable sources".
SCPG has been appropriately identified in B.3. of the PDD/2/ as the Grid included in the project boundary as stated at **5.2** of this report.
JCI also confirmed the parameters and data for calculating $EF_{electricity,y}$ being valid as the most recent date for calculation of the grid emission factor issued in July 2009 year's edition of both China Energy Statistical Yearbook and China Electric Power Yearbook, considering that the period of making PDD publicly available started on 18 August 2009.

As for defining net power supply by the project power plant, the PDD/2/ selected the ex-ante values as below, which JCI confirmed to be appropriate and conservative with the evidence and the interview during the onsite assessment/73/.
Annual net electricity supplied to the grid = Installed generator capacity(30MW) * Annual operating hour (6000hr) * Electricity coefficient value (100%) * (1 - Internal consumption (12.3%)) * (1 - Line loss rate (0%)) = 157860 MWh
The appropriateness of Annual operating hour and Internal consumption rate are discussed at 6.4.2. (5) of this report.

Consequently $ER_{electricity,y}$ = 157,860 x 0.78795 = 124,386 t CO_2/yr

5.4.4. Baseline emissions due to natural decay or uncontrolled burning of anthropogenic sources of biomass residues ($BE_{Biomass,\ y}$**)**

Because the project activity was defined as belonging to baseline scenario 2 in the methodology ACM0006, $BF_{PJ,k,y}$ (biomass residues consumption produced by this project activity) is equal to $BF_{k,y}$ (biomass residues consumption produced by the proposed project), namely, $BF_{PJ,k,y} = BF_{k,y}$.
As the PDD has selected that the baseline scenario for use of biomass residues was a combination of B1 and B3, emissions from uncontrolled burning (scenario B3) were taken as the baseline emission by following the conservative principle.
Therefore, the calculation formula of baseline emission produced by biomass residues uncontrolled burning or aerobic decay is as below:

$$BE_{biomass,y} = GWP_{CH4} \cdot \sum_k BF_{PJ,k,y} \cdot NCV_k \cdot EF_{burning,CH4,k,y} \quad = 6179 \text{ t } CO_2\text{/yr}$$

where GWP_{CH4} (Global Warming Potential of methane) was 21(tCO_2/tCH_4), and the default value 0.0027 (tCH_4/ton biomass) * 0.73 (conservativness factor) as defined in the methodology was selected for $EF_{burning,CH4,k,y}$ (CH4 emission factor for uncontrolled burning) .

The quantity and net calorific value of each biomass residue were the same as used at **5.4.2.**(4) of this report.
JCI judged with the methodology/3/ , that the PDD/2/ has been correctly calculated based on the appropriate procedure and data , and of which result was also correctly applied to the $BE_{Biomass, y}$ calculation.

5.4.5. Leakage

JCI confirmed that the PDD/2/ appropriately estimated no leakage associated with the project activity as defined in the methodology/3/, by demonstrating that the biomass residues available around the project site was an abundant surplus, thus the biomass residues used in the plant did not increase fossil fuel consumption elsewhere.
The survey report of FSR shown below, demonstrated that the available quantity of the biomass residues meet L2 requirement (over 125% of utilized quantity) defined in the methodology, thus Leakage could be neglected.
The surveyed area was clearly stated in the PDD as being within about 50Km radius range around the project site, thus complying with guideline L2 requiring 20 Km to 200Km radius range area.

Table 10.Survey data of the biomass residues availability

Type of biomass residues	Sugarcane leaves	Mulberry leaves
1. Available quantity (1,000 t)	375	315
2 Quantity to be utilized at the project plant (1,000t)	142.558	35.640
3. Ratio of available quantity vs. quantity utilized	2.63	8.84
Note :Meet L2 requirement	**3.87 > 1.25 (L2 requirement)** **Surveyed area 50km radius < 20 – 200km radius**	

JCI also confirmed during the onsite assessment/73/, the similar survey was intensively made by the local Sugar industry group, Sugarcane agriculture group and Silkworm agriculture group for planning future expansion of sugarcane and mulberry, thus the potential to increase present available quantity of these biomass residues is high and an an abundant surplus of the biomass residues is reliable information.

5.4.6. Emission reductions

The emission reduction of the proposed project is decided by the following formula:

$$ER_y = ER_{Electricity,y} + BE_{Biomass,y} - PE_y - L_y \qquad (1)$$

$$= 124{,}386 + 6179 - 7241 - 0 = 123{,}324 \ (tCO_2/yr)$$

Where:

ER_y = Emissions reductions of the project activity;

$ER_{electricity,y}$ = Emission reductions due to displacement of electricity;

$BE_{biomass,y}$ = Baseline emissions due to natural decay or burning of anthropogenic sources of

biomass residues;

PE_y = Project emissions;

L_y = Leakage emissions

The PDD/2/ estimated each emission as described at **5.4.2., 5.4.3., 5.4.4.,** and **5.4.5.**of this report. And then concluded that with Equations (1), the emission reductions of the project activity to be 123,324 tCO_2 / year. JCI confirmed that the calculations were appropriate and correct.
In conclusion, JCI judged that the emission reductions were appropriately worked out complying with relevant methodology/3//5/ and tools/4//6//7//8/, and parameters and data for the calculations were sourced from proper data sources.

6. Additionality of project activity

JCI assessed the additionality of the project activity with the following steps as below, complying with VVM/13/.

6.1 New project activities of CDM

Since the project activity started on 28 August 2008, before the date of publication of the PDD for global stakeholder consultation on 18 August 2009 and after 2 August 2008 of the date of project classification , the project is defined as a New project by the Guidance stated in EB41 annex 46.
JCI confirmed that the project participant had applied his intension to seek CDM status to a Host Party DNR, namely NDRC by the letter on 10/01/2009 /64/, and the acceptance letter by NDRC on 20/01/2009/65/. Thus this notification was made within six months complying with "Guidance on the Demonstration and Assessment of Prior Consideration of the CDM" by EB41 annex 46,
and JCI also confirmed that in fact LoA by China DRC for this project was issued on 30/04/2009.

6.1.1. Project start date definition

After reviewing the various purchase contracts by the project participant such as Turbine/Generator /52/ on 28/08/2008, Bomass Boiler/53/ on 25/10/2008, and Construction Work/51/ in February/2009, JCI confirmed the project start date of 28 August 2008 for the purchase contract of Turbine/Generator is the earliest real action of the project, which adequately stated in the PDD C.1.1., thus fully complied with the new definition of Glossary of CDM terms (version 04)/12/.

6.1.2. Timeline of the project

Timeline of major milestones relevant to key activities to achieve CDM is tabulated below.

Table 11.Timeline of milestones of key activities/events to achieve CDM

Date	Milestones	Evidence
September, 2007	**FSR was completed** by Guangxi Power Industry Survey Design and Research Institute	FSR suggested project owner to apply for CDM./47/
10/09/2007	Base on the suggestion of FSR, project owner held a board meeting on CDM consideration. **Consideration of CDM**	Minutes of Board Meeting /63/
September, 2007	PP conducted Public consultation with Local Stakeholders	Minutes of Meeting/ 69/
18/09/2007	Notice on grid-connected tariff for the project	Letter by Price Bureau of Guangxi Zhuang Autonomous Region/66/
29/12/2007	Approval of EIA report	Approval letter by EPB of Guangxi Zhuang Autonomous Region /43/
04/02/2008	Approval of FS Report	Approval letter by DRC of Guangxi Zhuang Autonomous Region/42/
28/08/2008	Purchase Contract of Generators and turbines. **Starting date of Project**	Contracts with suppliers/52/
09/09/2008	ERPA signed	Purchase agreement/54/
25/10/ 2008	Purchase Contract of biomass boilers	Contract /53/
10/01/2009	Application of intention to seek CDM status of the project.	Acceptance letter by NDRC /65/
20/01/2009	Acceptance by NDRC of the application of intention to seek CDM status of the project.	Acceptance letter by NDRC /65/
24/02/2009	Permission of start construction	Permission by Liucheng county/44/
30/04/2009	LoA by China DNA was issued	LoA/40/
18/08/2009	PDD published on UNFCCC website	No public comments received
09/12/ 2009	LoA by Japan DNA was issued	LoA/41/

JCI verified all the milestones listed in the above table with the relevant evidences provided by the project participant, also through interviews to the project participant and staff of the relevant authorities during the onsite assessment./73/

According to the above milestones, the proposed project received the approvals by the relevant authorities on its FSR and EIA compiled by the authorized design institute.

Upon receipt of the recommendation by the FS report that the project activity was eligible for applying CDM to overcome its financial barrier for power generation with a renewable energy source, the project participant made the decision to seek CDM status on the project. Then the project participant proceeded with the purchase contract of the major machinery (Turbines/Generators) for actually starting the project activity, in parallel with necessary applications to the relevant authorities.
Thus JCI concluded that the above timeline appropriately justifies the project participant to undertake a series of actions starting with the decision for CDM activities until the PDD published on UNFCCC website.

6.2 Identification of alternative

JCI judged that as described in the above section "5.3 Baseline identification" in this report, the PDD/2/ of the proposed project activity identified five (5) alternatives appropriately, and then selected the most suitable Scenario 2 of the applied methodology ACM0006/3/, as discussed at 5.3. of this report.

6.3 Barrier analysis

Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2) /4/ provides to demonstrate Barrier analysis after Step 1 (Identification of alternative scenarios) discussed at 5.3. of this report.
The PDD for GSC/1/ demonstrated the four barriers such as Investment Barrier, Technology Barrier, Barriers due to lack of Prevailing Practice, and the lack of price hedge mechanism of the biomass residues as Other Barriers.
JCI reviewed the statement in the PDD for GSC/1/ whether these four barriers would be real with supporting evidences, by applying the guidelines for assessment of barriers issued at EB50 Annex13 /15/.
As the result, JCI judged that Investment Barrier and Technology Barrier could be assessed more quantitatively at Step3, Investment Analysis Section, and Other Barriers could not be supported by sufficient third party evidences, thus requested the project participant to follow the new guideline at EB50 Annex13 /15/ for further objective demonstration of the barriers.
JCI verified that the PDD/2/ demonstrated only one Barrier due to lack of Prevailing Practice, by claiming the project was the first of its kind in the Province of Guangxi Zhuang Autonomous Region.
JCI verified this by the information in the published article of the local news paper /82/ ,which highlighted the first biomass power generation in the Province of Guangxi Zhuang Autonomous Region in addition to the first biomass power generation plant to the project owner, when the plan of the project was released. JCI also crosschecked by confirming with *China Electric Power Year Book* (2006-2009)/28/, where there was no list up of power station by biomass power generation in the Province of Guangxi Zhuang Autonomous Region.
Thus JCI assessed that there could be un-anticipating factors for the project participant during the business and plant operation of the project.

The above mentioned barrier does prevent the project activity and would not prevent at least the baseline of the project, which is the generation of power in the SCPG grid and the biomass residues are dumped or left decay or burnt in an uncontrolled manner.
Therefore JCI confirmed the barrier claimed in the PDD/2/ was credible and correctly presented to demonstrate the additionality of the project.

6.4 Investment analysis

For the investment analysis, benchmark analysis was applied and the project IRR after tax (hereafter IRR) was calculated to be 5.42% without CERs revenue, and 12.84% with CERs revenue, against the bench mark 8%. It was, therefore, concluded that the project activity was not financially attractive.

6.4.1. Benchmark Analysis

The PDD/2/ selected the benchmark analysis method for investment analysis of the project activity with the following justifications:

a) Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2) /4/ provides to go to Step 3 (Investment analysis) when more than two alternatives are remaining including the project undertaken without CDM. Since the baseline identification reviewed at Table 8 and Table 9 of 5.3. of this report is classified under such case, Investment analysis is the next step for demonstrating additionality.

b) In China there is the benchmark IRR publically available, specified in the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Project /19/, which has been widely used for financial evaluation of power generation projects. The "Rules" states that the power industry in China can apply 8% after tax as the benchmark to evaluate the financial attractiveness of the power generation projects.

c) The project IRR has been calculated to be 5.42 % without CERs revenue and 12.84 % with the revenue. And it has been concluded that with the provision of CDM application, the project has been regarded as financially feasible.

