



VALIDATION REPORT

Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

July 27, 2012

Japan Consulting Institute

**REPORT No. JCI-CDM-VAL-11/043
REVISION No. 00**

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Date of first issue	Report Number		
July 27, 2012	JCI-CDM-VAL-11-043		
Approved by Akio Yoshida, Executive Director	Organizational Unit		
	JCI CDM Center Japan Consulting Institute (JCI)		
Client	Client ref.,		
Lakewood Carbon Corp.	Mr.Robert W. Anderson, Jr.		
Project name	Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.		
Host Country	Methodology version	Sectoral Scope	Technical Area(s)
People's Republic of China	ACM0014 version 04.1.0	Sectoral Scope 13	TA 13.1
Size	ER estimate		
Large Scale	199,118 t-CO ₂ e / year (average)		
GHG reducing Measure/ Technology	Methane Recovery in Wastewater Treatment / Thermal Energy for user		

A summary of the validation process and its conclusions

Japan Consulting Institute (JCI) has performed a validation work of the "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.". 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 fulfillment of stated criteria.
- The host country is People's Republic of China and the Annex I country is United Kingdom of Great Britain and Northern Ireland. 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 ACM0014 "Mitigation of greenhouse gas emissions from treatment of industrial wastewater" version 04.1.0 and referenced Tools.
- The total emission reductions from the project are estimated to be on the average 199,118 tCO₂e per year over the selected 10 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.
- The training and monitoring procedures have been implemented.
- In summary, it is JCI's opinion that the "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd." as described in the PDD Version 3.0, dated on "27/07/2012" meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodologies ACM0014 (Version 04.1.0).
- JCI thus provides a positive opinion and requests the registration of the proposed project as a CDM project activity.

Date of revision	
Checked by Hideyuki Sato, Manager, Evaluation Group, JCI CDM Center	<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organisational unit <input type="checkbox"/> Limited distribution <input type="checkbox"/> Unrestricted distribution
Technical Reviewed by Haruo SAWADA	
Work carried out by Masaki Okada, Mutsuo Kato	

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Abbreviations

BM	Build Margin
BTTC	Bengbu Tushan Thermoelectricity Co., Ltd
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ERs	Emissions Reductions
FAR	Forward Action Request
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
JCI	Japan Consulting Institute
KP	Kyoto Protocol
LoA	Letter of Approval
LCC	Lakewood Carbon Corp.
MP	Monitoring Plan
NDRC	National Development and Reform Commission, China (DNA of China)
NGO	Non-governmental Organization
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
PRC	People's Republic of China
UK	United Kingdom of Great Britain and Northern Ireland
UNFCCC	United Nations Framework Convention for Climate Change
VAT	Value Added Tax
VVM	Validation and Verification Manual

**CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan
Thermoelectricity Co., Ltd.**

TABLE OF CONTENTS

I.	VALIDATION OPINION	4
II.	INTRODUCTION OF CDM VALIDATION	4
1.	OBJECTIVE OF CDM VALIDATION	4
2.	VALIDATION APPROACH	5
3.	VALIDATION METHODS	5
3.1	<i>Means of validation.....</i>	<i>5</i>
3.2	<i>Clarification requests, corrective action requests and forward action requests.....</i>	<i>5</i>
4.	STAKEHOLDER CONSULTATION PROCESS.....	7
III.	VALIDATION WORK.....	7
1.	VALIDATION TEAM	7
2.	APPOINTMENT CERTIFICATE OF THE DOE'S VALIDATION TEAM MEMBER	7
3.	QUALITY CONTROL WITHIN THE TEAM OF THE VALIDATION PROCESS	8
4.	DESK REVIEW.....	8
5.	FOLLOW-UP ACTIONS (INTERVIEWS WITH RELEVANT STAKEHOLDERS IN THE HOST COUNTRY	13
IV.	VALIDATION FINDINGS.....	14
1.	APPROVAL	15
2.	PARTICIPATION.....	15
3.	PROJECT DESIGN DOCUMENT	16
4.	PROJECT DESCRIPTION	16
5.	BASILINE AND MONITORING METHODOLOGY	17
5.1.	<i>Applicability of selected methodology to the project activity.....</i>	<i>17</i>
5.2.	<i>Project boundary.....</i>	<i>18</i>
5.3.	<i>Baseline identification.....</i>	<i>18</i>
5.4.	<i>Algorithms and/or formulae used to determinenemission reductions.....</i>	<i>21</i>
6.	ADDITIONALITY OF PROJECT ACTIVITY	26
6.1	<i>Prior consideration of CDM.....</i>	<i>26</i>
6.2	<i>Identification of alternative</i>	<i>28</i>
6.3	<i>Investment analysis.....</i>	<i>28</i>
6.4	<i>Barrier analysis</i>	<i>35</i>
6.5	<i>Common practice analysis.....</i>	<i>35</i>
7.	MONITORING PLAN	36
8.	SUSTAINABLE DEVELOPMENT.....	37
9.	LOCAL STAKEHOLDER CONSULTATION	38
10.	ENVIRONMENTAL IMPACTS	38
11.	RESULT OF STAKEHOLDER CONSULTATION PROCESS	38

Appendix A: Validation Protocol

Appendix B: Certificate of Appointment of Validation Team

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

I. VALIDATION OPINION

Japan Consulting Institute (JCI) has performed a validation of the "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd." 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 United Kingdom of Great Britain and Northern Ireland. 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 ACM0014 "Mitigation of greenhouse gas emissions from treatment of industrial wastewater" Version 04.1.0 and referenced "Tool for the demonstration and assessment of additionality (Version 06.0.0)".

The total emission reductions from the project are estimated to be on the average 199,118 tCO₂e per year over the selected 10 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 "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd." as described in the PDD Version 3.0 of "27/07/2012" meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the approved consolidated baseline and monitoring methodologies ACM0014 Version 04.1.0.

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 JCI to perform a validation of the "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd." (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, (the simplified modalities and procedures for small-scale CDM project activities) 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.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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 JCI's responsibility to ensure that, in accordance with the CDM VVM version 01.2 and CDM requirements, these rules are complied with for any project activities requesting registration as a proposed CDM project activity.

During validation, JCI assesses whether the project design of the proposed CDM project activity meets the CDM requirements. For this, JCI, using objective evidence, assesses 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 is not limited to that provided by the project participants.

In assessing evidence, JCI does not omit evidence that is likely to alter the validation opinion. In the assessment of evidence, the JCI uses the acceptable approaches as specified in Chapter II to IV, below, and JCI ensures 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 EB before submitting a request for registration.

3. VALIDATION METHODS

3.1 Means of validation

The JCI 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 the proposed project, JCI identifies issues that need to be further elaborated upon, researched or added to in order to confirm that the proposed project meets the CDM requirements and can achieve credible emission reductions, JCI ensures that these issues are correctly identified, discussed and concluded in the validation report.

JCI raises 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;

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

(c) There is a risk that emission reductions cannot be monitored or calculated.

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

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

JCI resolves or “closes out” CARs and CLs only if the project participants modify the project design, rectify the PDD or provide adequate additional explanations or evidence that satisfy JCI’s concerns. If this is not done, JCI does not recommend the project activity for registration to the CDM Executive Board.

JCI reports on all CARs, CLs and FARs in its validation report. This reporting will 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.

The completed validation protocol for the proposed project is enclosed in Appendix A to this report.

Validation protocol tables

Table 1: Requirements checklist
<p>✧ Requirement (Checklist Question) : <i>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.</i></p> <p>✧ Reference : <i>Gives reference to documents where the checklist question or item is found. Paragraph No. of VVM is referred.</i></p> <p>✧ Check Comment : <i>The column is used to elaborate and discuss the checklist question and/or the conformance to the question.</i></p> <p>✧ ID No. of CAR, CL and FAR :</p> <ul style="list-style-type: none"> · <i>ID No. of CAR, CL and FAR is described.</i> · <i>Corrective Action Request (CAR) is used due to non-compliance with the checklist question.</i> · <i>Clarification Request (CL) is used when the validation team has identified a need for further clarification.</i> · <i>Forward Action Request (FAR) is used to highlight issues related to project implementation that require review during the first verification of the project activity.</i>

Table 2: Resolution of Corrective Action and Clarification Requests
<p>✧ Clarifications and corrective action requests : <i>If the conclusions from the draft Validation are either a CAR, a CL or a FAR, these should be listed in this section.</i></p> <p>✧ Ref. to checklist question in Table1 : <i>Reference to the checklist question number in Table1 where the CAR, CL or FAR is explained.</i></p> <p>✧ Summary of project owner response :</p>

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Table 2: Resolution of Corrective Action and Clarification Requests

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.

4. STAKEHOLDER CONSULTATION PROCESS

JCI 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, JCI 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 JCI shall request further clarification from the entity providing the comment. However, JCI 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, JCI 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 III. 1a. Detail of Validation Team

Role/Qualification	Name	Qualified Technical Areas related to the Project	On-site Visit
All relevant issues / Team Leader	Masaki OKADA	13.1 Waste handling and disposal	
CDM audit / Team Member	Mutsuo KATO	13.1 Waste handling and disposal	✓

Details of the technical reviewer are shown in below Table.