JCI reviewed the baseline scenario of the PDD/2/, cross-checked the "Rules" /19/, and judged that the selection of benchmark analysis for investment analysis was appropriate and fully complied with the relevant tool/4/ and VVM/10/.

Conformance with VVM (version 01.1) Para.112 (EB 38 paragraph 54) ;
With the result of benchmark analysis, the PDD/2/ concluded that the project activity would not be implemented without CDM application, as the project IRR without CERs revenue worked out to be 5.42% lower than the benchmark 8%, while with CERs revenue 12.84%, of which IRRs are calculated fully relying on the input values used in the FSR.

The FSR was confirmed as being reviewed by Development and Reform Commission of Liuzhou City and approved by Development and Reform Commission of Guangxi Zhuang Autonomous Region, China./42/
JCI evaluated the conformance as below:

a) As shown in Timeline Table 11 of 6.1.2.of this report, the completion date of FS Report (September 2007) and the decision made for going ahead with CDM by the project participant (10 September 2007) were almost same time so that it is unlikely the input values would have materially changed , as recommended by EB38 Para.54.(a).

b) The values used in the PDD/2/ are fully consistent with the FSR/47/and PDD/2/, except the minor difference of expected CER price. Thus JCI confirmed to be comply with EB38 Para.54.(b).

c) The validity of the input values of the FSR and the PDD/2/ were verified to be applicable at the time of the investment decision through cross-checking and discussion as shown in the following section of this report, 6.4.2.Evaluation of IRR Calculation. Thus JCI confirmed to be comply with EB38 Para.54.(c).

JCI reviewed the PDD/2/, and judged that the selection of benchmark analysis for investment analysis was appropriate and fully complied with the relevant tool, Combined tool to identify the baseline scenario and demonstrate additionality" (version 02.2) /4/ , and Clean Development Mechanism Validation and Verification Manual (version 01.1)/10/.

6.4.2. Evaluation of IRR calculation

With the result of benchmark analysis, the PDD/2/ concluded that the project activity would not be implemented without CDM application, as the project IRR without CERs revenue worked out to be 5.42% lower than the benchmark 8%, while 12.84% with CERs revenue .

The parameter values applied to the IRR calculation of the PDD/2/, which are also listed at Table 2 at B.4. of the PDD/2/, are summarized in the Table 12 below.
The consistency of the parameters were confirmed as reviewed in the above section 6.3.1. and were validated through confirmation by the evidences.

Table 12 Input Values of PDD/2/

Parameters	**Values**	Data source and Cross check
Installed capacity (MW)	30	FSR
Annual operation hours	6000	FSR, Other CDM projects
Annual electricity output(MWh)	157860	FSR
Coefficient of effective electricity / Internal Loss / Line Loss	100% 12.3% 0%	FSR, Other CDM projects
Total static investment (million CNY)	249.29	FSR, Other CDM projects
Annual consumption of the	178,198	FSR, Other CDM projects

biomass residues (ton)		
Tariff (CNY/kWh, excluding VAT, from 1st to 15th operation year)	0.53691	FSR Typical 0.32276 + 0.21415 (Incentive) (CNY/kWh)
Tariff (yuan/kWh, excluding VAT, from 16th to 20th operation year)	0.32276	FSR
The cost of Biomass Residues (CNY/t)	224.47	FSR 120 +75(packing) + 30(transport)
Annual O&M cost (million CNY)	53.81	FSR (21.6% vs Investment) Biomass fuel:16% / Repair: 2.4% / Labor: 1.8% / Others: 1.4%
Operation life (year)	20	FSR
VAT (%)	17	FSR
Income tax (%)	25	FSR
The remaining value of the fixed capital (million CNY)	12.37	5% vs Investment Taxation Regulation
Expected CERs price (EUR/tCO_2)	9.75	Expected
Crediting period (years)	21	Selected
Currency exchange rate (CNY/EUR)	10.80	Expected

Through cross checking with the public information and other CDM projects data, the parameter values applied to the IRR calculation were reasonably justified in a transparent manner as discussed below.

1) The calculation process

JCI checked the calculation process in the IRR sheet, and verified that the applying the appropriate parameters such as the interest rate of the loan, depreciation rate, the remaining value rate,VAT and related taxes.

The remaining value rate for depreciation as 5% was appropriate complying with the local guideline by the notice of Tax department of PRC /36/.

The interest rate of the loan was confirmed by the evidence /32/ to be appropriate as the PDD applied the rate of the People's Bank of China at the time of CDM decision (2007 September).

Also the debt-equity ratio was confirmed to be appropriate as defined by the local guideline/35/ for the power generation business.

Thus complying with the relevant Guideline at EB51 Annex58./ 10/

2) The total static investment value

The appropriateness of the investment value estimated for the project was validated by comparing with the other registered CDM projects by biomass residues in China, whose key parameters are summarized in Table 13 below.

An Investment Cost Index value (Investment cost by the power generation capacity = CNY/ KW), is applied as an useful index for justifying investment cost of the project, when comparing with other biomass power generation plants under different investment environment.

Table 13. Key parameters of other biomass power generation CDM projects in PRC

The listed registered projects are only for power-only plants, and co-generation plants are not listed because of their different nature of key parameters. /25/

Registered CDM Project (project number)	**Installed Capacity (MW)**	**Total Static Invest./kW (CNY/kW)**	**Delivered Cost of Biomass fuel (CNY/ton)**	**Biomass Consump. Index (Kg/MWh . Generation**	**O&M Cost (% of total static investment) (% exclude Biomass cost)**	**Annual Operation hours**
Liucheng Pj	**30MW**	**8310**	**225**	**990**	**21.6 % (5.6%)**	**6000**
0819	24	10056	300	1250	29.2(5%)	6500
0820	24	10120	300	1250	29.1(5%)	6500
1032	25	11767	300	880	18.5(5%)	6000
1263	24	10320	200	-	15.4(5.4)	-
1375	30	9699	280	733	15.8(4.2)	5500
1366	25	11044	240	973	13.6(2.9)	5060
1546	25	10560	208	870	14.8(5.2)	5500
2230	25	11248	258	978	19.6(5.9)	6975
2161	33	8217	290&266	1107	23.9(4.9)	6000
2440	30	8789	248	1128	24.7(6.5)	6500
1892	24	10033	220	1695	27.7(5.4)	6000
		8217～ 11767	200～ 300	730～ 1695	13.6- 29.2 (2.9-6.5)	5060～ 6975
Average		**@10,170**	**257CNY/ton**	**@1086**	**21.1% (5.04%)**	**6050hrs**

The Investment Cost Index values of other eleven registered CDM projects are ranging from 8217 to 11767 CNY/kW and their average is 10170 CNY/kW , whereas the index of this project(8310 CNY/kW) is near the minimum index value(in other word, near to lowest investment cost) among the registered projects.
Thus JCI judged the estimated total static investment value applied to the IRR in the PDD/2/ was appropriate and conservative.

3) Tariff

For IRR calculation in the PDD/2/ , the tariff value of 0.53691 CNY/kWh without VAT for the first 15 years and 0.32276 without VAT for the next 5 years were applied . JCI verified that these values are in line with the FS Report /47/ and follow Interim Regulation for Tariff of Renewable Energy Power Generation and Allocation of Expenses/34/, which is the incentive tariff introduced in 2006 for the renewable energy power generation projects in China.

JCI also verified that the project participant received the permission from the Local Price Bureau/66/ as well as the Agreement with the Local grid company/61/, in which the tariff value were determined in line with the above Interim Regulation/34/.

Thus JCI validated the tariff value applied to the IRR calculation of the PDD/2/, was correct and on the basis of the local and sectoral requirement, thus comply with EB38 para.54.

4) O&M cost (operation and maintenance cost)

The PDD/2/ estimated O&M cost as 53.81 million CNY/Year or 21.6% to total static investment cost. This value is near the averaged value of other registered CDM projects, which are ranging from 13.6 to 29.2% (average 21.1%) to their total investment cost as shown in Table 13.

The O&M cost is composed of the two elements, the cost of the biomass fuel, and the literally plant operation and maintenance cost.
These two elements were separately shown in Table 13, and the later element were ranging from 2.9% to 6.5% vs Total Static Investment with their average value of 5.04%, whereas the element value of the project (5.6%) was near to the averaged value.

JCI reviewed all components cost in the operation and maintenance cost element in the O&M cost, including Employee number, Salary, Rate of employee welfare, Rate of repair cost, Rate of other cost, Rate of material cost, Rate of Water fee, Pollutant discharge fee, and Premium Rate. JCI cross checked the appropriateness of the applied index rates and values for the project through the local and sectoral requirement such as "Technical rule for designing auxiliary power system of fossil fuel power plants" DL/T 5153-2002./33/ and "Reference Manufacture Cost Indicators in Quota Design of Thermal Power Engineering (for 2006)"and "China Statistical Yearbook (2007)"/30/.

As the result, JCI validated that the elements relating to plant operation and maintenance cost in O&M cost applied in the IRR of the PDD/2/ were appropriate and reasonable.

<u>The cost of the biomass fuel</u>

The cost of the biomass fuel(CNY/yr), which is the product of Biomass Consumption Amount(ton/yr) in the furnace boiler and the Delivered Cost(CNY/ton) of the biomass fuel to the plant, was 40 million CNY/Year or 16% to total static investment cost.
As for Biomass Consumption Amount, the PDD/2/ as well as FSR estimated the consumption index of Biomass Residues for the furnace boiler as @990 biomass Kg/MWh Generation.
JCI verified this value being reasonable and conservative as an ex-ante value by comparing with other registered CDM projects of which index values were ranging @ 730 to @1695 and their average was @1045 biomass Kg/MWh Generation.

As for Delivered Cost of each Biomass Residues, JCI confirmed that the PDD/2/ applied appropriately the data described in the FSR/47/ which estimated the averaged delivered cost of the two types of Biomass Resides as 225 CNY/ton Biomass, which is composed of purchasing cost element from farmers (typical value 120 CNY/ton Biomass) , packing & stock cost element

(typical value 75 CNY/ton Biomass), and transport cost element (typical value 30 CNY/ton Biomass).

Before demonstrating the validity of the delivered cost structure of the Biomass Residues, the background of a kind of cost associated with the Biomass Residues to the investment analysis is noted here.
The project is the first of its kind in the Province. Thus there is no market price nor values for the Biomass Residues as they were dumped or left to decay in the absence of the project, and the most of the Residues would be still dumped or left to decay even after the project operation, because about 3.87 times amount of the project utilization of the Biomass Residues were available according to the survey data shown at Table 10 in Section 5.4.5. of this report.
Therefore the baseline scenario (of no market value of the Biomass residues in the absence of the project), as demonstrated in Section 5.1., 5.2., 5.3. of this report, is applicable to the project.

Even under this situation, the project has to bear the expense or cost associated with collection and transportation of the Biomass Residues to the project plant from farmer's field, at latter field site there is no values as the Residues but the Residues do not belong to the project owner.
Therefore a certain expense associated with collection and transportation should be counted for the investment analysis.

JCI verified the averaged delivered cost of the two types of Biomass Resides (225 CNY/ton Biomass), through the site visit interview during the on-site assessment./73/
The Biomass Resides would be collected and transported by trucks to the plant as compressed and compacted cubic blocks which were processed by the handy pressing devices at stock stations planned to be set up for collection and temporary stock purpose of the Biomass Residues within the area of about 50km radius around the project plant. The farmers collect the Residues in sugarcane or mulberry field and transport them to a near-by stock station basically by their own cart.
Thus the delivered cost is composed of three cost elements (purchasing cost element from farmers, packing & stock cost element, and transport cost element from stock station to the plant), as described above.