Table III. 1b. Detail of the technical reviewer

Name	Qualified Technical Areas related to the Project
Haruo SAWADA	13.1 Waste handling and disposal

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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 for the assurance of being in 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 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 the internal audit team and 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 III.2 Document list

No.	Title
	<Basic documents for the Project such as PDD, FSR, EIA Report etc.>
/1/	PDD for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd., version 1 of 21/07/2011 by the project proponent
/2/	PDD for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd., Version 3.0 of 27/07/2012 by the project proponent
/3/	IRR calculation sheet for Investment analysis for without CER and with CER in excel file
/4/	ER calculation spreadsheet
/5/	Feasibility Study Report prepared by Hefei Design and Research Institute of Coal Industry, January 2008
/6/	EIA (Environmental Impact Assessment) Report prepared by Bengbu Environmental Impact Assessment Center, March 2008
/7/	Minutes of Board Meeting Resolution of Tushan Project regarding Investment Decision on 15/01/2008
/8/	CDM Monitoring Manual on 01/09/2011
/9/	MOC on 01/02/2012
/10/	Company profile and organization of Bengbu Tushan Thermoelectricity Co., Ltd.
/11/	Company profile and organization of Anhui Fengyuan Fuel Alcohol Company
/12/	Company profile and organization of PDD author's company
/13/	Company profile and organization of LAKEWOOD CARBON CORP.
/14/	Summary of on-site assessment by JCI, 14 October 2011

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

No.	Title
	<Documentary evidences, Records for the Project>
/21/	Invitation article for stakeholder meeting, 14/02/2008
/22/	Minutes of stakeholder meeting, 27/02/2008
/23/	Relevant documents (questionnaires) for stakeholder meeting, 27/02/2008
/24/	Notification of 76th audit meeting of National DNA of China. 24/06/2010
/25/	Report anaerobic digester construction of Tushan project, 26/12/2008
/26/	The operation record of wastewater treatment by fuel alcohol plant in 2007
/27/	Monthly Report of wastewater treatment from alcohol plant in 2007
/28/	Material balance of ethanol production
/29/	Water balance of ethanol fuel production
/29-1/	Historical data at least one year for existing ethanol fuel plant
/30/	Schematic diagram of the biogas and sludge utilization of the Tushan project
/31/	Contract of FSR and actual investment
/32/	Annual running cost of Tushan project
/33/	The concentration of H ₂ S in biogas; The biogas inspection report of Bengbu Tushan Thermoelectricity Co., Ltd.
/34/	The influence of H ₂ S Study on the desulfurization technologies for biogas, written by Wang Gang, Wang Xin, Liu Wei and so on, Chemical Engineer, January 2008.
/35/	Administration of registration of the business scope
/36/	Classification of national economic industries < http://wuhan.whhd.gov.cn/news/20070815/102247362.html >
/37/	The straw comprehensive utilization planning in Anhui province
/38/	Benchmark choice: Construction Project Economic Evaluation Methods and Parameters (Version 3), supplied by NDRC and Ministry of Construction of the People's Republic of China, China planning Press. (Chinese benchmark guidance)
/39/	The average coal price in January 2008 for Shanxi coal estimated by the data of Phoenix New Media Limited < http://app.finance.ifeng.com/data/indu/cpjpg.php?symbol=1447 >
/40/	Coal Price of Tushan Project
/41/	Tushan Coal Contract
/42/	Anhui labor average salary in 2007; Anhui Statistical Yearbook 2008
/43/	Welfare; Power engineering and technical transformation project economy evaluates temporary measure, written by National power company transmission operation Department.
/44/	Labour insurance for Anhui Province, updated on 10 January 2008
45/	Housing Public Accumulation Fund, updated on 24 March 2002
/46/	Labor union, Training and business entertainment rate, on 6 December 2007 (Chinese Corporate Income Tax Regulation)
/47/	Water treatment facilities economic evaluation, issued by Chemical Industry Press
/48/	Concentration of H ₂ S; Biomass energy resource clean conversion technology, written by Yao Xiangjun and Tian Yishui, Chemical industry press, January, 2005
/49/	Caustic soda price < http://app.finance.ifeng.com/data/indu/cpjpg_fc.php?symbol=1570&kind=%E5%B9%B3%E5%9D%87%E4%BB%B7%E6%A0%BC&area=11 >
/50/	electricity price
/51/	water price < http://price.h2o-china.com/view.php?id=808&pid=796&ppid=807&nian=2007 >
/52/	Property insurance fee; Property Insurance, written by Fu Ju, Fudan University Press.
/53/	Employer's Liability Insurance, < http://www.zjfinance.com/cp_view.asp?id=1031 >
/54/	Depreciation cost; Rules for the Implementation of the PRC Enterprise Income Tax Provisional Regulations, No [1994]003.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

No.	Title
/55/	Taxes; Provisional Regulations of the PRC VAT, No. 538.
/56/	Regulation VAT for metallic or non metallic minerals 1994[22]
/57/	Bengbu Huaiyuan County Biomass power generation
/58/	Document for benchmark (Construction Project Economic Evaluation Methods and Parameters (Version 3))
/59/	Footnote1-Organic industry wastewater treatment theory and technology
/60/	Footnote2-Standards for irrigation water quality(GB 5084-2005)
/61/	Integrated emission standard of air pollutants (GB16297-1996)
/62/	Map of Bengbu City
/63/	Anhui Bilvchun alcohol Co., Ltd. < http://www.ahblc.com/index.htm >
/63-1/	Anhui Bengbu Juxing alcohol Co., Ltd. < http://baike.baidu.com/view/3934228.htm >
/63-2/	Anhui Ante Bio-chemical Co., Ltd. < http://baike.baidu.com/view/5887575.htm >
/63-3/	Wuhe Jiangda Industrial trade Co., Ltd. < http://whjdgmb2b.hc360.com/shop/show.html >
/63-4/	Anhui Sizhou Alcohol Plant < http://www.dy88.cn/zhuanlan/3204.html >
/63-5/	Anhui Ruifuxiang Food Co.,Ltd. < http://www.ahrfox.com/include/content.php?id=57 >
/64/	The economic comparison among Anhui, Jiangsu and Shandong Province
/65/	Evidence on the ambient temperature < http://cdc.cma.gov.cn/shishi/climate.jsp?stprovid=安徽&station=58221 >
/66/	Presentation to China Steam Coal Summit by C. Liu of BHP Billiton Energy Coal Marketing, 4/Dec./2006 < http://www.bhpbilliton.com/bbContentRepository/chinasteamcoalsummit06.pdf >
<Letters of Approval>	
/71/	LOA (Letter of Approval) by China DNA on 30 Sept. 2010
/72/	Letter of Approval issued by DNA of UK on 09/09/2011
/73/	Approval Letter of EIA Report by the Environmental Protection Agency of the Bengbu City with approval No. 36 [2008] on 20 March 2008
/74/	Project approval, 25 February 2008, Official document (No. [2008]41) Included in Approval Letter for Feasibility Study Report (FSR)
/75/	Explanation about the business scope for COFCO biochemical (Anhui) Co.,Ltd.
/76/	Document for the Date of trial operation, Jun. 2009
/77/	Business License of Bengbu Tushan Thermoelectricity Co., Ltd.
/78/	Business License of existing ethanol fuel plant of Anhui Fengyuan Fuel Alcohol Company
/79/	Approval letter of EIA Report for existing ethanol fuel plant
/80/	Approval Letter for Feasibility Study Report (FSR) for existing ethanol fuel plant
< Reference Documents (Methodology, Guidance, Criteria, etc, of UNFCCC) >	
/91/	CDM Validation and Verification Manual (VVM), version 01.2, CDM EB55 Annex1
/92/	ACM0014 “Mitigation of greenhouse gas emissions from treatment of industrial wastewater”, version 04.1.0
/93/	Tool for the demonstration and assessment of additionality, version 06.0.0

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

No.	Title
/94/	Guidelines on the Assessment of Investment Analysis, version 05
/95/	Tool to determine project emissions from flaring gases containing methane
/96/	Tool to calculate the emission factor for an electricity system, version 02.2.1
/97/	Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01
/98/	Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 02
/99/	Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM), version 07.0, EB41 Annex 12
/100/	Guidelines on the demonstration and assessment of prior consideration of the CDM, version 04, EB62, Annex13
/101/	Paragraph 67 of the 41th meeting report of CDM-EB
/102/	Glossary of CDM terms, version 06 (EB66 Annex 63)
< Related Codes, Regulations, Standards for Project>	
/111/	2,3 timeframe standard of “Emission standard of air pollutants for thermal power plants” (GB13223-2003)
/112/	Standards of environmental noise of urban aria (GB3096-93)
/113/	1 st class standard of the “Integrated wastewater discharge standard” (GB8978-1996)
/114/	“Municipal wastewater treatment plant pollutants discharge standard” (GB18918-2002),
/115/	Approval criteria of methane recovery project; Renewable Energy Law of the People’s Republic of China, , approved on 28 Feb 2005 by the tenth National People’s Congress of the Fourteenth Meeting.
/116/	Approval criteria of ethanol fuel project; National Economic and Social Development the tenth Five-Year Plan, approved on 15 Mar 2001 by the ninth National People’s Congress of the Fourth Meeting.
/117/	Approval criteria of CDM projects; China clean development mechanism operation and management procedure, written by NDRC and so on.
/118/	The Law of the People’s Republic of China on Enterprise Income Tax (effective from January 1, 2008)
/119/	Chinese legislation named “People’s Republic of China Rules for Corporate Income Tax Deductions 2000”, depreciation period should be AT LEAST 10 years for equipment and 20 years for building
/120/	People’s Republic of China Administrative instructions for Provisional Legislations for Corporate Income Tax 1994”, salvage value must be EQUAL or LESS THAN 5%.
< Official books issued by Government for Project>	
/131/	Page of IPCC Default Value for CO2 emission factor of fuel i by source j in year y) in 2006 IPCC Guidelines for National Greenhouse Gas Inventories
/132/	Volume 5, Chapter 4, Page 4.4, Fraction of biogas that leaks from the digester in 2006 IPCC Guidelines for National Greenhouse Gas Inventories
/133/	2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 5, Chapter 6, Page6.21, Default MCF Values for Industrial Wastewater
< Contracts, Agreements for Project>	
/141/	Consulting agreement with Uniufa Energy Technology Co., Ltd. regarding CDM project consulting, 6 Mar. 2008

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

No.	Title
/143/	Construction contract, 18 March 2008 (= starting date of the project activity)
/144/	Biogas recovery and utilization contract of Tushan project, 02/05/2008
/145/	Aerobic wastewater treatment system contract of Tuahan project , 15/10/2009
/146/	LCC Uniufa Service Agreement Tushan Project
/147/	Emission Reduction Purchase Agreement was signed with the LAKEWOOD CARBON CORP., 25 November 2009 (ERPA)
/148/	Joint Development Agreement, 3 Dec. 2008, Emit signed joint development agreement with UNIUFA
/149/	Contract between JCI and BTTC for validation Service on 01/07/2011
< Drawings, Flows, Diagrams>	
/151/	General arrangement drawings of the Proposed Project
/152/	General arrangement drawings of the existing Plant
/153/	Material flow balance of waste water treatment for the proposed project
/154/	Material flow balance of waste water treatment for the existing plant
/155/	Technical specifications by manufacturers for 1 st MIC and 2 nd MIC reactors
/156/	Technical specifications by manufacturers for co-fired boilers of the project
/157/	Process instrument diagram (PID of the plant) for the project
/158/	Electric single line diagram for the project
/159/	Name Plate of Existing 8 Boilers

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

Table III.3 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/	Issued CAR or CL Relevant tool, guidance, or guidelines applied
The change of Annual average over the crediting period of estimated Reduction in Table A.4.4.1, in Item B.6.3 and in Item B.6.4.	219,181tCO ₂ e	199,118CO ₂ e Addition of the project emission from treatment of wastewater effluent from the anaerobic digester	CAR-5
Addition of date of manufacture of all boilers in Table A.4.3.1 in Item A.4.3	Insufficient description of manufacturing date of existing boilers	Addition of manufacturing date of boilers on which the date were not described	CL-4
Clarification of project boundary in Figure B. 3.1 in B.3	The feed water line to Co-fired boilers is not included.	The boiler feed water line was added in the project boundary.	CL-6
The change of description of context of	Description according to the additionality	Description according to the additionality tool version	CAR-4,

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Subject and section in the PDD	Original content in the PDD/1/	Revised content in the PDD/2/	Issued CAR or CL Relevant tool, guidance, or guidelines applied
additionality Step 4 Common practice analysis in B.4	tool version 05.2	06.0.0 /93/	
Clarification of similar project in Anhui province in Table B.5-6 based on the additionality tool version 06.0.0	Description according to the additionality tool version 05.2	Selection of similar projects based on the additionality tool version 06.0.0 /93/	CL-13
Addition of events in Table B.5.1 for prior consideration of CDM in B.4	Insufficient description of events	Addition of the necessary items to verify the early consideration of CDM	CL-9, CL-10, CL-17

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

The on-site visit and interviews with project stakeholder were held from 12 to 14 October 2011 in Anhui Province, China.

The names of interviewees are listed as following table.

Table III.4 List of interviewees

	Date	Name	Organization	Topic
/14/	12/10/2011	Mr. Yang Zishan , Mr. Cao Songshan, Mr. Bi Yumei Mr. Robert W. Anderson Mr. Liu Feng, Mr. Shi Haiting, Mr. Tian Weiran, Ms. Qu Yiping	BTTC (Project Owner) LCC (PP) Uniufa Energy Technology Co., Ltd.	<u>Interview with Project Owner</u> ♦ Outline of the company ♦ Timeline/Milestones ♦ Serious consideration of the CDM incentive ♦ Document lists ♦ Agreements with equipment suppliers and constructors ♦ Management/Education/Training of operation, maintenance and monitoring
/14/	13/10/2011	Mr. Yang Genquan	Hefei Design and Research Institute of Coal Industry	<u>Interview with Design Institute</u> ♦ Description and organization of Design Institute ♦ Experience on FSR of methane recovery plant: ♦ FSR history in terms of commencement, completion, revision, approval by authority, etc. ♦ Confirmation of the least cost lagoon design, its defined design

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

	Date	Name	Organization	Topic
				parameters and results of the literature review in the PDD and the FSR <ul style="list-style-type: none"> ◆ Confirmation of investment value ◆ Bases/sources of the financial parameters for the investment analysis
/14/	13/10/2011	Mr. Yin Chaojiang	Economic Commission of Bengbu City	<u>Interview with EC</u> <ul style="list-style-type: none"> ◆ Approval criteria of methane recovery project ◆ Approval criteria of CDM projects ◆ Records/documents regarding the project approval ◆ Future concerns
/14/	13/10/2011	Mr. Chen Xuedong	Bengbu Municipal Environmental Protection Bureau (EPB)	<u>Interview with EPB</u> <ul style="list-style-type: none"> ◆ Criteria and Regulation of EIA approval ◆ Positive and/or negative concerns ◆ Records/documents regarding the EIA approval ◆ Monitoring items in the construction phase and operation phase ◆ Future concerns
/14/	13/10/2011	Mr. Hu Minyue	Bengbu Environmental Impact Assessment Center	<u>Interview with EIAC</u> <ul style="list-style-type: none"> ◆ Criteria and Regulation of EIA approval ◆ Positive and/or negative concerns ◆ Records/documents regarding the EIA approval
/14/	13/10/2011	Mr. Liu Hui Mr. Pan Hongjin Mr. Zhang Zhiming Mr. Liu Haoran	Local residents (Worker) (Worker) (Peasant) (Worker)	<u>Interview with local residential people</u> <ul style="list-style-type: none"> ◆ Pre-announcement ◆ Positive and/or negative influence on the living conditions ◆ Environmental or ecological issues ◆ Future concerns

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 Five (5) CARs and twenty three (23) CLs as shown in the Validation Protocol, Appendix A of this report. All CARs and CLs were resolved and then closed as shown in the Table 2 of the Appendix A.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Major issues and its resolution process through the CARs and CLs are described in following items according to VVM /91/.

1. Approval

JCI received copies of the two LoAs from the project participant Lakewood Carbon Corp.: one is from DNA of People's Republic of China (PRC) issued on 30 September 2010/71/, and the other is from DNA of UK issued on 9 September 2011/72/.

JCI has confirmed the approval of the project activity with the website of PRC government related organization as described below.

The website of CDM Information Platform sponsored by and the copyright of the information owned by Department of Climate Change, NDRC, PRC.

JCI also has confirmed the following:

- 1) DNA of PRC approved the "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd."
 - (1) The People's Republic of China is a Party to the Kyoto Protocol on August 2002;
 - (2) Participation is voluntary;
 - (3) The proposed CDM project activity contributes to the sustainable development of the Republic of China, Host country
 - (4) It authorizes Bengbu Tushan Thermoelectricity Co., Ltd.
 - (5) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration.
- 2) UK government, as the DNA for UK, approved the "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd."
 - (1) UK has ratified the Kyoto Protocol on May 2002;
 - (2) Participation in the CDM is voluntary basis;
 - (3) It authorizes Lakewood Carbon Corp. as a project proponent in the project "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.", developed under Article 12.5(a) and 9 of the Kyoto Protocol of the United Nations Framework Convention for Climate Change;
 - (4) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration.

There found no indication during the validation process that the project uses 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 the project participants are Bengbu Tushan Thermoelectricity Co., Ltd. of PRC and Lakewood Carbon Corp. 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.

As described above, the project participants are authorized with the LoAs issued by the relevant DNA as a voluntary participant to the project activity.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

3. Project Design Document

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

- (1) CDM VVM, version 01.2 /91/
- (2) ACM0014 “Mitigation of greenhouse gas emissions from treatment of industrial wastewater”, version 04.1.0 /92/
- (3) Tool for the demonstration and assessment of additionality, version 06.0 /93/
- (4) Guidelines on the Assessment of Investment Analysis, version 05 /94/
- (5) Tool to determine project emissions from flaring gases containing methane /95/
- (6) Tool to calculate the emission factor for an electricity system, version 02.2.1 /96/
- (7) Tool to calculate baseline, project and/or leakage emissions from electricity consumption, version 01 /97/
- (8) Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion, version 02/98/
- (9) Guidelines for completing the project design document (CDM-PDD) and the proposed new baseline and monitoring methodologies (CDM-NM), version 07 /99/
- (10) Guidelines on the demonstration and assessment of prior consideration of the CDM, version 04/100/
- (11) Glossary of CDM terms, version 06/102/

The project design was described using the CDM-PDD template of the latest version 03 as shown in the PDD/2/, that was confirmed through comparison with the template listed on the UNFCCC website.

As described above, JCI validated and concluded that the PDD/2/ is compiled with use of 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

The context of the PDD/2/ was checked during the on-site assessment conducted from 12 to 14 October 2011 with the following measures:

- 1) Observation of the project site
- 2) Cross-check of the construction work with relevant drawings provided by the project participant
- 3) Interviews with the project participant, relevant organizations/entities, and local stakeholders shown in Table III.4 of section III.5 'Follow-up actions'.

As the result of the above steps, JCI validated and concluded that the descriptions of the PDD/2/ are correct and its context is sufficient, and well outlines 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 owner : Benbu Tushan Thermoelectricity Co., Ltd. (BTTC)
- Establishment : 29 April 2003/77/
- Wastewater : 11,500 m³/day of wastewater to be discharged from 320,000 t/y ethanol fuel production plant in the Anhui Fengyuan Fuel Alcohol Company which have been in operation since December 2003/78/
- COD of wastewater: 35,000 mg/L before treatment and 100 mg/L after treatment to the local wastewater treatment plant
- Project type : Methane recovery in wastewater treatment for thermal energy production without electricity

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

- Major equipment : 4,000m³ MIC reactor x 6 units for 1st stage and 4,000m³ MIC reactor x 2 units for 2nd stage (total 8 units) including Bio-double pool and Bio-trickling filter tower and the existing Biogas utilization system (8 Co-fired steam boiler I and II and III with two Biogas burners on each boiler)
- Amount of coal displaced : 44,756 tons/year
- Estimated emission reductions: 199,118 t-CO₂e/year
- Project lifetime : 15 years
- Fixed crediting period : 10 years

JCI has confirmed the accuracy and completeness of the project description.

5. Baseline and monitoring methodology

5.1. Applicability of selected methodology to the project activity

JCI validates and concludes that application of ACM0014 “Mitigation of greenhouse gas emissions from treatment of industrial wastewater” version 04.1.0/92/ is appropriate as follows:

The following steps and information have been taken into consideration

Step: Document review, Follow-up actions (On-site visit, interviews), etc

Information: Findings (CARs, CLs), Previous plant layout, FSR, EIA Report, Technical specifications, Design data/drawings, Relevant laws/regulations/codes, energy balance report, Commissioning report, Acceptance report, Production reports, Monthly and Yearly statistics, Internet websites

Firstly as for the proposed project, the baseline scenario is that wastewater is directed to anaerobic open lagoons, and the project activity is that new anaerobic digesters (MIC reactors) are installed and then recover biogas to generate heat. Among the residual from the anaerobic digesters after treatment, wastewater is treated at aeration pond and sludge is dewatered and combusted at a boiler. Therefore, the proposed project activity completely complies with the Scenario 1.

Secondary the proposed project satisfies the three conditions: 1) The average depth of the open lagoons or sludge pits in the baseline scenario is at least 1m, 2) The heat and electricity requirements per unit input of the water treatment facility remain largely unchanged in the baseline scenario and the project activity, and 3) The fulfilled data requirement as laid out in the methodology/92/.