JCI crosschecked the appropriateness of the purchasing cost element from farmers in the PDD (in the FSR) as demonstrated below, because it is the key element of the delivered cost to the plant.
There is no reference price in any public information for the purchasing cost of the Biomass Residues (Sugarcane leaves and Mulberry leaves) from farmers in the specific district of the project in Province, because the project is a Greenfield business in the Province.
The only realistic data was the survey report on the expecting cost by the farmers (about 200farmers surveyed) cultivating sugarcane and mulberry in 15 villages, which was carried out by the project owner before starting the project./84/

JCI confirmed that the survey data of the purchasing cost element were ranging 100 – 160 CNY/ton Sugarcane leaves and 100 – 140 CNY/ton Mulberry leaves, and their averaged value was 120 CNY/ton Biomass residues.

JCI also justified that this averaged purchasing cost element from farmers described in the FSR/47/ being reasonable by considering the transport cost from farmers to a stock station by comparing the transport cost from stock station to the project plant, as noted below :

The apparent density of a compressed and compacted cubic block of Biomass Residues was about 2.7 (± 0.3) m^3 / ton Residues (0.33 m cubic / 10Kg), whereas the apparent density of the harvested Biomass Residues was about 62.8 (± 6) m^3 / ton (0.1m diameter and 1m length / 0.5Kg of Residue leaves and stems) . Accordingly the transport load per unit distance (m^3 / ton Residues / Km) was about 14.6 ～20.9 times worse((62.8 ± 6) /(2.7 ± 0.3)) for farmers to carry the harvested Biomass Residues by their own cart compared with truck transport of the compacted cubic blocks, but their transport distance was about one fifths shorter (about 10Km round trip vs. 50Km round trip).

Thus the transporting expense by farmers was about 2.92 ～4.18 ((14.6 ～20.9)* 1/5) times worse compared with truck transport expense(the latter was determined in the FSR as 30 CNY/ ton Biomass Residues), accordingly estimated as 88 ～ 125 CNY/ ton Biomass Residues ((2.92 ～4.18) * 30 CNY/ ton Residues) .

Therefore it would be reasonable that the farmers expected around 120 CNY/ton Residues to be paid from the project by counting their expense for transporting from the harvested field to a stock station.

Although the conditions for determining the delivered cost value would be very much different according to types and their spatial distributions of various biomass residues, JCI compared as a reference, the delivered cost value of the project (225 CNY/ton) with an average value (257 CNY/ton) of other CDM projects in other Provinces (200 – 300 CNY/ton) as shown in Table 13 of this report. The cost of the project was near the average value of other CDM projects.

As the result of the above demonstration, it is reasonable and justifiable that the PDD/2/ applied the delivered cost of the Biomass Residues as the expense associated with collection and transportation of the Biomass Residues, which were no value before the project activity.
JCI also confirmed by the onsite visit assessment/73/ that no significant additional energy would be required in the outside of the project plant for preparation of the Biomass Residues other than the above described expense for collection and transportation of the Residues.

Through the various crosschecks and confirmation on the validity of the cost of the biomass fuel, JCI confirmed the estimated value in the PDD was reasonable and credible.

5) Annual electricity delivered to the grid

The estimated annual electricity delivered to the grid (D) was calculated and noted in A.2.of the PDD/2/ :

$$D = G \times Ef \times (1 - \text{Internal Consumption rate}) \times (1 - \text{Transmission Loss rate})$$
$$= G \times (1.0) \times (1 - 0.123) \times (1 - 0.0) = 157{,}860 \text{ MWh/Y}$$

Where G = 30MW (generation capacity) × 6000h /Y (annual operation hours) = 180,000MWh/Y (as the average annual designed electricity generation) ,

Ef = 1.0 (100%) as the coefficient of effective electricity, Internal Consumption rate = 0.123 (12.3%), and Transmission Loss rate = zero (0%).

JCI confirmed all these parameters were consistent with those designed in the FSR /47/ which were compiled by the authorized design institute Guangxi Power Industry Survey Design and Research Institute by analyzing the present and future power supply and demand balance of the region, and approved by the Development and Reform Commission of Guanxi Zhuang Autonomous Region /42/.

As for the Internal Consumption rate of 12.3%, JCI crosschecked with other registered CDM biomass power generation projects, which were ranging from 8% to 16.4% with their averaged value as 13.5%.
For further confirmation, JCI verified the designed load values of the all electrical equipment lists of the plant, which applied the appropriate technical rule /33/, therefore concluded the value of annual electricity delivered to the grid was reasonable and credible.

As for the annual operation hours (6000h/Y), JCI validated this ex-ante value through following verification and cross-checking.
During the on-site assessment, the project owner explained their operation plan of the plant, in which the furnace would need an annual long maintenance for maintaining a sound condition of its internal insulation materials for protecting alkali corrosion caused by magnesium, silica and sodium contents of the biomass residue, which JCI judged reasonable through confirmation with the analytical result of the biomass residue/80/ as well as technical performance report as below/81/.
JCI confirmed the validity of this annual operation hours (6000h/Y) with the technical report published by Zhejiang University Heat Energy Process Laboratory in 2009 /81/, which tested the same type furnace boiler (Circulated Fluidized-Bed Type) as that of the project, through a long run performance test of its newly developed pilot plant furnace boiler.
JCI crosschecked by comparing with other registered CDM projects, whose annual operation hours were ranging from 5060 to 6975 with their average as 6050hrs, thus the case of the project was around at their averaged value.
For further confirmation with the practical operation hours data of the Province, the average operation hours of coal-fired generation facilities in Guangxi Zhuang Autonumous Region were 5643hrs (2006) and 4748hrs (2007)./28/ Judging from that this data was the practical figures counting from the long-run-experienced coal-fired generation facilities, JCI verified the annual operation hours (6000h/Y) was reasonable as an ex-ante value for the project.

As for the Transmission Loss rate, JCI confirmed during the on-site assessment with the design document of the project, that the transmission line was about 11.98Km from the plant to a substation where the electricity account would be measured. JCI however justified the PDD made this value as zero as a conservative ex-ante value in the IRR calculation.

As for the Ef value, the PDD estimated as 100% rate as a conservative ex-ante value.

JCI justified this assumption through the on-site assessment that the supply capacity in Liucheng County Grid under Guangxi Zhuang Grid network to which the project would supply electricity, was insufficient for covering the local demand so the local grid company expected a big supply addition by the project power generation. Judging from such situation of the local grid, under which preferential uptake of the generated electricity of the project would be expected, JCI justified the Ef value in the PDD was reasonable and conservative as an ex-ante Ef value.

As summary, the parameters for the IRR calculation were validated as reasonable through the assessment described in the above 1) to 4).

Through all assessment to validate the IRR calculation procedure, JCI therefore concluded that the project activity was not considered financially attractive (5.42%) which is below the bench mark without CDM).

6.4.3. Sensitivity Analysis

The sensitivity analysis has been validated with two steps: 1) assessment of (+) / (-) 10% variation results and 2) assessment of likelihood of variations to reach the benchmark IRR complying with relevant Guidance/7/, and Tool/4/,

1) The (+) / (-) 10% variation analysis was conducted in the PDD/2/ using the four parameters, A) total static investment, B) tariff, C) annual electricity delivered to grid, and D) delivered price of the Biomass Residues.

The result of the PDD/2/ showed that within the (+) / (-) 10% variation range, : at (-) 10% of total static investment, the IRR reached at 7.08%, and at (+) 6.57% of tariff, the IRR reached at benchmark 8%, and at (+) 10% of annual electricity delivered to grid, the IRR reached at 7.19%, and at (-) 10% of delivered price of biomass residues , the IRR reached at 7.47%, respectively. Thus except B) tariff, the IRRs did not exceed the benchmark 8%.

2) As for the assessment of likelihood of variations to reach the benchmark IRR, JCI reviewed the possibility of variations of these parameters, A) total static investment to be lowered by 14.93%, or B) tariff to increase by +6.57%, or C) annual electricity delivered to grid to increase by +14.8%, or D) delivered price of the Biomass Residues to be lowered by 12.86%, as discussed below.

A) It is unlikely that the total static investment cost would be lowered by 14.93% (or the change from 249.29 to 212.07 million CNY), at the time the project decision (September 2007). Judging from the data of the material inflation factors 104% and 110% at 2007, 2008 respectively/24/, and wage inflation factors 114% and 111% at the same period/24/, it was justifiable that the total static investment cost would not be lowered by 14.93% either at the time of the project decision or during the construction period.

B) As discussed at 6.4.2. (3) of this report, the project received the incentive tariff under the National Interim Regulation /34/, at fixed value as 0.53691 CNY/kWh without VAT for the first 15 years and 0.32276 without VAT for the next 5 years, which are already about 0.21415

CNY/kWh higher than normal tariff. Judging from that this Interim Regulation was applied only limited period/34/, it is almost unlikely that tariff would receive further additional incentive to + 6.57%.

C) JCI justified that it is also unlikely that the annual electricity delivered to grid would increase by 14.8% , because the design margin of biomass boiler would not be more than 10% of its nominal capacity.
For the case of the possibility of increase Operation hours by +14.8% (from 6000 hrs to 6890 hrs), it is also unlikely to realize when comparing with that the average Operation hours of coal-fired generation facilities in Guangxi Zhuang Autonumous Region were 5643hrs (2006) and 4748hrs (2007)./28/ The possibility of Operation hours of biomass residues power generations become higher than those of long-run-experienced coal-fired generation facilities is unlikely to realise when considering "Barriers due to lack of Prevailing Practice" of the project as already discussed as Barrier analysis at 6.3. of this report.

D) As for delivered price of the Biomass Residues would be lowered by 12.86%, it is equivalent to decrease from 225 to 195 CNY/ton biomass.
Compared with the price of other biomass power CDM projects, the minimum price was 200 CNY/ton as shown in Table 13.
As further practical consideration, the minimum averaged price in the survey report on the expecting price of the farmers, was 201 CNY/ton among 15 villages, and judging from the inflation rate of wages in the Province as 116-121% (2007) /30/, it is unlikely that the delivered cost of the Biomass Residues of the project would go down to 195 CNY/ton in future.

Therefore, JCI justified that the above arguments clearly demonstrated that it is unlikely that the project IRR may exceed the benchmark within reasonable variations of financial parameters. JCI therefore concluded that the result of the above investment analysis with use of the benchmark analysis is robust and then the project activity is financially unattractive.

6.5 Common practice analysis

Common practice is not applicable because the project is the first of its kind in the Province of Guangxi Zhuang Autonomous Region, which discussed at 6.4. of this report.

6.6 Conclusion of assessment of additionality

JCI concluded that the PDD/2/ clearly demonstrated as shown in the above that the project activity is additional, not financially attractive and therefore, would not occur without CDM revenue provision. Appropriate actions and events were taken by the project participant to achieve CDM well after the project decision up to the publication of the PDD/1/. And investment and sensitivity analyses clearly showed the project activity is not financially viable without CDM revenue.

7. Monitoring plan

1) Parameters to be monitored ex-post

The PDD/2/, in section B.7.1.Data and parameters monitored, specified to monitor the seventeen (17) parameters ex-post:

JCI confirmed these parameters with the relevant methodology/3/ , and that these parameters were fully comply with them required to this kind of project activities.