Finally the proposed project satisfies the three conditions for the Scenario 1: 1) The residence time of the organic matter in the open lagoon system should be at least 30 days, 2) Local regulations do not prevent discharge of wastewater in open lagoons, 3) Inclusion of solid materials in the project activity is only applicable where: (i) Such solid materials are generated by the industrial facility producing the wastewater, and (ii) The solid materials would be generated both in the project and in the baseline scenario.

Table IV.1 Check for scenarios applicable to the methodology

Type	Applicability Conditions	In the case of the Project	Evidence	Check result
For all scenarios	The average depth of the open lagoons or sludge pits in the baseline scenario is at least 1 m.	In the baseline the depth of the anaerobic open lagoons are 5 meters.	Confirmed by FSR/5/.	OK
	Heat and electricity requirements per unit input of the water treatment facility	Heat is required neither for the baseline nor the project. Electricity requirement per unit input of the	Confirmed by FSR/5/ and documents/32/	OK

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Type	Applicability Conditions	In the case of the Project	Evidence	Check result
	remain largely unchanged in the baseline scenario and the project activity	water treatment facility will be largely unchanged in the baseline scenario and the project activity.		
	Data requirements as laid out in this methodology are fulfilled.	It is fulfilled at the time of completion of the PDD.	Confirmed by FSR/5/ and PDD/2/	OK
For scenario 1	The residence time of the organic matter in the open lagoon system should be at least 30 days	The detention time of the baseline anaerobic open lagoon is 52 days; the wastewater organic matter is at least longer than 52days.	Confirmed by FSR/5/.	OK
	Local regulations do not prevent discharge of wastewater in open lagoons.	Chinese/provincial regulations do not prevent discharge of wastewater in anaerobic open lagoons.	CL-2, CL-6	OK
	Inclusion of solid materials in the project activity is only applicable where: (i) Such solid materials are generated by the industrial facility producing the wastewater, and (ii) The solid materials would be generated both in the project and in the baseline scenario.	The solid materials are not separated before directing the wastewater to the open lagoons. The Project is applicable.	Confirmed during on-site assessment and by FSR/5/.	OK

5.2. Project boundary

JCI identifies the project boundary from the following steps:

- Documentation: Findings (CARs, CLs), Commissioning report, Acceptance report, Previous plant layout, FSR, EIA report, Technical specifications, Design data/drawings, Contracts, Grid baseline emission factors,
- Site visit observations: Observations and/or inspection of the physical site or equipment, Interviews,

The PDD/2/ defines the project boundary, as illustrated in the “Figure B.3-1 Project Boundary”, which satisfies the spatial extent of the project boundary stipulated in the methodology/92/.

JCI validates and concludes that the definition of the project boundary was appropriate; during the on-site visit for assessment, it is confirmed that the spatial extent of the project activity includes a sequential wastewater treatment system, the biogas fired boiler, the cogeneration and an open flare and dewatering facility for sludge.

5.3. Baseline identification

JCI confirmed that the baseline identification of the proposed project was conducted in appropriate manner by confirming of following necessary steps and crucial points.

The PDD/2/ applied the procedure of Steps 1 to 4 of the methodology/92/, for the identification of the most plausible baseline scenario.

Step 1: The candidate baseline scenarios of using treatment of wastewater/heat generation with biogas from a new anaerobic digester are following options according to the results of the analysis conducted in the PDD/2/.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Alternative scenario 1, W1(open lagoons treatment) + H2(fossil fuel boiler to generate heat) ;

Alternative scenario 2, W5(anaerobic treatment system of collecting methane to generate electricity and heat) + H2(fossil fuel boiler to generate heat);

In PDD/2/, Scenario 1 is eventually determined as the most likely baseline scenario.

JCI has checked whether the chosen scenario 1 and 2 in PDD/2/ are appropriate by following:

The proposed project does not involve the treatment of sludge (S) in case of Scenario 2, electricity generation with biogas from a new anaerobic digester (E) and the treatment of solid materials (SM) in Scenario 1 in ACM0014

Table IV. 2 Possibilities of baseline scenario

alternative of scenarios	Alternatives of baseline scenario		Description of the scenario
	Treatment of wastewater	Heat generation	
1	W1	H2	Keeping on using the existing open lagoons system, the Bengbu Tushan Thermoelectricity Company continues to use coal fired boilers for heat generation.
2	W5	H2	Constructing the anaerobic reactor for recovering methane generated from the anaerobic treatment, the recovered methane is co-fired in a boiler with coal for heat generation. The scenario is same to the project but is not a CDM project activity.

- As the proposed project recovers methane from wastewater treatment process and generate heat by combustion of recovered methane, both wastewater treatment scenarios and heat generation scenarios are necessary to be discussed.
- As this project is not a Greenfield facility, JCI confirmed that plausible alternative scenarios for the treatment of wastewater (W) have been selected by only conditions of all project configurations as follows.

W1: The use of open lagoons for the treatment of the wastewater

W1 is alternative scenario because JCI confirmed that the status of the project owner belongs to this scenario during on-site review.

W2: Direct release of wastewater to a nearby water body

W2 is not possible as the baseline scenario because this scenario does not meet the People's Republic of China "Water Pollution Prevention Law" and the People's Republic of China "Municipal Wastewater Treatment Pollutants discharge Standard"/114/.

W3: Aerobic wastewater treatment facilities

W3 is excluded from alternative scenario because JCI confirmed that aerobic wastewater treatment system does not meet the high concentration of organic wastewater with 35,000mg/L of COD by the literature "Organic industry wastewater treatment theory and technology"/59/. (Ref. to CL-7)

W4: Anaerobic digester with methane recovery and flaring

W4 is excluded from alternative scenario because this scenario needs much higher investment and operational costs than anaerobic open lagoons and generates no revenue from flaring of the recovered biogas. (mainly methane gas)

W5: Anaerobic digester with methane recovery and utilization for electricity or heat generation

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

W5 is included in possible alternative scenario because this scenario is proposed project activity undertaken without being registered as a CDM project activity. And also JCI has confirmed the proposed project utilizes the methane recovery from wastewater and heat generation, and not undertaken as a CDM project activity.

W6: Wastewater is directed to land application without dewatering:

W6 is excluded from alternative scenario because the national water standard for soil application have restricted the COD of water to less than 200mg /L, and the COD of wastewater of proposed project was 35,000mg/L. And also JCI have confirmed that COD of wastewater have been restricted with the national water standard for soil application "Standard for irrigation water quality (GB5084-2005)" /60/. (Ref. to CL-7)

W7: Wastewater is dewatered and directed to land application/ used as fuel in energy applications

W7 is excluded from alternative scenario because the water content of the proposed project is more than 90%, which is appropriate. JCI have confirmed that water content of wastewater was very high.

- This project is including the heat generation with biogas from a new anaerobic digester system, the steam recovered by which was fed to existing cogeneration facility.

JCI have been confirmed that plausible alternative scenarios for the generation of heat have been selected by only conditions of all project configurations as follows.

H1: Co-generation of heat using fossil fuels in a captive cogeneration power plant

H1 is excluded from alternative scenario because the scenario is not a possible baseline scenario as follow. The heat produced by the Project is used for the steam turbo-generator or co-generation which is high quality steam, but the heat from co-generation is used by the final users which is low quality. The proposed heat energy of the Project offers dissimilar serve for consumer compared with the heat energy of the co-generation plant of this scenario.

JCI confirmed that the type of steam turbine of existing co-generation plant was the expansion type and the steam from the discharge nozzle of steam turbine has been supplied to the end user through the low pressure steam pipeline without being condensed by the steam condenser during the on-site assessment.

H2: Heat generation using fossil fuels in a boiler

H2 is included in possible alternative because proposed project utilized coal to generate the steam. JCI have been confirmed that the coal was utilized by existing co-fired boiler to generate the steam during on-site assessment.

H3: Heat generation using renewable sources

H3 is excluded from alternative scenario because there is no renewable energy around here. JCI have confirmed that there were the available straws energy source here, but they have been being used by other company's boiler plant /62/. (Ref. to CL-8)

- As a result of the above procedure, PDD/2/ identified that the baseline scenario are the W1 (The use of open lagoons for the treatment of the wastewater) and W5 (Anaerobic digester with methane recovery and utilization for electricity or heat generation) as the plausible scenario for the treatment of wastewater (W) and H2 (Heat generation using fossil fuels in a boiler) as the plausible scenario for the generation of heat (H).

Step 2: In PDD/2/, both alternative scenario 1 and 2 complied with applicable and regulations.

That is; as for the alternative scenario 1, the treated wastewater from the existing open lagoon system has been discharged into the wastewater treatment plant. The final discharged

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

wastewater satisfies the standard of Chinese environmental regulations /114/, and the existing coal fired boiler complies with the national and local laws and regulations. As for the alternative scenario 2, the using anaerobic digester complies with the standard and recovers biogas for generating heat.

Step 3: Based on the result of benchmark analysis in below 6.3 (1), IRR without CDM consideration is lower than the benchmark and Alternative scenario 2 of W5 and H2 is excluded as the alternative.

Step 4: The PDD/2/ has identified that one credible and plausible Alternative scenario 1 of W1 and H2 remains as the most likely baseline scenario, and JCI has confirmed that it is appropriate for baseline scenario.

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

JCI has validated and concluded that the algorithms and /or formulae including data and values used to determine the emission reductions of the proposed project comply with the methodology/92/ and relevant tool/93//95//96//97/98/ through the document review and on-site visit.

JCI confirmed that;

- (1) All assumptions and data used by the project participants are listed in the PDD/2/, including their references and sources;
- (2) All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD/2/;
- (3) All values used in the PDD/2/ are considered reasonable in the context of the proposed CDM project activity;
- (4) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (5) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD/2/.

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

1) Application of baseline and monitoring methodology

JCI confirmed that the PDD/2/ fully complies with the methodology ACM0014 (Version 04.1.0) /92/ and the relevant tools/93//95//96//97//98/, based on the baseline scenario selected. The calculations are conducted first to work out the baseline emissions and then the project emissions, leakage and finally emission reductions based on the methodologies /92/ and the relevant tools/93//95//96//97//98/.