As an example of the major monitoring parameters, the implementation plan of monitoring of two parameters, $EG_{project\ plant,y}$ and $EC_{PJ,y}$, described in the PDD/2/ was validated as follows:

1) Equipment for monitoring
   As described in B.7.2. with Figure 4 of the PDD/2/, the electricity meter with accuracy of 0.2s, which is specified in the Code/23/, is installed to measure both exported and imported electricity of the plant at the substation of the grid. In addition to this 'main metering device', a 'backup metering device' is installed at the outlet of the project site. The main metering device would serve to monitor $EG_{project\ plant,y}$ and $EC_{PJ,y}$. The technical specification of the electricity meters installed for the project activity meets the Code /23/.
   This arrangement was judged as sufficient to monitor the planned parameters, $EG_{project\ plant,y}$ and $EC_{PJ,y}$, with a backup capability against possible malfunctions of the main metering device at the project site. Thus the program is fully comply with the relevant methodology/3/

2) Monitoring organization
   The project participant planned to set up a CDM monitoring management structure covering entire processes of data recording, archive , supervising calibration and internal auditing, and managing, and the responsibility for reporting and surveillance function would be separately managed by Data recording department and Technical and QA/QC department, CDM Assistant manager, and CDM Manager , as described in the PDD/2/, and thus JCI confirmed the stated management was justified by the interview to the project participant during the onsite assessment.
   JCI requested that the monitoring and CDM management manual shall be compiled before the start of crediting period as requested by FAR-1 in the Protocol of this report.

3) Monitoring manual
   The project participant would compile monitoring manuals necessary to implement the monitoring task.

4) Training on monitoring
   Under the responsibility of the CDM manager, it is planned to provide training to all the members regarding operation of the monitoring.

As a summary, JCI judged that the monitoring plan described in the PDD/2/ fully complies with relevant methodology/3/, and is sufficient to ensure the achievement of emission reductions by

the project activity. JCI also assessed that the project participant is capable of implementing the monitoring plan as confirmed during the on-site assessment.

8. Sustainable development

JCI confirmed that the LoA issued by DNA of the host Party PRC /40/ confirms the contribution of the proposed CDM project activity to the sustainable development of the host Party, which has been already described in Section IV 1. Approval.

9. Local stakeholder consultation

The project participant conducted an invitation of local stakeholder comments.
The invitation was taken place two times first in July 2007 and second in September 2007.
The first one was aimed for receiving comments mainly on the environmental impacts, distributing 150 sheets of the questionnaire to local inhabitants with a variety of age, gender, education, occupations, and the comments of 145 replies by the local inhabitants were summarized in the PDD/2/.

In summary, although the major part of them thought the project would bring an improvement of local economic and employment, about a half people worried about environmental impact on water, gas and farmland. They also thought the location of the project was reasonable because of its site planned in the industrial park. The project participant took proper mitigation measures in response to the stakeholders' comment, to meet the relevant environmental standard , as described in the PDD/2/, which JCI confirmed by the interview to the staff of Environmental Protection Bureau of Liucheng County during the onsite assessment./73/

The second invitation was aimed for receiving comments mainly on the CDM issues, distributing 66 sheets of the questionnaire to local inhabitants with a variety of age, gender, education, occupations, and the comments of all replies by the local inhabitants were summarized in the PDD/2//, which JCI confirmed with the documents provided/69//70/ during the on-site assessment.

Their comments were that the major part of them thought the positive influence of the project on power supply improvement, efficient utilization of renewable resource, but with the negative comments on environment by construction of the project.
JCI confirmed through the interviews during onsite assessment that there was no migration problem because the project plant located in the industrial park in the County.

JCI also confirmed, through direct interview with the local farmers during the on-site assessment/73/, and found that they supported positive influence by the project.

Based on the above, JCI judged that the project activity, basically supported by the majority of local stakeholders, and with appropriate mitigation measures, gave no significant adverse impacts both on social and natural environment , and instead contributed to the development of local economy and the improvement of electricity supply.

10. Environmental impacts

An Environmental Impact Assessment (EIA) was conducted by a certified organization, Environmental Sciences Research Institute in Guangxi Zhuang Autonomous Region to ensure that the project complies with relevant national, regional and local regulations, and its report/ 48/ was approved by Environmental Protection Bureau of Guangxi Zhuang Autonomous Region on 29/12/2007/43/.

The EIA report /48/ referred to anticipated environmental impacts by the project activity both during the construction period and after the operation start, and suggested mitigation measures against anticipated pollution of water and air, noise, and solid waste. No significant ecological impact on the local area was anticipated.

The appropriate mitigation measures and the related regulations were described in the PDD/2/. Through the interview to Environmental Protection Bureau of Liucheng County during the on-site assessment, JCI confirmed that appropriate mitigation measures had been taken during the construction period, and the anticipated environmental impacts had been controlled at a minimum level by regular monitoring by the said Environmental Protection Bureau /73/.

11. Comments by Parties, Stakeholder through the consultation process

The PDD version 01 of 03 August 2009 was made publicly available on UNFCCC CDM website and Parties, stakeholders and NGOs were through the website invited to provide comments during a 30 days period from 18 August 2009 to 16 September 2009.
And no comments were received.

End of this Report

APPENDIX A: CDM VALIDATION PROTOCOL

(Version 04)

Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China

1. INTRODUCTION

This document is prepared as the Validation Protocol on Liucheng Biomass Power Generation Project in Guangxi Zhuang Autonomous Region, China
The validation protocol is prepared for the following purposes:

- To ensure that, in accordance with the Validation Verification Manual version 01.1 (Annex 3, CDM-EB51, "VVM"), and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.
- To ensure a thorough, independent assessment of proposed project activities submitted for registration as a proposed CDM project activity against the applicable CDM requirements.
- To assess whether the project design of the proposed CDM project activity meets the CDM requirements, using objective evidence, and to assess the completeness and accuracy of the claims and conservativeness of the assumptions made in the project design document.

The validation protocol is consisted of the following two types of tables, which are effective for the purposes of validation above.

TABLE-1 contains the checklist with questions along with the thematic chapter of VVM.
TABLE-2 shows the corrective actions or clarifications which are requested to be taken in **TABLE-1** and the response from the PP.

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2. CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

If, during the validation of a project activity, issues are identified that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the CDM requirements and can achieve credible emission reductions, these issues shall be ensured that are correctly identified, discussed and concluded in the validation report.

- **CAR** : a corrective action request (**CAR**) is raised, if one of the following occurs:
  (a) The PPs have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
  (b) The CDM requirements have not been met;
  (c) There is a risk that emission reductions cannot be monitored or calculated.
- **CL** : a clarification request (**CL**) is raised,
  if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.
- **FAR** : a forward action request (**FAR**) is raised,
  during validation to highlight issues related to project implementation that require review during the first verification of the project activity.
  FARs shall not relate to the CDM requirements for registration.

The CARs and CLs are resolved or "closed out" only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidences that satisfy the requirements. If this is not done, the project activity will not be recommended for registration to the CDM EB.

All CARs, CLs and FARs will be reported on in its validation report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of validation of such responses and clear reference to any resulting changes in the PDD or supporting annexes.

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
1.	**Approval**	Para.44-50 VVM	--	--
	<Requirement to be validated> All Parties involved shall approve the project activity.	Para.44 VVM	--	--
	The LoA (Letter of Approval) s of all parties involved shall be provided together with its information source and route.			
1.1	The LoA shall confirm that: (a) The Party is a Party to the Kyoto Protocol (b) Participation is voluntary (c) The proposed CDM project activity contributes to the sustainable development of the country (d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration	Para.45 VVM	No LoAs of each Party	CAR-1
2.	**Participation**	Para.51-54 VVM	--	--
	<Requirement to be validated> All project participants shall be listed in a consistent manner in the project documentation, and their participation in the project activity shall be approved by a Party to the Kyoto Protocol.	Para.51 VVM	--	--
2.1	The project participants shall be listed in tabular form in section A.3 of the PDD, and this information shall be consistent with the contact details provided in annex 1 of the PDD.	Para.52 VVM	OK	
	The participation of each project participant shall be approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve participation.	ditto	No To be confirmed by LOA	CAR-1
	No entities other than those approved as project participants shall be included in these sections of the PDD.	ditto	OK	
2.2	The approval of participation shall be issued from the relevant DNA.	Para.53 VVM	No To be confirmed by LOA	CAR-1
3.	**Project Design Document**	Para.55-57 VVM	--	--
	<Requirement to be validated> The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website. **http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html**	Para.55 VVM PDDs Forms	--	--
3.1	The PDD shall be in accordance with the applicable CDM requirements for completing PDDs. <http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html> **(Refer to the PDD Completeness checklist prepared by JCI)**	Para.56 VVM	OK	
3.2	PDD template shall not be altered, that is, shall be completed using the same font without modifying its format, headings or logo. Tables and their columns shall not be modified or deleted. Rows may be added, as needed.	PDD Guidelines	OK	

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	If sections of the CDM-PDD are not applicable, it shall be explicitly stated that the section is left blank on purpose.			
	The presentation of values in the PDD should be international standard format.		OK	
4.	**Project Description**	Para.58-64 VVM	--	--
	<Requirement to be validated> The PDD shall contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.	Para.58 VVM	--	--
4.1	Project description in section A.2 of the PDD (Max 1 page) shall be a brief summary of that in A.4.3 and B.3. This shall include: ● The purpose of the project activity ● The view of the project participants of the contribution of the project activity to sustainable development. and explain ● How the proposed project activity reduces GHG emissions.	PDD Guidelines	OK	
4.2	In section A.4.3 of the PDD, a description of how environmentally safe and sound technology and know-how to be used is transferred to the host Party(ies) shall be included. It should also further explain the purpose of the project. ● The scenario existing prior to the start of the project, with equipment list and systems in operation ● The scope of project, with equipment list and systems ● The baseline scenario, with equipment list and systems If the baseline scenario is the same as the scenario existing prior to the start of the project, there is no need to repeat, but only state that both are the same. The description of the scenario should include; ● A list and arrangement of the main manufacturing technologies, systems and equipment ● The emission sources and the GHG, and existing and forecast energy and mass flows and balances of the systems and equipment ● The types and levels of services	ditto	OK The adequate explanation was made in PDD, but baseline scenario and technical parameters shall be confirmed by FSR/Equip. spec. etc. and by Onsite Visit.	CL-1 CL-2
4.3	In section A.4.4 of the PDD, ● The chosen crediting period shall be indicated. ● The total estimation of emission reductions as well as annual estimates for the chosen crediting period shall be provided. ● Information on the emission reductions shall be indicated using the decided tabular format. ● International standard format for values shall be used.	ditto	OK	
4.4	If the DOE does not undertake a physical site inspection, it shall be appropriately justified.	Para.62	NA	
5.	**Baseline and monitoring methodology**	Para.65-92 VVM	--	--
(a)	**General requirement**	Para.65-67 VVM	--	--

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	The baseline and monitoring methodologies selected by the project participants shall comply with the methodologies previously approved by the CDM Executive Board.	Para.65 VVM	--	--
	To ensure that the project activity meets this general requirement, the followings shall be confirmed. (a) The selected methodology is applicable to the project activity; (b) The PP has correctly applied the selected methodology.	Para.66 VVM	--	--
	It shall also be ensured that the selected methodology is applicable to the project activity and has been correctly applied with respect to the followings: (a) Project boundary (b) Baseline identification (c) Algorithms and/or formulae used to determine emission reductions (d) Additionality (e) Monitoring methodology	Para.67 VVM	--	--
5.	**Baseline and monitoring methodology**	Para.65-92 VVM	--	--
(b)	**Applicability of the selected methodology to the project activity**	Para.68-76 VVM	--	--
	<Requirement to be validated> The selected baseline and monitoring methodology previously approved by the CDM Executive Board shall be validated to be applicable to the project activity.	Para.68 VVM	--	--
5.1	The methodology shall be ensured to be correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology available on the UNFCCC CDM website. Referring to the UNFCCC CDM web site for the title and reference list as well as the details of approved baseline methodologies, the following contents shall be indicated in section B.1 of the PDD. ● the approved methodology ● the version of the methodology that is used ● any methodologies or tools which the approved methodology draws upon and their version	Para.69 VVM	The version of the related methodology shall be revised	CL-3
5.2	The choice of methodology shall be justified and the project participants shall show that the project activity meets each of the applicability conditions of the approved methodology or any tool or other methodology component referred to therein in section B.2 of the PDD.	Para.70 VVM	Adequate explanation was made in PDD, but DOE will verify with evidences	CL-4
	The documentation referred to in the PDD and its content shall be correctly quoted and interpreted in the PDD.	ditto	OK	
5.	**Baseline and monitoring methodology**	Para.65-92 VVM	--	--
(c)	**Project boundary**	Para.77-79 VM	--	--