JCI also confirmed that the data and parameters used in the calculations are sourced from appropriate documents/5//92//95//96//97//98//72-1//72-2/ and correctly interpreted and applied through cross-checks. The ex-ante estimation including main parameters for the emission reductions is summarized in the table “Emission Reduction Calculation as per ACM0014” /92/

2) Baseline emission; factor (BE_y)

Baseline emissions (BE_y) consists of three components such as **Methane emissions** ($BE_{CH_4,y}$), **CO₂ emissions associated with electricity generation** ($BE_{EL,y}$) and **CO₂ emissions associated with fossil fuel combustion** ($BE_{HG,y}$) as follows:

$$BE_y = BE_{CH_4,y} + BE_{EL,y} + BE_{HG,y}$$

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Where,

BE_y : Baseline emissions in year y (tCO_2e / yr)

$BE_{CH_4,y}$: Methane emissions from anaerobic treatment of the wastewater in open lagoons (scenario 1) or the anaerobic treatment of sludge in sludge pits (scenario 2) in the absence of the project activity in year y (tCO_2e / yr)

$BE_{EL,y}$: CO_2 emissions associated with electricity generation that is displaced by the project activity and / or electricity consumption in the absence of the project activity in year y (tCO_2 / yr)

$BE_{HG,y}$: CO_2 emissions associated with fossil fuel combustion for heating equipment that is displaced by the project in year y (tCO_2 / yr)

Step 1: Calculation of baseline emissions from anaerobic treatment of the wastewater or sludge.

JCI confirmed that Project participant adopted the Methane Conversion Factor Method out of two alternative methods proposed in the methodology/92/ to calculate the base line methane emission from anaerobic treatment of the wastewater in open lagoons.

Step 1a: Methane Conversion Factor Method

JCI confirmed that the methane emission ($BE_{CH_4,y}$) was calculated based on this step and the calculation process was described in the PDD/2/ appropriately.

Equations for calculating the missions in the PDD/2/ are same as those from (2) to (11) of ACM0014 /92/.

Step 2 : Baseline emissions from generation and/or consumption of electricity

JCI has confirmed that in the step 2 of Baseline emission in ACM0014 /92/, the project participants neglected one or both emissions in $BE_{EL,y}$ as a simplification according to the methodology ACM0014/92/, though the project owner had the existing thermo-electricity facility with coal fired boiler. And then, JCI has validated and concluded that the neglecting of the baseline emissions from the consumption of electricity was correctly implemented in the conservative manner.

Therefore, $BE_{EL,y} = 0$.

Step 3 : Baseline emissions from generation and/or consumption of electricity

CO_2 emissions associated with fossil fuel combustion ($BE_{HG,y}$)

JCI confirmed that baseline Scenario H2 applies to the proposed project, the emissions are calculated in the PDD/2/ by the equation (18) of ACM0014/92/ and its details are summarized in the table /4/ "Emission Reduction Calculation as per ACM0014 /92/" including the estimation of the annual coal savings to be used for the investment analysis.

3) Project emissions (PE_y)

Project emissions (PE_y) consists of seven components such as **Project methane emissions from effluent from the digester** ($PE_{CH_4,effluent,y}$), **Project emissions related to physical leakage from the digester** ($PE_{CH_4,digest,y}$), **Methane emissions from flaring** ($PE_{flare,y}$), **Project emissions from land application of sludge** ($PE_{sludge,LA,y}$), **Project emissions from land application of wastewater** ($PE_{ww,LA,y}$), **Project emissions from electricity consumption** ($PE_{EC,y}$) and **Project emissions from fossil fuel consumption** ($PE_{FC,y}$).

$PE_{sludge,LA,y}$ and $PE_{ww,LA,y}$ are excluded since the project do not introduce a treatment of sludge. $PE_{FC,y}$ is also excluded as the biogas fired boiler introduced by the project does not consume fossil fuel. Therefore, the project emissions for the proposed project activity are simplified from seven components to four components as follows:

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

(1) Project methane emissions from effluent from the digester ($PE_{CH_4, effluent, y}$)

Project methane emissions from effluent from the digester has been eliminated in the PDD/1/ for GSC, which is inconsistent with the requirement of the methodology ACM0014/92/. Therefore, JCI has issued CAR-5 to make sure that the Project methane emissions from effluent from the digester have been added to the Project emission of the proposed project according to the requirement of ACM0014/92/. Since JCI confirmed that the ER calculation sheet and PDD/2/ have revised appropriately, CAR-5 was closed.

(2) Project emissions related to physical leakage from the digester ($PE_{CH_4, digest, y}$)

As the proposed project activity includes construction of a new anaerobic digester, the emissions directly associated with the operation of digesters involve the physical leakage of methane from the digester in accordance with the ACM0014/92/. The equation in the PDD/2/ is the same as that of (30) in the ACM0014/92/.

(3) Methane emissions from flaring ($PE_{flare, y}$)

The Project will install an open type flare in order to burn biogas when boiler is not available because of failure or maintenance. According to ACM0014/92/, methane release as a result of incomplete combustion in the flare is calculated based on the “Tool to determine project emissions from flaring gases containing methane/49/”. The tool involves the seven steps and the PDD/2/ adopts such seven steps: Step 1: The simplified approach is selected. Step 2: NA because of the simplified approach selected. Steps 3 and 4: NA because the flare efficiency is not continuously monitored. Step 5: Equation (13) of the ACM0014/92/ is adopted in the PDD/2/. Step 6: The flare efficiency is selected in accordance with ACM0014/92/. Step 7: Equation (15) of the ACM0014/92/ is adopted in the PDD/2/.

As all recovered biogas is supplied to a boiler to generate steam under the normal condition in ex-ante calculation, the methane emissions from flaring is not considered and thus $PE_{flare, y}$ is assumed to be zero. Equations provided so far are used for ex-post calculation of emission reductions.

(4) Project emissions from electricity consumption ($PE_{EC, y}$)

As for the Project consumes electricity for operation of equipment such as pumps and blowers, “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” (Version 01)/97/ is applied to calculate project emissions from electricity consumption ($PE_{EC, y}$) in the PDD/2/ according to the ACM0014/92/ as follows: Firstly Scenario B is selected. Then equation (1) of the tool/97/ and the Option A1 are selected. Finally the emission factor is calculated based on the “Tool to calculate the emission factor for an electricity system/50/” in accordance with the ACM0014/92/. The project activities was adopted Option B2 and the default value 1.3 tCO₂/MWh was used to calculate the emissions from the electricity consumption of the project activity. And also in case of Scenario B assume $TDL_{j, y} = 0$ according to the tool/97/.

JCI summarized the main parameters in ex-ante estimation in Table IV.3 below, who confirmed and judged that the main parameters were selected appropriately.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Table IV. 3 Check for main parameters in ex-ante estimation

Parameter		Unit	Value	Evidence	Check result
BE _{CH4,y} : Methane emissions from anaerobic treatment of the wastewater in open lagoons					
COD _{out,x}	Design COD outflow from the baseline anaerobic lagoon in the period x	tCOD/yr	7,830	FSR/5/	OK
COD _{in,x}	Design COD inflow to the baseline anaerobic lagoon in the period x	tCOD/yr	120,750	FSR/5/	OK
F _{PJ,dig,m}	Quantity of wastewater that is treated in the anaerobic digester in the project activity	m3/month	287,500	FSR/5/	OK
W _{COD,dig,m}	Average chemical oxygen demand of wastewater that is treated in the anaerobic digester in the project activity	tCOD/m3	0.0350	FSR/5/	OK
f _d	Factor expressing the influence of the depth of the lagoon on methane generation	-	50%	ACM0014/92/ Depth 1-5m	OK
f _{T,y}	Factor expressing the influence of the temperature	–	0.6977	ACM0014/92/, PDD/2/	OK
T _{2,m}	Monthly average temperature	K	Annex 3 of PDD/2/	Weather data of Website/65/	OK
BE _{HG,y} : CO2 emissions associated with fossil fuel combustion for heating equipment that is displaced by the project					
η _{BL,boiler}	Efficiency of the boiler that would be used for heat generation in the absence of the project activity	-	91%	Design value in boilers in FSR/5/	OK
EF _{FF,CO2,boiler}	CO2 emission factor of the fossil fuel type used in the boiler for heat generation in the absence of the project activity	tCO2/TJ	94.6	2006 IPCC Guideline /131/	OK
NCV _{CH4}	Net calorific value of methane	GJ/m3	0.0359	FSR/5/	OK
COD _{PJ,effl,plant,y}	Quantity of chemical oxygen demand in the effluent from the plant directed to digester in year y	tCOD/yr	120,750	FSR/5/	OK
COD _{PJ,effl,dig,y}	Quantity of chemical oxygen demand in the effluent from the digester in year y	tCOD/yr	9,660	Design value, in FSR/5/	OK
MCF _{anae,digester}	Methane conversion factor anaerobic digester	-	0.8	2006IPCC Guideline /133/	OK
PE _{CH4,digest,y} : Project emissions from physical leakage of methane from the anaerobic digester					
F _{biogas,y}	Amount of biogas collected in the outlet of the new digester in year y	m3/yr	43,440,000	Design value in FSR/5/	OK
W _{CH4,biogas,y}	Concentration of methane in the biogas in the outlet of the new digester	Kg/m3	0.4296	Design value in FSR/5/ ρ _{CH4,273} *0.6	OK
PE _{EC,y} : Project emissions from electricity consumption					

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Parameter		Unit	Value	Evidence	Check result
$EC_{PJ,j,y}$	Quantity of electricity consumed by the project electricity consumption source j in year y	MWh/yr	6,521	Design value in FSR/5/	OK
$EF_{PJ,j,y}$	Emission factor for electricity for source j in year y	tCO ₂ /MWh	1.3	Design value in FSR/5/ & Tool /97/	OK
$TDL_{j,y}$	Average technical transmission and distribution loss for source j in year y	-	0	Design value in FSR/5/ & Tool /97/	OK

4) Leakage

JCI confirmed that the PDD/2/ estimated appropriately leakage associated with the project activity as zero, since the applied methodology ACM0014 version 04.1.0/92/ indicates that no leakage is estimated.

5) Emission reductions

The emission reductions are summarized in Table IV.4 below.