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	<Requirement to be validated> The PDD shall correctly describe the project boundary, including the physical delineation of the proposed CDM project activity included within the project boundary for the purpose of calculating project and baseline emissions for the proposed CDM project activity.	Para.77 VVM	--	--
5.7	The delineation in the PDD of the project boundary shall be correct and meet the requirements of the selected baseline methodology, which shall also be demonstrated by documented evidence and corroborated by a site visit.	Para.78 VVM	To be confirmed by Onsite Assessment and by evidences	CL-5
	All emission sources and GHGs required by the methodology shall be included within the project boundary for the purpose of calculating project emissions and baseline emissions, using the standardized table.	ditto	OK	
	If the methodology allows project participants to choose whether a source or gas is to be included within the project boundary, the project participants shall justify the choice by supporting documented evidences.	ditto	To be confirmed by Onsite Assessment and by evidences	CL-6
	In section B.3 of the PDD, a flow diagram of the project boundary shall be described including all the equipment, systems, flows of mass and energy, the emission sources/gases and the monitoring variables.	PDD Guidelines	OK	
5.	**Baseline and monitoring methodology**	Para.65-92 VVM	--	--
(d)	**Baseline identification**	Para.80-87 VVM	--	--
	<Requirement to be validated> The PDD shall identify the baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity.	Para.80 VVM	--	--
	Any procedure contained in the methodology to identify the most reasonable baseline scenario, shall be correctly applied. If the selected methodology requires use of tools (such as the "Tool for the demonstration and assessment of additionality" and the "Combined tool to identify the baseline scenario and demonstrate additionality") to establish the baseline scenario, the methodology on the application of these tools shall be confirmed. In such cases, the guidance in the methodology shall supersede the tool. The each step in the procedure described in the PDD against the requirements of the methodology shall be checked.	Para.81 VVM	--	--
5.8	If the methodology requires several alternative scenarios to be considered in the identification of the most reasonable baseline scenario, it shall be determined whether all scenarios that are considered by the project participants and are supplementary to those required by the methodology, are reasonable in the context of the proposed CDM project activity and that no reasonable alternative scenario has been excluded.	Para.82 VVM	*To be confirmed with evidences and by Onsite Assessment*	*CL-4 CL-5 CL-6*
5.9	It shall be determined whether the baseline scenario identified is reasonable by validating the assumptions, calculations and rationales used, as described in the PDD.	Para.83 VVM	*Ditto*	*Ditto*

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	The documents and sources referred to in the PDD shall be correctly quoted and interpreted. All data used to determine the baseline scenario shall be illustrated in a transparent manner, preferably in a table form.	ditto	It was illustrated in the table form, but information sources shall be verified	CL-8
5.10	All applicable CDM requirements shall be taken into account in the identification of the baseline scenario for the proposed CDM project activity, including "relevant national and/or sectoral policies and circumstances." (See decision 3/CMP.1, annex, paragraph 45, currently located at <htto://cdmunfccc.int/Reference/COPMOP/08a01.pdf#page=6>, and EB22, annex 3, "Clarificationson the consideration of national and/or sectoral policies and circumstances in baseline scenarios", currently located at <htto://cdm.unfccc.int/EB/022/eb22_repan3.pdf>.)	Para.84 VVM Para.45 CDM/M&P Annex 3 EB22	Relevant national policies shall be verified	CL-7
5.11	The PDD shall provide a verifiable description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity.	Para.85 VVM	To be confirmed with evidences and by Onsite Assessment	CL-6
5.	**Baseline and monitoring methodology**	Para.65-92 VVM	--	--
(e)	**Algorithms and/or formulae used to determine emission reductions**	Para.88-92 VVM	--	--
	<Requirement to be validated> The steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions shall comply with the requirements of the selected baseline and monitoring methodology.	Para.88 VVM	--	--
5.12	The equations and parameters in the PDD shall be correctly applied by comparing them to those in the selected approved methodology.	Para.89 VVM	OK	
	If the methodology provides for selection between different options for equations or parameters, adequate justification shall be provided (based on the choice of the baseline scenario, context of the project activity and other evidence) and the correct equations and parameters shall be used, in accordance with the methodology selected.	ditto	OK	
5.13	The justification shall be given in the PDD for the choice of data and parameters used in the equations.	Para.90 VVM	To be confirmed with evidences and by Onsite Assessment	CL-9 CL-10 CL-11 CL-12
	If data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period, it shall be demonstrated that all data sources and assumptions are appropriate and calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimate of the emission reductions.	ditto	NA	
	If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, it shall be	ditto	NA	

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	demonstrated that the estimates provided in the PDD for these data and parameters are reasonable.			
5.14	In section B.6.2 of the PDD, Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, detail information shall be provided in **Annex 3** of the PDD. The choice for the source of data shall be explained and justified. Clear and transparent references or additional documentation shall be provided in **Annex 3** of the PDD.. Where values have been measured, a description of the measurement methods shall be included. More detail information can be provided in **Annex 3**.	PDD Guidelines	OK	
5.15	In section B.6.3 of the PDD, a transparent ex-ante calculation of project emissions, baseline emissions and leakage emissions expected during the crediting period and applied all relevant equations in the approved methodology shall be provided and how each equation is applied shall be documented in a manner that enables the reader to reproduce the calculation.	ditto	OK	
5.16	In section B.6.4 of the PDD, the results of the ex-ante estimation shall be summarized using the standardized table.	ditto	OK	
6.	**Additionality of a project activity**	Para.93-120 VVM	--	--
	<Requirement to be validated> The PDD shall describe how a proposed CDM project activity is additional. In accordance with decision 3/CMP.1,annex, paragraph 43 "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" (see decision 5/CMP.1, annex paragraph 18). While specific elements of the assessment of additionality are discussed in further detail in paragraphs 96-119 in VVM, not all elements discussed below will be applicable to all proposed CDM project activities.	Para.93 VVM Para.43 CDM/M&P	--	--
6.	**Additionality of a project activity**	Para.93-120 VVM	--	--
(a)	**Prior consideration of the clean development mechanism** While specific elements of the assessment of additionality are discussed in further detail in Section 6.3 –6.15 below, not all elements discussed below will be applicable to all proposed CDM project activities	Para.97-103 VVM	--	--
	<Requirement to be validated> If the project activity start date is prior to the date of publication of the PDD for stakeholder comments it shall be demonstrated that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.	Para.97 VVM	--	--
6.3	The start date of the project activity, reported in the PDD, shall be in accordance with the "Glossary of CDM terms". http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v05.pdf Glossary of CDM terms Version 05	Para.98 VVM	TbV	CL-1
	The starting date of a CDM project activity is the date on which the implementation or construction or real action of a project activity begins. In section C.1 of the PDD, the description should contain not only the date, but also a description of how this start date has been determined,	ditto	Tbv	CL-1

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	and a description of the evidence available to support this start date.			
	In particular, for project activities that require construction, retrofit or other modifications, the date of commissioning cannot be considered the project activity start date.	ditto	OK	
6.4	It shall be identified whether it is a new project activity (a project activity with a start date on or after 02 August 2008) in accordance with the guidance from the CDM Executive Board, or an existing project activity (a project activity with a start date before 02 August 2008) (See Annex 46 of EB 41 report : Guidance on the Demonstration and Assessment of Prior Consideration of the CDM)	Para.99 VVM Annex 46 EB41	The project was identified as a new project activity(The timeline was made in the PDD)	CAR-3
6.5	For a new project activity, for which PDD has not been published for global stakeholder consultation or a new methodology proposed to the CDM Executive Board before the project activity start date, the DOE shall ensure by means of confirmation from the UNFCCC secretariat that PPs had informed the host Party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. If such a notification has not been provided by the project participants within six months of the project activity start date, the DOE shall determine that the CDM was not seriously considered in the decision to implement the project activity. (See EB 48, annex 62, .Prior consideration of the CDM form, currently located at <https://cdm.unfccc.int/EB/048/eb48_repan62.pdf>, for the standardized form.	Para.100 VVM	The notification was made within 6 months, which shall be verified	CAR-3
6.6	For an existing project activity, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, the project participant's prior consideration of the CDM shall be demonstrated by providing the following evidence (preferably official, legal and/or other corporate). In such cases the PP shall provide an implementation timeline of the project in section B.5 of the PDD.	Para.101 VVM	NA	
(a)	Evidence to indicate awareness of the CDM prior to the project activity start date, and evidence to indicate that the benefits of the CDM were a decisive factor in the decision to proceed with the project shall be provided.	ditto	The relevant evidences shall be submitted	CL-13
	Evidence to support this would include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a proposed CDM project activity.	ditto	ditto	CL-13
(b)	Reliable evidence that must indicate that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation.	ditto	ditto	CL-13
	Evidence to support this should include, inter alia, • contracts with consultants for CDM/PDD/methodology services, • Emission Reduction Purchase Agreements or other documentation related to the sale of the potential CERs (including correspondence with multilateral financial institutions or carbon funds), • Evidence of agreements or negotiations with a DOE for validation services, • Submission of a new methodology to the CDM Executive Board,	ditto	ditto	CL-13

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	• Publication in newspaper, • Interviews with DNA, • Earlier correspondence on the project with the DNA or the UNFCCC secretariat.			
6.	**Additionality of a project activity**	Para.93-120VVM	--	--
(b)	**Identification of alternatives**	Para.104-106 VVM	--	--
	<Requirement to be validated> The PDD shall identify credible alternatives to the project activity in order to determine the most realistic baseline scenario, unless the approved methodology that is selected by the proposed CDM project activity prescribes the baseline scenario and no further analysis is required.	Para.104 VVM	--	--
6.8 (a)	The list of alternatives shall includes as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity;	Para.105 VVM	OK	
(b)	The list shall contains all plausible alternatives that are considered, on the basis of local and sectoral knowledge, to be viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity.	ditto	OK	
(c)	The alternatives shall comply with all applicable and enforced legislation.	ditto	OK	
6.	**Additionality of a project activity**	Para.93-120 VVM	--	--
(c)	**Investment analysis**	Para.107-113 VVM	--	--
6.9	**<Requirement to be validated>** If investment analysis has been used to demonstrate the additionality of the proposed CDM project activity, the PDD shall provide evidence that the proposed CDM project activity would not be: The most economically or financially attractive alternative; or Economically or financially feasible, without the revenue from the sale of certified emission reductions (CERs).	Para.107 VVM	--	--
6.10	Project participants can show this through one of the following approaches, by demonstrating that: It should be noted that the EB 51, annex58 "Guidelines on the assessment of investment analysis (version 03)", currently located at <htt://cdm.unfccc./int/EB/051/eb51_repan58.pdf> and the requirements of specific methodologies may preclude the use of one of these options in certain scenarios.	Para.108 VVM Annex 58 EB51	--	--
(a)	Demonstrate that the proposed CDM project activity would produce no financial or economic benefits other than CDM-related income. Document the costs associated with the proposed CDM project activity and the alternatives identified and demonstrate that there is at least one alternative which is less costly than the proposed CDM project activity;	ditto	Tbv	CAR-4
(b)	The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative;	ditto	ditto	CAR-4
(c)	Financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	ditto	ditto	CAR-4

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
6.11	The DOE shall comply with the latest version of the "Guidance on the Assessment of Investment Analysis" as provided by the CDM Executive Board and with other relevant guidance including the latest guidelines on plant load factors "guidelines for the reporting and validation of plant load factors" (See EB 48 report, annex 11, currently located at <http://cdm.unfccc.int/EB/048/eb48_repan11.pdf >.)	Para.109 VVM Annex 58 EB51		
	Project participants should provide spreadsheet versions of all investment analysis. All formulas used in this analysis be readable and all relevant cells be viewable and unprotected.	Annex 58 EB51	No The sheet shall be submitted	CAR-2
	The evidences on which input values in the investment analysis are based shall be provided.	ditto	The evidences shall be submitted	CAR-4
6.12 (a)	All parameters and assumptions used in calculating the relevant financial indicator shall be validated thoroughly, and the accuracy and suitability of these parameters shall be verified using the available evidence and expertise in relevant accounting practices.	Para.110 VVM	The evidences shall be submitted	CAR-4
	Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant.	Annex 58 EB51	Tbv	CAR-4
	The cost of financing expenditures (i.e. loan repayments and interest) should be included in the calculation of project IRR.	ditto	Tbv	CAR-4
	In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.	ditto	The evidences shall be assessed	CAR-4
	Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets.. Where a variable which constitute less than 20% has a material impact on the analysis, this variable shall be included in the sensitivity analysis. As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and –10%, unless this is not deemed appropriate in the context of the specific project circumstances.	ditto	Tbv	CAR-2
	Such evidence for the evaluation of investment analysis as invoices, receipts, price indices, feasibility reports, public announcements, audited actual project cost and annual financial reports shall be provided upon request of the DOE.	ditto	Tbv	CAR-4
6.13	The suitability of any benchmark applied in the investment analysis:	Para.111 VVM	--	--
(a)	In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities are also appropriate if the DOE	ditto	OK	

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	can validate that they are applicable to the project activity and the type of IRR calculation presented.			
	If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.	ditto	NA	
(b)	The effectiveness of the applied benchmark shall be demonstrated with appropriate evidence.	ditto	Tbv	CL-14
(c)	The PPs shall demonstrate that it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, showing previous investment decisions by themslves involved and demonstrating that the same benchmark has been applied, or if there are verifiable circumstances that have led to a change in the benchmark.	Para.111 VVM	Tbv	CL-14
6.14	The CDM Executive Board clarified that in cases where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed CDM project activities, it is required to ensure that: **(See** theEB 38 report, paragraph 54, currently located at <http://cdm.unfccc.int/EB/038/eb38rep.pdf>.	Para.112 VVM Para.54 EB38	--	--
(a)	The period of time between the finalization of the FSR and the investment decision shall be sufficiently short for the DOE to confirm that it is unlikely in the context of the underlying project activity that the input values would have materially changed;	ditto	Tbv	CAR-4
(b)	The values used in the PDD and associated annexes shall be fully consistent with the FSR, and where inconsistencies occur the appropriateness of the values shall be explained.	ditto	Tbv	CAR-4
(c)	It shall be confirmed that the input values from the FSR are valid and applicable at the time of the investment decision.	ditto	Tbv	CAR-4
6.	**Additionality of a project activity**	Para.93-120 VVM	--	--
(d)	**Barrier analysis** Barriers are issues in project implementation that could prevent a potential investor from pursuing the implementation of the proposed project activity. The identified barriers are only sufficient grounds for demonstration of additionality if they would prevent potential project proponents from carrying out the proposed project activity undertaken without being registered as a CDM project activity.	Para.114-117 VVM	--	--
6.15	**<Requirement to be validated>** If barrier analysis has been used to demonstrate the additionality of the proposed CDM project activity, the PDD shall demonstrate that the proposed CDM project activity faces barriers as below**.**	Para.114 VVM	--	--
	(a) Prevent the implementation of this type of proposed CDM project activity; (See EB 50, annex 13 .guidelines for objective demonstration and assessment of barriers., currently located at <http://cdm.unfccc.int/EB/050/eb50_repan13.pdf>. (b) Do not prevent the implementation of at least one of the alternatives**.**	Para.114 VVM	Tbv	CL-8

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
6.16	Issues that have a clear direct impact on the financial returns of the project activity cannot be considered barriers and shall be assessed by investment analysis. This does not refer to either (a) Risk related barriers, for example risk of technical failure, that could have negative effects on financial performance, or (b) Barriers related to the unavailability of sources of finance for the project activity.	Para.115 VVM	Tbv	CL-8
6.17	The available evidence shall be provided and/or interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) shall be arranged to demonstrate that the barriers listed in the PDD exist.	Para.116 VVM	Tbv	CL-8
	The existence of barriers shall be substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics.	ditto	Tbv	CL-8
6.	**Additionality of a project activity**	Para.93-120 VVM	--	--
(e)	**Common practice analysis**	Para.118-120 VVM	--	--
	<Requirement to be validated> For proposed large-scale CDM project activities, unless the proposed project type is first-of-its kind, common practice analysis shall be carried out as a credibility check of the other available evidence used by the project participants to demonstrate additionality. This is to confirm that the project activity is not widely observed and commonly carried out in the region..	Para.118 VVM	--	--
6.18	The project participants shall clearly define “activities that are similar to the proposed project activity” in terms of technology and scale and justify the definition in CDM-PDD.	Annex 2 EB41	NA	
	Screening (selection) criteria for common practice analysis shall be demonstrated with appropriate evidences and justification.	ditto	NA	
	The relevant geographical area for undertaking the common practice analysis should in principle be the host country of the proposed CDM project activity. A region within the country could be the relevant geographical area if the framework conditions vary significantly within the country.	ditto	Tbv	CL-15
	All the data used in the implementation of common practice analysis and reported in the PDD shall be supported by documentation and the PDD shall clearly state the complete reference of such documentation to enable access to it by a third party.	ditto	NA	
	Where documented information may be difficult to access or unavailable, local expert analysis on a common practice shall be provided.	ditto	NA	
7.	**Monitoring plan**	Para.121-123 VVM	--	--
	<Requirement to be validated> The PDD shall include a monitoring plan. This monitoring plan shall be based on the approved monitoring methodology applied to the proposed CDM project activity.	Para.121 VVM	--	--
7.1 (a)	***Compliance of the monitoring plan with the approved methodology*** (i) The list of parameters required by the selected approved	Para.122 VVM	OK	

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	methodology shall be identified.			
	(ii) The monitoring plan shall contain all necessary parameters, and the means of monitoring described in the plan shall complie with the requirements of the methodology;	ditto	OK	
	For each parameter, the following information shall be explicitly described in the standardized table in the PDD. ● Source of data ● Value of data applied ● Description of measurement methods and procedures ● QA/QC procedures ● Any comment, if any (Note): Data monitored and required for verification and issuance are to be kept for two (2) years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.	PDD Guidelines	OK	
	The operational and management structure that the project operator will implement in order to monitor emission reductions and leakage effects generated by the project activity shall be clearly described in the PDD (section 7.2) including the responsibilities for and institutional arrangements for data collection and archiving.	ditto	The management structure shall be verified	CL-16 CL-17 CL-18 CL-19
(b)	*Implementation of the plan* (i) The monitoring arrangements described in the monitoring plan shall be feasible within the project design;	Para.122 VVM	ditto	ditto
	(ii) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, shall be sufficient to ensure that the emission reductions achieved by/resulting from the proposed CDM project activity can be reported ex post and verified.	ditto	ditto	ditto
7.2	Relevant furthur background information, if any, shall be provided in Annex 4 of the PDD.	PDD Guidelines	NA	
8.	**Sustainable development**	Para.124-126 VVM	--	--
	<Requirement to be validated> CDM project activities shall assist Parties not included in Annex I to the Convention in achieving sustainable development.	Para.124 VVM	--	--
8.1	The letter of approval by the DNA of the host Party shall confirm the contribution of the proposed CDM project activity to the sustainable development of the host Party.	Para.125 VVM	To be confirmed by LOA	CAR-1
9.	**Local stakeholder consultation**	Para.127-129 VVM	--	--
	<Requirement to be validated> Local stakeholders shall be invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC website. See glossary of CDM terms, currently located at <http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM_v03.pdf>, for definition of stakeholders.	Para.127 VVM Glossary of CDM terms	--	--
9.1 (a)	Comments by local stakeholders that can reasonably be considered relevant for the proposed CDM project activity shall be invited in an open and transparent manner.	Para.128 VVM	Tbv	CL-20

CAR: Corrective Action Request, **CL**: Clarification Request, **FAR**: Forward Action Request, NA: Not Applicable, Tbv:To be verified

TABLE-1 REQUIREMENTS CHECKLIST (OK/No/NA/Tbv)

Sec. in VVM	Requirement	Refer. Para. VVM	Check Comment	ID. No.
(b)	The summary of the comments received as provided in the PDD shall be complete.	ditto	Tbv	CL-21
(c)	The project participants shall demonstrate that they have taken due account of any comments received and shall describe/explain this process in the PDD.	ditto	Tbv	CL-23
10.	**Environmental impacts**	Para.130-132 VVM	--	--
	<Requirement to be validated> Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity in accordance with paragraph 37(c) of the CDM modalities and procedures.	Para.130 VVM Para.37(c) CDM/M&P	--	--
10.1	Project participants shall submit documentation to the DOE on the analysis of the environmental impacts of the project activity	Para.130 VVM	Tbv	CL-22
10.2	Project participants shall also provide all references to support documentation of a EIA if required by the host Party	Para.131 VVM	Tbv	CL-23 CL-24 CL-25