Table IV. 4 Emission reductions of the proposed project

Emissions	Description	t CO ₂ e/yr
$BE_{CH_4,y}$	Methane emissions from anaerobic treatment of the wastewater in open lagoons	158,730
$BE_{EL,y}$	CO ₂ emissions associated with electricity generation that is displaced by the project activity and/or electricity consumption in the absence of the project	0
$BE_{HG,y}$	CO ₂ emissions associated with fossil fuel combustion for heating equipment that is displaced by the project	88,523
BE_y	$= BE_{CH_4,y} + BE_{EL,y} + BE_{HG,y}$	247,253
$PE_{CH_4,effluent,y}$	Project emissions from treatment of wastewater effluent from the anaerobic digester	20,063
$PE_{CH_4,digest,y}$	Project emissions from physical leakage of methane from the anaerobic digester	19,595
$PE_{flare,y}$	Project emissions from flaring of biogas generated in the anaerobic digester	0
$PE_{sludge,LA,y}$	Project emissions from land application of sludge	0
$PE_{ww,LA,y}$	Project emissions from land application of wastewater	0
$PE_{EC,y}$	Project emissions from electricity consumption	8,477
$PE_{FC,y}$	Project emissions from fossil fuel consumption	0
PE_y	$= PE_{CH_4,effluent,y} + PE_{CH_4,digest,y} + PE_{flare,y} + PE_{sludge,LA,y} + PE_{ww,LA,y} + PE_{EC,y} + PE_{FC,y}$	48,135
ER_y	$= BE_y - PE_y$	199,118

The baseline emissions are **247,253 tCO₂e/yr** while the project emissions are **48,135 tCO₂e/yr**.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Namely, the emission reductions are **199,118 tCO₂e/yr.**

In conclusion, JCI validates and concludes that the emission reductions are appropriately worked out complying with relevant methodology/92/ and tools/93//95//96//97//98/, and parameters and data for the calculations are 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 the methodology/92/, the tool for the demonstration and assessment of additionality/93/ and CDM VVM/91/.

6.1 Prior consideration of CDM

JCI assessed that the project starting date with following issues.

Below summarizes how the project participant explains the prior consideration of CDM and JCI validates in accordance with the Guidelines of CDM prior consideration/100/ and CDM VVM/91/.

The project activity started on 18 March 2008 before 2 August 2008. Therefore, the validation of the prior consideration is requested, according to the Guidelines of CDM prior consideration/100/.

1) Project starting date

JCI confirmed that project starting date was 18 March 2008 in PDD/2/ on which the construction contract of anaerobic wastewater treatment system was signed/143/, which complies with the Guidelines of CDM prior consideration/100/ and CDM VVM/91/, namely the definition in Glossary of CDM terms /102/, and validated and concluded that it was appropriately.

2) Prior consideration of CDM

Timeline of major milestones relevant to the prior and serious consideration of CDM are tabulated below, according to the Guidelines of CDM prior consideration /100/. JCI had discussed the timeline of the key milestones relative to prior consideration during the on-site assessment, and then all the evidences of key milestones listed below have been provided. The consideration of CDM incentive have been evaluated and included in the FSR/5/.

JCI confirmed the following items and validated and concluded that these were appropriate.

- The FSR/5/ had concluded that project would be financially acceptable only when CER revenue was considered and BTTC decided to invest in the project on the basis that the project would be registered as CDM project activity on 15 January 2008.
- All the key milestones listed in the below table are evidenced with documents provided by the project participants.
- JCI assessed that the proposed project was decided as the serious CDM consideration, which was undertaken before the date of publication of the PDD for global stakeholder consultation on 26 July 2011.
- JCI validates and concludes that the period of time between the completions FSR/5/ of and the investment decision was sufficiently short.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Table IV. 5 Check for Timeline of key milestones relevant to prior consideration of CDM

Date	Key Milestone	Evidence	Check result
January 2008	FSR completed by Hefei Design and Research Institute of Coal Industry	FSR /5/	OK
15 January 2008	Board Resolution with decision of implementing CDM activity =Investment Decision=	Minutes of Meeting of the Board /7/	OK
14 February 2008	Request for stakeholders' comment invitation by the project owner	Request for comment invitation/21/	OK
25 February 2008	Project approval by Bengbu Economic Commission (including the approval of FSR)	Approval Official document (No. [2008]41) /74/	OK
27 February 2008	Stakeholders' comment meeting	MOM/22/ Questionnaires of stakeholder /23/	OK
March 2008	EIA Report completed by Bengbu Environmental Impact Assessment Center	EIA Report /6/	OK
6 March 2008	Consulting agreement by Bengbu Tushan Thermoelectricity Co., Ltd with Beijing UNIIFA Energy Technology Co., Ltd.	Agreement /141/	OK
18 March 2008	Construction contract of major equipment by Suzhou Kete Environmental Protection Equipment Co., Ltd =Starting date of the project activity=	Contract /143/	OK
20 March 2008	EIA approval	Official document (No. [2008]36) /73/	OK

3) Activities/events to achieve CDM

Key activities and events taken by the project participant to achieve CDM are tabulated in the Table below:

JCI confirmed that all the milestones listed in the below table are evidenced with documents provided by the project participants and the UNFCCC.

Table IV. 6 Check for Timeline of key milestones to achieve CDM

Date	Key Milestone	Evidence	Check result
18 March 2008	Construction contract of major equipment by Suzhou Kete Environmental Protection Equipment Co., Ltd =Starting date of the project activity=	Contract /143/	OK
20 March 2008	EIA approval	Official document (No. [2008]36) /73/	OK

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Date	Key Milestone	Evidence	Check result
2 May 2008	Design, purchase and construction general contract for Biogas recovery and utilization contract by Jiangsu Huaneng Construction Engineering Group Co., Ltd	Contract /144/	OK
26 December 2008	Report of unit project completion about the 1-4# anaerobic digesters by Project Owner	Anaerobic digesters completion report/25/	OK
12 May 2009	Sign of the service agreement between LCC and UNIUFA	Service Agreement/141/	OK
15 October 2009	Design, purchase and construction general contract	General Contract/145/	OK
25 November 2009	ERPA with LCC	Agreement/147/	OK
24 January 2010	CDM project audit meeting of China NDRC	Notification of audit meeting /24/	OK
1 July 2010	Contract with DOE for Validation Service	Contract/149/	OK
30 September 2010	LoA of China DNA	LoA/71/	OK
26 July 2011	Start of publication of PDD for GSC*	UNFCCC Website	OK
9 September 2011	LoA of UK DNA	LoA/72/	OK

Note: * ; GSC means Global stakeholder consultation

In conclusion, JCI validates and concludes that the above timelines explains the key milestones taken by the project participants are appropriate in achieving CDM.

6.2 Identification of alternative

As described in 5.3 of Baseline identification, the alternative scenario for the proposed project activity is W1 and H2, namely, the use of open lagoons for the treatment of the wastewater and the use of fossil fuels fired boiler for generation of heat.

6.3 Investment analysis

JCI has validated the PDD/2/ identified that the investment analysis for the remaining alternative scenario 1 (W1 and P2) is conducted by methodology/92/ and relevant tool /93/.

JCI considered that the investment analysis was appropriately selected with reasonable justification according to the "Guidelines on the Assessment of Investment Analysis"/94/ as demonstrated below.

1) Benchmark analysis

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

- (1) Tool for the demonstration and assessment of additionality/93/ provides the 3 Options for the methods of investment analysis. Option I and II, however, are not applicable since the project activity aims to obtain revenue from coal saving in addition to revenue from CERs, and the specified baseline scenario is not an investment project. Only Option III, benchmark analysis, therefore can be applied to the project activity.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

(2)The PDD/2/ selects 10% as a benchmark of IRR after tax for investment analysis. The value is sourced from the category of thermal power station project in the "Construction Project Economic Evaluation Methods and Parameter/58/" published by NDRC and Ministry of Construction.

The proposed project is to recover the biogas in the process of wastewater treatment and to utilize the recovered biogas as fuel of existing boiler instead of coal fuel.

Project owner, BTTC, has a thermal power station within the project battery limit of the project and will invest in wastewater treatment for recovering biogas to be used as fuel, which is essentially different from the project owner's core business (that of heat and power generation)/77/.

JCI issued CL-11 and CL-23 for the clarification of the suitability regarding the benchmark IRR to ensure the reason that the benchmark of 10% of proposed project, instead of the benchmark of 12% in the category of "Organic chemical raw material and intermediates" in the Chinese benchmark guidance/38/, was selected.

JCI confirmed by the business license of BTTC/77/ that the business scope of BTTC is the thermal power generation. In addition, JCI also confirmed by the "the certificate letter" issued by "Bengbu City Industry and commerce Administration"/75/ that the business for the "fuel alcohol wastewater treatment and utilization of the recovered biogas" have been included in the business scope of BTTC.

Therefore, JCI concluded that PP's clarification can be deemed reasonable. Considering the above discussion, JCI validated and concluded that 10% as benchmark of IRR is appropriate from the aspect of conservativeness of selection for benchmark. CL-11 and CL-23 were closed.

The IRR was calculated to be 4.31% without CER's revenue, and 13.11% with CER's revenue. Therefore, it is concluded that the project activity is not financially attractive, of which processes are validated with below steps.

JCI validated and concluded that the selection of benchmark analysis for investment analysis is appropriate and fully complies with the relevant tool/93/ and VVM/91/.

2) Consistency between PDD and FSR (Conformance with para. 113 a) and b) of VVM/91/)

As stated in 6.1 Prior consideration of CDM, JCI has validated and concluded that the period of time between the FSR completion and the investment decision was sufficiently short, and the investment decision was made based on the FSR/5/ which was approved by national authorities/74/.

JCI has reviewed that the validity of input values for the investment decision by comparing the input value between the FSR/5/ and the PDD/2/.

The following Table IV.7 shows the above comparison of the input values in the FSR/5/ which is the bases of the CDM decision and the PDD/2/.

The detailed validations for the total investment, coal tariff and annual running cost are described in the following item 3).

As for the IRR, it is discussed in the item 4).

Table IV.7 Check for Consistency between PDD and FSR (input value of investment analysis)

Parameters	Unit	PDD/2/	FSR/5/	Check result
Rate capacity of wastewater	m ³ /d	11,500	11,500	OK
COD of inlet of wastewater	mg/l	35,000	35,000	OK
Total investment	10 ³ RMB	44,756	44,756	OK

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Annual running cost	10 ³ RMB	10, 040	10,040	OK
Depreciation cost	10 ³ RMB	7,280	7,280	OK
Displaced coal	t	44,756	44,756	OK
CERs	€/tCO ₂	8	-	-
Coal VAT	%	13	13	OK
Electricity VAT	%	17	17	OK
Urban construction tax	%	7	7	OK
Education tax	%	3	3	OK
Corporation tax	%	25	25	OK
Building depreciation period	year	20	20	OK
Equipment depreciation period	year	15	15	OK
Salvage value	%	5	5	OK

JCI confirmed that the all values used in the PDD/2/ shown in Table IV.7 are appropriate based on the validation of those in the PDD/1/and the FSR/5/.