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR	**Corrective Action Requests**			
CAR-1	PP shall provide the LOAs of each Party.	1.1 2.1 2.2	The LOA from China DNA has been submitted this time as Ref.No.1 and please check. The LOA from Japan will be submitted as soon as possible.	LOA(China-30/04/2009) was provided, whose content was confirmed to be complying with the requirement. **OK**
			The LOA from Japan DNA has been submitted	LOA(Japan-09/12/2009) was provided, whose content was confirmed to be complying with the requirement. **OK** **CAR-1 was closed out**
CAR-2	IRR calculation: PP shall provide the active spread sheet of the IRR calculation.	6.11	The spread sheet of the IRR calculation has been submitted. Please check.	The sheet was provided, and the context was confirmed to be reasonable. The revision of emission reduction was small that IRR result with CER did not changed .from that of PDD for GSC. **OK.** **CAR-2 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-3	PP shall provide the evidences of Notification of CDM project (as a New Project) and its Acceptance by Host party DNA.	6.4 6.5	This document has been prepared and can be submitted during the on-site visit	The Notification Letter and LoA were confirmed to comply the reqirement. **OK.** **CAR-3 was closed out.**
CAR-4-1	Table 2 of B.4.: 1. Feasibility Study Report (FSR) shall be provided to the DOE for the confirmation of the values listed in Table 2. The followings are to be additionally explained to the DOE. · The carrier of the design institute who prepared FSR. · When FSR was completed? · The approval procedure and conditions of FSR by DR	6.10 6.11 6.12 6.14	1.The FSR has been submitted and please check (1)FSR was completed by Guangxi Power Industry Survey Design and Research Institute, and the related information about this institute can be explained during on-site visit. (2)The FSR was completed in September, 2007 which can be checked by the preface of the FSR. (3)The approval procedure and conditions of the FSR by DRC can be explained during the on-site visit.	1.General Summary Chapter and Economic Study Chapter were provided, and other chapters will be additionally provided upon request of DOE. OK The key part of FSR and the certificate of the Design Institute were verified during the onsite assessment through interviews with related authorities and PP. The criteria and conditions for the approval of the project by the Local DRC was confirmed through the interview with LDRC. **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-4-2	Table 2 of B.4.: 2. Detail explanation is requested for the inconsistency, if any, of the key parameters for the investment analysis between FSR and PDD.	6.10 6.11 6.12 6.14	All the parameters in PDD for investment analysis is the same as the FSR.There is none of inconsistency.	2. The key parameters of IRR in the PDD were confirmed to be same as those in FSR, except expected CER price. The CER price adopted in the PDD was conservative. **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-4-3	Table 2 of B.4.: 3. The official document in which the tariff is regulated shall be provided, together with incentive conditions for the project if any. In addition, the yearly trend of the tariff of the Region shall be provided.	6.10 6.11 6.12 6.14	The related approval letters for the proposed project are "Trial Methods for the Price and the Cost Sharing of Renewable Power Generation Management" and "The reply letter of grid-connected tariff of Liucheng Biomass Residues Power Generation Project" (guijiage[2007]No.426) issued by Guangxi Zhuang Autonomous Region Price Bureau on 18/09/2007. It can be shown from the two letters that the tariff for the proposed project is fixed to be 0.53691yuan/kWh, excluding VAT, from the 1st operation year to the 15th operation year and 0.32276yuan/kWh, excluding VAT, from the 16th operation year to 20th operation year. So the tariff of the proposed project was fixed and can't be changed. The furthermore information can be checked during the on-site visit.	3.The national incentive policy for biomass power generation was confirmed by the Local grid company during the onsite assessment. DOE also confirmed the incentive policy described at the NDRC notice issued as 2006 Number 7, referred at Para.01 in "The reply letter of grid-connected tariff of Liucheng Biomass Residues Power Generation Project" (guijiage[2007]No.426) **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-4-4	Table 2 of B.4.: 4. PP shall explain with the statement by the design institute how the annual operating hours of the project were determined with relevant evidences and references.	6.10 6.11 6.12 6.14	The annual operating hours of the project can be cross checked by other CDM projects, and the annual operating hours of 6000h is conservative. It can also be checked during on-site visit.	4.The ex-ante 6000h value was verified by the technical reference information provided from PP. Further cross check with other CDM parameters are verified in the validation report by DOE. **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-4-5	Table 2 of B.4.: 5. PP shall explain with the statement by the design institute how the values of Ef / Internal Loss /Transmission Line Loss of the project were determined with relevant evidences. In addition the information on the electricity intake records by grids for neighbouring power plants shall be provided as reference for the validity of Ef data.	6.10 6.11 6.12 6.14	In the FSR, the internal loss of the proposed project was adopted as 12.3% and the annual generated electricity was adopted as 180000MWh(30MW*6000h), so the annual grid-in electricity was caculated as 158000MWh(=180000*(1-12.3%)). So in the FSR, Ef was adopted as 100% (which was conservative) and the Line Loss was adopted as 0%(which was conservative) and the internal loss was adopted as 12.3%. The design base of the internal loss was "Technical Rule for designing auxiliary power system of fossil fuel power plants"(DL5153-2002) which can be submitted.How the values of Internal Loss(12.3%) of the project were determined will be explained during the on-site visit, and the relevant evidence will be submitted.Furthermore, the rate of internal loss can be cross checked by other CDM projects by DOE.	5.The rationale of estimating the annual supply electricity to grid was clarified as its value of 157860MWH(=180000*(1-12.3%). DOE verified the figures were appropriate through the estimation procedure of Internal Loss as guided by DL/T 5153-2002. For further confirmation of this ex-ante value, DOE cross-checked the designed load factors of all electrical equipments of the plant, and concluded the ex-ante value was credible. **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
			The load of 1# unit is 2391kVA, and the load of 2# uint is 3024kVA, and the double load of 1# unit and 2# unit is 800kVA, so the total load of the power plant is 4615kVA(=2391+3024-800) The plant load is calculated according to DL/T 5153-2002 as 4615kVA * 0.8(power factor) = 3692, which is 12.3% of 30MWh	
CAR-4-6	Table 2 of B.4.: 6. PP shall provide how the price of the biomass residues was determined with evidences of market information and statistic data etc.	6.10 6.11 6.12 6.14	The price of biomass residues was estimated by the Design Institute based on their survey of the market and combining with the analyses on relevant circumstances.	6. DOE verified the description in the FSR by the market survey data by PP as the supporting evidence for estimating the Biomass price. DOE also verified the supply chain structure from farmers via stock stations to the plant, by confirming the cost of each supply steps, through interview during the on-site assessment DOE concluded the cost estimation was reasonable. . **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CAR-4-7	Table 2 of B.4.: 7. PP shall provide how O&M cost was determined with supporting references.	6.10 6.11 6.12 6.14	The FSR gives the design base and guidelines for all the parameters including the O&M cost in Chapter 11.3.1 in the FSR, and the basic parameters for the further calculation has been shown in table 11.3.1 in the FSR. The calculation process for the OM cost has been shown in the spreadsheet of investment analysis. How O&M cost was determined will be explained during on-site visit.	7.The rationale of determining all element parameters of O&M cost were verified by "Technical Rule for designing auxiliary power system of fossil fuel power plants"(DL5153-2002).. **OK**
CAR-4-8	Table 2 of B.4.: 8. PP shall clarify the values and validity of Depreciation period and Residual value adopted for IRR calculati	6.10 6.11 6.12 6.14	The FSR gives the calculation result of depreciation period and residual value and how the values and validity of Depreciation period and Residual value was determined will be clarified during on-site visit.	8. The supporting information was provided and verified. **OK** **CAR-4 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-1	PP shall provide the FSR and the technical data of the plant system so that DOE can confirm they are consistent with Table-1 in A.4.3. PP also shall provide the purchase agreement of the Boilers/Turbine/Generators describing price and specifications, in order to confirm the starting date described in the PDD in the context of the project timeline.	6.3 4.2	The FSR has been submitted and please check; Furthermore the data source of table 1 is from the equipment purchase agreements. And the purchase agreements of the Boilers/Turbine/ Generators will be submitted. The starting date of the proposed project was confirmed as the date of 28/08/2008 (the date of signing the purchase agreement of steam turbines and generators) which can be further checked during the on-site validation.	The specifications of Major equipments in the purchase agreements were confirmed as same as described in Table-1 of PDD. The date of Purchase agreement for Turbines/Generators was confirmed as 28.08.2008, complying with the description of C.1.of the PDD. **OK** **CL-1 was closed out.**
CL-2	PP shall provide the capital composition and their sources of the company of the project in Host country.	4.2	This will be submitted as soon as possible.	The capital composition, holders' name, established date were verified with the business license and interview during the onsite assessment. DOE verified the debt-equity ratio was appropriate complying with the Guideline of PRC. **OK** **CL-2 was closed out.**
CL-3	ACM0002 shall be revised to the latest version	5.1	The latest version of version 09 of ACM0006 approved at EB 48 has been adopted. Please check the latest PDD.	The version 09 was still valid at the time of the validation report. **CL-3 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-4	PP shall demonstrate with evidences and/or by referring FSR on: 1. No fossil fuel usage for the Boilers 2. Biomass residues Storage Period 3. No cogeneration system in the plant	5.2	First of all, these information can be checked by the FSR which was approved by the authority: (1)the FSR has no description about fossil fuel usage for the boiler, and cost of fossil fuel hasn't been included in O&M cost in economic evaluation which can demonstrate that no fossil fuel would be used for the Boiler. (2)Biomass residues storage period can be checked by Page 18 and Page 55 of FSR. (3)No cogeneration system in the plant can be checked by Table 5.2-1 of FSR.	The followings were verified by site visit and technical drawings during the onsite assessment. 1 No continuous usage of fuel which will be checked by the monitoring item FFpj plant. 2 The maximum storage time was estimated about four months including plant site and collection terminals, which was verified by stock yard drawings and interviews. Thus complying with the methodology (Less than one year) 3 No cogeneration system was confirmed by the design document of the plant. **OK** **CL-4 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-5	As for Baseline, PP shall demonstrate with evidence information and with examples during Onsite Assessment how the proposed biomass residues are treated at present (before the implementation of the project).	5.7	Firstly, these information can be checked by the Page 2 to Page 4 of FSR. Secondly, these infromation can be cross checked by other evidences during the on-site visit and these evidences will be submitted as soon as possible;	As reported in the onsite visit summary, the present usage, available amount, price estimation of the biomass residues described in the FSR and the PDD were verified via interviews, farm visit and the survey map of the County. DOE verified the FSR by the market survey data by PP as the supporting evidence for estimating the price. **OK** **CL-5 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-6	The PDD selected the Baseline Scenario 2 through adequate procedures of the selected methodology. PP shall demonstrate the following conditions being right with evidence information and by providing the specifications of the plant: 1. The project is a new power plant 2. The efficiency of the selected Boilers is superior. 3. No anaerobic treatment within the plant 4. No application of the Biomass Residues at present as feed stock or fertilizer in the district of the project	5.13	(1)The project is a new power plant can be checked by the Page 1 of FSR and can be cross checked during on-site visit; (2)The efficiency of the selected Boilers are superior can be checked during the on-site visit. (3)No anaerobic treatment within the plant can be checked during on-site visit. (4)No application of the Biomass Residues at present as feed stock or fertilizer in the district of the project can be checked during on-site visit.The FSR has been submitted. The other evidences will be submitted as soon as possible.	During the onsite assessment, item 1, 3, 4 were verified to be comply with the Methodology. As for 2, the selected boilers were confirmed as technically advanced one in heat vs biomass fuel efficiency, by reviewing the university report on this field. **OK** **CL-6 was closed out.**
CL-7	PP shall provide the information on relevant national code and/or policies on promoting biomass residue treatment projects including power generation.	5.10	The national policy on promoting biomass residue treatment projects such as "Trial Methods for the Price and the Cost Sharing of Renewable Power Generation Management" has been submitted this time and please check.	The incentive tariff condition of the project was confirmed with the provided national policy. **OK** **CL-7 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-8	PP shall demonstrate the key part of Reference 12,13,14. in Step-2 page 16 of PDD, as objective evidences for Barrier analysis.	5.9 6.16. 6.17	The internet link of Footnote 14 has been expired, which has been replaced by another available internet link and please check the latest PDD. The PDF copies for Footnote 12, 13 and 14 with English translation has been submitted this time and please check.	The evidences were confirmed to be supporting as the information on technology and national policy on biomass power generation. PP shall review whether the four Barriers described in the PDD could be real barriers by applying the new guidelines (at EB50 Annex13).
			Please check the revised PDD according to the relevant Guidelines for Barrier Analysis .	DOE verified the revised Barrier Analysis was complying with the Guidelines through crosschecking with the supporting evidences, that Lack of Prevailing Practice was appropriately selected as a sole Barrier. **OK CL-8 was closed out**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-9	PP shall clarify spatial extent of collection of the Biomass Residues with evidences of such as survey data etc.	5.13	The spatial extent of collection of the biomass residues can be checked by Page 17 and Page 18 of FSR, and it also can be checked during the on-site visit.	The market survey maps of the Residues throughout County were confirmed as the supporting information for the validity of the FSR data during the onsite assessment. **OK** **CL-9 was closed out.**
CL-10	PP shall demonstrate the validity of Available Quantity of the Biomass Residues with evidences such as survey data etc.	5.13	The available quantity of biomass residues is estimated based on the biomass residules survey conducted by the Design Institute through their survey of the market and combining with the analyses on relevant circumstances.	The source of data and available ratio of the biomass residues in the FSR was verified during the onsite assessment, and the available quantity in the PDD was corrected to be consistent with the FSR. **OK** **CL-10 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-11	PP shall clarify the values of "Ratio of available vs. Utilized" in the Table of page 32 of PDD	5.13	The "Ratio of available vs. Utilized" in the Table of page 32 in PDD has been revised according to the estimation conducted by the Design Institute through their survey of the market and combining with the analyses on relevant circumstances. The utilization ratio of the two types of the biomass has been revised according to the data in FSR.	The values were corrected. The utilization ratio of the two types of Biomass was also corrected to follow the data in the FSR. Accordingly, the emission reduction value was revised from that in PDD for GSC. **OK . CL-11 was closed out.**
CL-12	PP shall demonstrate with evidence information and/or analysis data about appropriateness and conservativeness of the values used: 1. The electricity consumption of the plant (10 kwh/ton Biomass) 2. The combustion calorific values (NCVk of the Biomass Residues) 3. The moisture content of the Biomass	5.13	(1)The electricity consumption of the plant of 10 kWh/t-biomass is referred from the registered CDM projects No. 1263，1366，1375. In addition,the power consumption are 2.7, 6.5 kWh/t-biomass for the registered CDM projects No.1293,2230 respectively. So the conservative value 10 kWh/t-biomass is adopted.	(1) The relation of the electricity consumption value and each component value of O&M cost were verified with interview and the following evidences. **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	Residues 4. The emission factor of transport trucks (EFkm,CO2,y)		(2)The combustion calorific values (NCVk of the Biomass Residues) in the PDD are from the Measurement Report for the biomass provided by the certificated entity and can be also checked during on-site visit. (3)The moisture content of the Biomass Residues in the PDD are from the same Report in (2) above.	(2)&(3) NCVk and Moisture values applied in the PDD were found to be different from those in the FSR and the analysis report on 08/06/2007, which was verified during the onsite assessment. The ex-ante emission reduction simulation in the PDD shall be revised to comply with the data in FSR, which are same as in the above analysis report. **OK**
			NCVk and Moisture values applied in the latest PDD has been revised accoding to the FSR. The emission reductions and the investment analysis have a little change. Please check the PDD and the spreadsheet of investment analysis.	**OK** The claimed values and the emission reductions in the PDD was confirmed to be correctly revised. **CL-12 was closed out.**
CL-13	1. PP shall provide the evidences of CDM Consideration and supporting evidences to indicate that the benefits of the CDM were a decisive factor in the decision to proceed with the project.	6.6	The meeting minutes for CDM consideration by the project owner has been prepared and can be submitted during on-site visit. In addition, FSR in which CDM is analysed is also a document for PP considering CDM.	The copy of the board meeting memo was verified during the onsite assessment. **OK**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
	2. PP shall provide the evidences of continuing CDM activity as listed in Table in PDD B.5.		The evidences of continuing CDM activity such as the ERPA and "The notification letter of the commencement of the project activity and of the intention to seek CDM status" has been prepared and can be submitted during on-site visit.	The evidences relating every CDM activity such as Record of Stakeholders' Meeting with Q&A, ERPA, Notification of CDM project to NDRC were verified during the onsite assessment. **OK** **CL-13 was closed out.**
CL-14	Suitability of the benchmark: 1. The evidence of the benchmark effectiveness shall be provided. 2. Also any recent authorization announcement on the effectiveness of the benchmark shall be provi	6.13	The benchmark of 8% was in accordance with the Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects issued by former State Power Corporation of China, and the document has been submitted this time. The recent authorization announcement on the effectiveness of the benchmark will be submitted. This benchmark of 8% can be also cross checked by other biomass power generation CDM projects in UNFCCC.	DOE requested if PP has encountered any recent authorization announcement
			"Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects" is effective now and there has been none of renewal one.	**OK** DOE noted the PP's comment **CL-14 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-15	PP shall demonstrate with the relevant information sources how the project was defined as "First of its kind" in the Region.	6.(e)	The relevant information sources how the project was defined as "First of its kind" in the region will be explained during on-site visit.	The local newspaper article was verified to be an evidence that the project is a pioneer in Province.
			Through reviewing the power generation information for Guangxi in China Electric Power Yearbook and none of biomass projects are included in it.	No biomass power generation projects in Province was confirmed . **OK** **CL-15 was closed out.**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-16	As for "Monitoring Organization", PP shall demonstrate the additional description in the PDD on the following issues : 1. PP shall clarify who is "Project Owner", whose name appears in some part in B.7.2 of the PDD description. If he is not " the vice president", the role of "Project Owner" shall be additionally figured in B.7.2. 2.It is recommended that QA/QC section should be separately figured out from the data monitoring section in order to separate the meter calibration and quality assurance role from the measuring role of data monitoring section. 3. The figure in the PDD shall additionally describe what part of the plant organization are involved in each function of the figure.	7.1	The project owner is Liuzhou City Xin'neng Biomass Power Generation Co., Ltd. The general manager of the Liuzhou City Xin'neng Biomass Power Generation will be the CDM Manager. In order to avoid misunderstanding, the description has been revised in the "2. The monitoring organization" in section B.7.2 in the PDD. The QA/QC section has been separately figured out from the monitoring section to be "5. Quality Assurance and Quality Control (QA/QC)" in section B.7.2 in the PDD. The description of the plant organization involveing in certain function in figure 3 has been added in PDD.	1.The description in the Revised PDD has become clear on the role and name of the organization members, which was confirmed during the onsite assessment. **OK** 2.The function and role of QA/QC was adequately described. **OK** 3.More clear role and function of each members of the organization were adequately described in the Revised PDD. **OK** **CL-16 was closed out**
CL-17	PP shall additionally describe training function and its responsible manager for ensuring the function of Organization.	7.1	The training function and its responsible entity for ensuring the function of organization has been added in "7.training" in section B.7.2 in the PDD.	**OK.** The description was adequately described in the Revised PDD. **CL-17 was closed out**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-18	PP shall confirm the function of organization and data management system described in "CDM Monitoring / Data Management Plan and Manual " are precisely stated in B.7.2.	7.1	The relevant information has been stated in B7.2 of PDD.	The description was adequately described in the Revised PDD.**OK** **CL-18 was closed out** The monitoring and CDM management manual shall be compiled before the start of crediting period as requested by FAR-1
CL-19	PP shall add a figure describing Location of monitoring points in B.7.2. of the PDD, in order to demonstrate the minotoring points.	7.1	A figure was added in the Revised PDD.	PP shall clarify the following points in the Figure. 1.The figure number and its title were not clear.. 2.The parameter, BFky in Figure should be clarified. 3.BFky shall be in a proper point. 4.ECpjy shall be in a proper point. 5.The ex-ante value of ECpjy shall be 22140 MWh ? 6.W and M in Figure shall be separately numbered to differentiate each measuring function.