3) Cross check (Conformance with para. 113 c) of VVM/91/)

Initial investment cost and O&M cost used in the PDD/2/ were validated by comparing the similar project.

As the reference, one registered project for ACM0014 and 5 projects under validation for ACM0014 in PRC were found by searching the UNFCCC website as of May 2012. Those projects have been designed to be installed the anaerobic digesters to treat the high COD concentration (from 25,000 to 55,000 mg/l) of wastewater discharged from the starch or alcohol production facilities and to recover bio-gas from wastewater. Since the COD concentration of proposed project is 35,000 mg/l and includes the range of above by COD concentration for proposed project, JCI concluded that all 6 projects for ACM0014 are similar projects.

JCI uses these data as the reference for the cross check as shown at Table IV.8.

Table IV. 8 Cross check by Similar Projects in PRC (ACM0014 projects)

Project Name	Investment cost (million RMB)	Reduction of tCO ₂ e/y	Investment Index: investment cost RMB/ tCO ₂ e	Annual running cost Index: Annual running cost/investment	Status
The proposed project: Bengbu Tushan Thermoelectricity Co., Ltd., (Anhui Province)	122.65	199,118	615.97	8.2%	Validation
Average of the below projects	84.34	126,949	601.63	14.1%	-
Range of the below projects	198.33-24.50	197,172-74,338	1,214.65-247.94	15.3-12.7%	-
Jiangsu Lianhai Bioengineering Co., Ltd, (Jiangsu Province)	42.50	74,338	571.71	15.3%	Registration (3759)

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Guangxi Heng County Methane Recovery Project (Guangxi Project)	24.50	98,812	247.94	-	Validation
Guangxi Heli Methane Recovery Project, (Guangxi Project)	29.71	102,506	289.83	15.3%	Validation
Guangxi Jinyuan Methane Recovery Project, (Guangxi Province)	136.55	197,172	692.58	-	Validation
Methane recovery and utilization from industrial wastewater Project of Lianyungang Yida Alcohol Co., Ltd. (Jiangsu Province)	74.47	125,625	592.80	12.9%	Validation
Jiangxi Yuansheng Chemical Co., Ltd. Alcohol Wastewater Methane Recovery and Power Generation Project (Jiangxi Province)	198.33	163,241	1,214.96	12.7%	Validation

a) Initial investment cost

Firstly JCI reviewed the Investment Index (Investment cost RMR/ tCO₂e/year) of the similar methane recovery projects from the wastewater of alcohol industries shown in the Table IV.8, which have been applied ACM0014. The Investment Index of proposed project is 615.97 RMR/ tCO₂e/year and is found to be within the range of similar projects (from 1,214. 65 to 247.95 RMR/ tCO₂e/year). As it is slightly higher than the average (601.63 vs. 615.97), it is considered to be reasonable.

Secondary JCI has reviewed the actual itemized costs such as main equipments purchase and equipments construction, etc. related to the proposed project and their total consideration is 117,750 x10³ RMB slightly less than the budget (total fixed assets investment) 121,093.5 x10³ RMB, which is 97.2%.

JCI issued the finding of item 3”Total investment cost” in CL-12 to provide the credible evidence to demonstrate the appropriateness of investment cost. And then JCI received the evidence/31/ explaining the difference of the fixed assets investment cost in FSR/5/ and in actual expenditure as shown in Table IV.9. JCI confirmed by three actual contracts /143//144//145/ that the actual expenditure of the fixed assets investment cost was credible and appropriate .

JCI has judged that though the difference between actual expenditure and the budget is 2.8%, the difference of cost do not influence the result of IRR since the difference between the “IRR of benchmark (10%)” and “IRR without revenue from CDM (4.31%)” was sufficiently large.

Table IV. 9 Cross check of Fixed Assets Investment cost

(Unit: x10³ RMB)

No	Item	FSR/5/	Actual contract /143//144//145/	Remark	Check result
Part I		103,999.5	117,750.0	-	-
1	Regulation pool	4,561.0	62,400.0 (Cost of No16 and about 50% of Part II & Preparing fee is added in the above value.)	Anaerobic wastewater treatment system contract with Suzhou Kete Environment Protection Equipment Co., Ltd. /143/	OK
2	IC Anaerobic Digestions	29,290.6			
3	Regulation Tower	2,606.0			
4	Cooling Tower	848.9			
5	Effluent Site	510.9			
6	Level off of Site	6,430.0			
7	Biogas Tank	3,982.0			
8	Bio-trickling Filter Tower	5,342.7	42,000.0 (Cost of about 40% of Part II &	Aerobic wastewater treatment system contract with	OK
9	Bio-double Pool	14,259.9			

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

10	Blower Room and Aerobic Facility Retrofit	2,729.2	Preparing fee is added in the above value)	Jiudayang Wastewater Treatment Technology Co., Ltd. /145/	
11	Sludge Press Room	2,840.1			
12	Control Room	4,172.8			
13	Biogas Pipeline	3,500.0	13,350.0 (Cost of about 10% of Part II & Preparing fee is added in the above value)	Biogas recovery and utilization project contract with Jiangsu Huaneng Construction Engineering Group Co., Ltd. /144/	OK
14	Biogas Burning and Control System	6,542.0			
15	Bio-desulfurizer System	4,100.0			
16	Sludge Drying System	12,283.4	The cost is included in Anaerobic wastewater treatment system contract/143/		-
Part II & Preparing fee		17,094.0	-	-	
1	Construction Management Fee	1,040.0	These cost is apportioned among above three contracts		-
2	Office Supplies and Living Goods Fee	1,040.0			
3	Supervision Fee	2,167.0			
4	Designing Fee	3,171.3			
5	Combined Trial Operation Fee	705.8			
6	Production Preparing Fee (8%)	8,989.9			
Total		121,093.5	117,750.0	(Actual is 97.2%)	

b) Annual running cost (O&M cost)

Firstly JCI reviewed the Annual running cost Index (Annual running cost/investment %) of the similar methane recovery projects from the wastewater of alcohol industries shown in the Table IV,8. The Annual running cost Index of proposed project is 8.2%/year and is found to be below the range (from 12.74% to 15.3%) of similar projects. Therefore, it is considered to be reasonable and conservative in IRR calculation.

Secondary JCI has reviewed the IRR calculation spread sheet/3/ including the content of the estimated annual running cost (O&M cost) ($10,040 \times 10^3$ RMB), which have been composed of the seven components of Biogas treatment cost, Operational and maintenance cost, Labor cost, Insurance cost, Electricity cost, Administration cost and Water cost as shown in Table IV.10. JCI checked and confirmed that the calculation of each component had been appropriately calculated base on the evidences shown in Table IV.10. Especially, the Operational and maintenance cost is 4,120 thousand MRB which become the 41% of the O&M cost and the 3.4% of fixed asset investment. JCI confirmed that the value of 3.4% of the fixed investment has been composed of Operational cost of 1% and maintenance cost of 2.4% according to the literature of "Water treatment facilities economic evaluation" /47/.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

JCI concludes that the O&M cost in the investment analysis of the PDD/2/ is appropriate.

Table IV.10 Check for the breakdown item of Contents of O&M cost of the project

Item	Cost x10 ³ RMB	Content	Comments & Evidences
Total	10,040	100%	-
Biogas treatment cost	2,170	21%	According to the FSR /5/ and IRR/3/ 0.05RMB/m ³ x43,440,000m ³ /Y./32//49/
Operational and maintenance cost	4,120	41%	According to the FSR /5/ and IRR/3/ 3.4% x Fixed Asset Invest., /5//47/
Labor cost	800	8%	According to the FSR /5/ and IRR/3/ 27,000RMB/P/Yx26Px1.14, /5//42//43/ Anhui labor average salary in 2007 /42/ For workers: 26 Persons/5/ Rate of welfare expense: 0.14%/43/
Insurance cost	1,190	12%	According to the FSR /5/ and IRR/3/
Electricity cost	1,080	11%	According to the FSR /5/ and IRR/3/ 0.34RMB/kWh x 3,124 MWh/y, 5//50/ Tariff: actual sales price is used /50/
Administration cost	400	4%	According to the FSR /5/ and IRR/3/ Social Insurance cost, Labor union cost Employee training cost and Business entertainment cost are included. /32/
Water cost	280	3%	According to the FSR /5/ and IRR/3/ 1.81 RMB/t x 157,000 t/Y, /5//51/

c) Coal Price

Because the steam generation from the recovered methane decreases the coal consumption for the boiler, the coal cost saving is only the revenue for the project owner after the implementation of the proposed project. The coal price used in the PDD/2/ is 500 RMB/t without VAT which is the same as that in the FSR/5/.

JCI confirmed that the coal price of 500 RMB/t was the expected coal price at the operation starting time of 2010 expected by FSR author before completing FSR. Therefore, JCI confirmed that the Average Coal Price in January 2008 at the date when FSR had been completed was 496 RMB/t /39/.

In addition, JCI had estimated the coal price of 2008 for the cross check, based on the presentation material for China Steam Coal Summit addressed by C. Liu of BHP Billiton Energy Coal Marketing on 4th December 2006/66/ and the price index of the mining and washing coal in Chinese Statistical Yearbook 2009. As a result, JCI confirmed that the coal price by BHP Billiton Energy Coal Marketing/66/ was 440 RMB/t in 2006 and the coal price estimated by JCI was 467 RMB/t in 2007 and 588 RMB/t in 2008, and then average estimated coal price among three years became 499 RMB/t.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

At last, the estimated coal price of similar CDM registered project (3759) at ACM0014 is 515 RBM/t without VAT and it was confirmed that the estimated coal price of proposed project was slightly lower than the similar CDM registered project (3759).

JCI concludes that the coal price of 500 RMB/t without VAT in the investment analysis of the PDD/2/ is appropriate.

4) Evaluation of IRR calculation as the mean of the benchmark analysis

JCI has confirmed the appropriateness of the result of the IRR calculation.

JCI issued the findings of CL-12 to confirm the input value related IRR calculation. All input item requested in CL-12 was confirmed that the value of them was appropriate by evidences.

The finding of CL-12 have been resolved and closed.