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
			The figure number and its title has been revised in the PDD. As for ECpjy ,the design institute and the PO give a rational default value and 1,781.98MWh was estimated in the PDD, and ECpjy should be monitored by the meters at the substation during the monitoring process.	**OK** The figure and its content were adequately revised. **CL-19 was closed out**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-20	PP shall describe the date of the invitation for comments by local stakeholders. Also PP shall provide evidences for the invitation to local stakeholders, such as Notification letter, MOM of Meeting, the copies of original Q&A of each Stakeholder.	9.1	There are two phases of investigation:(1) the first phase: The public participation was organized in July 2007 for collecting stakeholder's views and opinions mainly focued on the environmental impacts through distributing questionnaires and public announcement, and the related evidences for this phase can be checked by Chapter 9 in the submitted EIA. (2) the second phase: To know the public suggestions and advices mainly on the issues of CDM application of the proposed project, the project owner did the stakeholders' survey in September 2007.The first investigation way was to hold the stakeholders' meeting organized by the project owner on 05/09/2007 and the second investigation way was to hand out the questionnaires (66 questionnaires were released and all were got back). The survey range was the related stakeholders in Liucheng County. And the related evidences such as the minutes on 05/09/2007 and questionnaires for this second phase can be submitted during the on-site visit.	**OK** They were verified by interview and document during the onsite assessment. **CL-20 was closed out**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-21	PP shall correct the Share(%) values in the second Table of E.1. of the PDD, whose sum should be 100.	9.1	As for some questions, some people didn't choose the choices, so the sum isn't 100%.The percentage for no choice has been added in the latest PDD.	Adequate summary was made. **OK** **CL-21 was closed out**
CL-22	PP shall provide the EIA report, the evidence of approval letter, and the letter attachment (opinions) by the relevant authority. PP shall demonstrate how the project has taken measures on the attached opinions if any.	10.1	The EIA has been sbmitted to DOE, and the approval letter for this EIA of "Guihuanguanzi [2007]No.536" and other evidences will be submitted during the on-site visit. And the project owner will make detailed explanation during the on-site visit.	The activity and evidences were verified by the interview during the onsite assessment . **OK** **CL-22 was closed out**
CL-23	PP shall provide the evidences of the monitoring record of the mitigation measures conducted by the project, also the records and comments (if any) monitored by the local environmental authority during construction period.	10.1	The EIA has been sbmitted to DOE, and the approval letter for this EIA of "Guihuanguanzi [2007]No.536" and other evidences will be submitted during the on-site visit. And the project owner will make detailed explanation during the on-site visit.	They were verified through interview to PP and Local EPB during the onsite assessment. **OK** **CL-23 was closed out**
CL-24	PP shall explain the major items and values of the regulation standards applied to the project for Gas/Water/Noise/Solid as noted in the PDD, and explain monitoring measures during the project operation by referring the EIA report.	10.1	The EIA has been sbmitted to DOE, and the approval letter for this EIA of "Guihuanguanzi [2007]No.536" and other evidences will be submitted during the on-site visit. And the project owner will make detailed explanation during the on-site visit.	They were verified through interview to PP and Local EPB during the onsite assessment. **OK** **CL-24 was closed out**

TABLE-2 Resolution of Corrective Actions and Clarification Requests

No. CAR, CL	Clarifications and corrective action requests by validation team	Sec. No. in TABLE-1	Summary of project owner response	Validation team Conclusion
CL-25	PP shall provide the evidences of "Scheme of Water and Soil Conservation for the project", and the approval by the relevant authority.	10.1	The scheme of water and soil conservation for the project and the approval letter for this report by the local government will be submitted during the on-site visit.and the project owner will make the detailed explanation.	The document was verified. **OK** **CL-25 was closed out**
FAR-1	The monitoring and CDM management manual shall be compiled before the start of crediting period.	7.1		

APPENDIX B

Certificate of Appointment of Validation Team

Project Title	Liucheng Biomass Residues Power Generation Project in Guangxi Zhuang Autonomous Region, China
Applied Methodology	ACM0006(Version 08)
	Sectoral Scope 1

Date: 29 June 2009

Designated Operational Entity: Japan Consulting Institute (JCI)

Reflecting the competence criteria of JCI in accordance with "Criteria for operational entities of LIST of SECTORAL SCOPES", this is to certify the appointment of validation team of JCI specified below for the CDM project activity above, as per CDM Project Activity Registration Form, "**F-CDM-REG**" adopted at the 24th Meeting of CDM Executive Board, and Validation Procedure established by JCI CDM Center.

Signature

Akio Yoshida,
Executive Director, JCI CDM Center

Date: 24 July , 2009

Client: Mitsubishi Corporation

Reflecting the curricula vitae provided, this is to agree the validation team of JCI specified below for the CDM project activity above, as per Validation Procedure established by JCI CDM Center.

It is also agreed that Mr. Mutsuo KATO of JCI participates in the validation activities of the said project for the quality issues under its quality management scheme.

Signature

(Name) Tsuyoshi Nakamura
(Title ~~General Manager~~
Emissions Reduction Business Unit

Validation Team

Validation Team	Name	Assigned Role
Leader	Masaki OKADA	All relevant issues
Member	Haruo SAWADA	CDM auditor

Technical Reviewer	~~Tori KATAOKA~~	Energy Industries
Technical Reviewer	Takayuki Abe	Energy Industries

Mr. Abe was appointed in replace of Mr. KATAOKA on 1st. Dec., 2009