As described in the above item 6.1. 2) "Prior consideration of CDM", the project owner made decision to apply CDM by the financial analysis in FSR/5/.

The major input value related IRR calculation can be summarized in the above Table IV.7.

Since Project Owner put the equity capital into the proposed project, IRR have been calculated as equity IRR. Therefore, JCI confirmed that the bank loan was not included in Investment in IRR calculation sheet/3/.

As for the result of IRR calculation, equity IRR without CER revenue from CDM was 4.31% which was lower than the benchmark 10%, while IRR with CER revenue 13.11%.

Then, JCI has considered the calculation of IRR in the PDD/2/ is appropriate because it is calculated according to Guidelines on the Assessment analysis/94/.

In conclusion, JCI has validated and concluded that the investment analysis in PDD/2/ is appropriate.

5) Sensitivity analysis

Sensitivity analysis has been validated with the following two steps: (1) assessment of (+)/(-) 10% validation analysis and (2) assessment of likelihood of validations to reach the benchmark IRR complying with relevant guidance/94/ and /93/.

(1) (+)/(-) 10% variation analysis is conducted using the following three parameters.

- (a) Coal tariff (price)
- (b) Fixed assets investment
- (c) Annual running cost

The PDD/2/ shows that IRRs don not exceeded the bench mark 10% when any of those three parameters varies within $\pm 10\%$ range. That is IRR has yet more than about 4% margin in comparison with benchmark.

(2) Assessment of likelihood of validation to reach the benchmark IRR

JCI has conducted to check the likelihood of three parameters at the time when the IRR is equal to benchmark, and its results shows in Table IV. 11.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Table IV.11 Parameter changes when the IRR is equal to benchmark

Parameter	Fixed assets investment	Coal tariff (price)	Annual running cost
Critical variation at benchmark 10%	-33%	35%	-76%
Validation from the base	121,090 → 81,130 (10 ³ RMB)	500 → 675 (RMB) (without VAT)	10,040 → 2,410 (10 ³ RMB)

If the IRR would cross the benchmark IRR,

- (a) the Fixed assets investment needs to fall by 33%. This scenario is not realistic since the construction contract has been completed as reviewed already in the above Table IV. 9 "Cross check of Fixed Assets Investment cost".
- (b) The coal tariff (price) needs to rise by 35%. The statistical data for past 7 years (2001-2007) published by the Anhui statistical yearbook shows that the fuel price has been rising and the annual average increasing rate is 8.1% as shown by Table IV.12 below. However, it is unlikely that only the coal price increases by over 35%
- (c) O&M cost is mainly composed of Operational and maintenance cost, Biogas treatment cost, Insurance cost and electricity cost. Since Chinese economy is rising now, as the price fluctuation of Salary and Raw material/fuel/power has been shown in Table IV.12, it is possible that these prices decrease greatly. Therefore, it is unlikely that O&M cost decreases by under 76%.

Table IV.12 Price fluctuation in Anhui Province (Anhui Statistical Yearbook of 2002-2008)
(Preceding Year=100)

Item	2001	2002	2003	2004	2005	2006	2007	Average
Salary	113.8	117.2	112.6	120.5	114.3	114.9	126.3	17.1%
Raw material, fuel and power	100.2	98.2	106.7	115.0	107.1	103.9	105.1	5.2%

6.4 Barrier analysis

With the above arguments, it is concluded that the proposed project activity is unlikely financially attractive, the Barrier Analysis has been skipped according to "Tool for the demonstration and assessment of additionality /93/".

6.5 Common practice analysis

Common practice analysis in the PDD was conducted in accordance with the Additionality Tool version /93/. JCI interprets that an industrial wastewater methane recovery project is the measure of "Switch of technology with or without change of energy source (including energy efficiency improvement as well as use of renewable energies)" listed in paragraph 6 of the Additionality Tool. So then JCI validates in accordance with step 1 to step 4 stipulated in paragraph 47 of the Additionality Tool.

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity. The PDD defined the applicable output range is between 160,000 t/y and 480,000t/y alcohol production capacity since the capacity of 320,000t/y alcohol production capacity.

Step 2: In the applicable geographical area, identify all plants that deliver the same capacity, within the applicable alcohol production capacity range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project.

Registered CDM project activities and projects activities undergoing validation shall not be included in this step. Therefore it is appropriate to judge that $N_{all} = 0$ in PDD/2/.

Step 3 and Step 4: Although the analysis of step 3 and step 4 in PDD/2/ have been implemented, the proposed project activity is not common practice because it was evaluated that $N_{all} = 0$ in the evaluation of step 1 and step2.

JCI issued the finding of CAR-4 regarding the version of the applied Additionality Tool and the applied Guideline on common analysis. The PDD was revised appropriately to apply the latest version (ver. 06.0.0) of Additionality Tool/93/ and to demonstrate the non-common practice of the project.

The findings of CAR-4 has been resolved and closed

Accordingly JCI has concluded the above common practice analysis demonstrates that the proposed project is not common practice.

6.6 Conclusion of assessment of additionality

JCI concludes that the PDD/2/ explains sufficiently and demonstrates clearly that the proposed project is additional would not be implemented without CDM revenue as following.

Serious consideration of CDM prior to the project decision has been taken by the project participant.

Appropriate actions have been taken and events have been held by the project participant to secure CDM status.

Investment and sensitivity analyses clearly have shown the project activity is not financially viable without CDM revenue.

The proposed project is not a common practice and not regarded as business-as-usual in Anhui Province.

7. Monitoring plan

JCI issued the findings of CL-14 to clarify the calculation method and measurement frequency of meters, etc., then closed as being resolved for CL-14.

7.1 Compliance with the requirements of the methodology

JCI has confirmed that the monitoring plan of the project is comply with the requirements of the Monitoring Methodology /92/ and relevant tools /93//95//96//97/98/.

7.2 Monitoring arrangements

1) Parameters to be monitored

The PDD/2/, in section B.7.1.Data and parameters monitored, specifies the following parameters to be monitored ex-post:

A) Quantity of wastewater: $F_{PJ,dig,m}$ (to digester), $F_{PJ,effl,dig,m}$ (from digester),

B) COD value: $W_{COD,dig,m}$ (to digester), $W_{COD,effl,dig,m}$ (from digester),

C) Biogas: $F_{biogas,y}$ (quantity from digester), $W_{CH4,biogas,y}$ (methane concentration)

CDM Validation Report for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

$F_{\text{boiler,biogas},y}$ (quantity to boiler)

D) Flare: $FV_{RG,h}$ (quantity to boiler), $T_{\text{flare},y}$ (Temperature of the flare)

E) Electricity: $EC_{PJ,j,y}$ (electricity consumed), $TDL_{j,y}$ (transmission loss)

F) Temperature: $T_{2,m}$ (average temperature),

G) Heat capacity: $HG_{PJ,y}$ (quantity of heat generated)

The following parameters are continuously measured: $F_{PJ,dig,m}$, $F_{PJ,effl,dig,m}$, $F_{biogas,y}$, $F_{boiler,biogas,y}$, $FV_{RG,h}$, $EC_{PJ,j,y}$, $T_{2,m}$, $T_{flare,y}$

The Ex-post calculation of emission reductions accords with the applied Methodology/92/ and utilizes the Methane Conversion Factor Method as same as the ex-ante calculation. JCI validates and concludes that the parameters monitored are appropriately selected.

2) Organization:

The project owner plans to set up a CDM team to cover entire processes of the monitoring as shown in Fig.B.7-1 in the PDD/2/.

Also the owner has provided their organization including the group in charge of CDM data handling.

JCI has confirmed the owner's resolution to the CDM monitoring organization.

3) Manual:

The project owner has prepared for compiling monitoring manuals necessary to implement the monitoring task including calibration and maintenance of the equipment/8/.

4) Training:

Under the responsibility of the CDM Monitoring Manager, he has already provided the training to all the members regarding operation of the monitoring according to the CDM manual/8/.

7.3 JCI's opinion of the project participants ability:

JCI has validated and concluded that the monitoring plan in the PDD/2/ is compliant with the applied Methodology /92/ and is feasible within the project design, and that the project participant is able to implement the monitoring plan.

8. Sustainable development

JCI confirmed that the LoA issued by DNA of the host Party PRC /71/ 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.

The PDD/2/ states the following five points contribute the China's sustainable development by the project.

- 1) It will reduce greenhouse gas emission of CH_4 through the Project implementation and improve the quality of the atmospheric environment around the world;
- 2) The local people's health and safety problems will be eliminated, for example the malodor of the biogas and the risk of explosion and fire associated with uncontrolled emissions of methane;
- 3) Methane partly replaces fossil fuel to generate heat so as to reduce air pollution and improve atmospheric environment quality.

JCI has validated and concluded that these items are appropriate for contribution of sustainable development of the host Party.

9. Local stakeholder consultation

JCI issued the findings of CL-16, 17 and CL-18 to clarify the preannouncement, the number of answers, etc., then closed as being resolved for CLs.

The project owner informed the local stakeholders to take relevant questionnaire for comments on a bulletin board on 14 February 2008/21/ and invited the local stakeholders on the project site on 27 February 2008/22/, and total 20 questionnaires were distributed and collected. These comments from collected are summarized in the items of E.2 of the PDD/2/.

All the local stakeholders hold the supportive attitude towards the project, which was considered to have positive impacts on local environment, increase local employment opportunity, and provide the local economical development.

Related evidences on the stakeholders meeting/22/ and some answers for survey/23/ were confirmed by JCI during on-site assessment. And also JCI has confirmed the opinion of residents by the interview with 4 stakeholders/14/.

Based on the above, JCI validates and concludes that the project activity, supported by local stakeholders, gives no adverse impacts on local environment, and contributes to development local economy.

10. Environmental impacts

JCI issued the findings of CL-15 to clarify the EIA Report and the regulations, then closed as being resolved for CL-15.

An Environmental Impact Assessment (EIA) was conducted by Bengbu Environmental Impact Assessment Center to ensure that the proposed project complies with relevant national, regional and local regulations which was issued in March 2008, and then approved by Environmental Protection Agency of the Bengbu City on 20 March 2008/73/.

The EIA report /6/ refers to anticipated environmental impacts by the project activity with suggestions of mitigation measures against pollution of air quality, water quality and noise. No significant ecological impact on the local area was anticipated.

JCI validates and concludes that given the Project Participant would take necessary mitigation measures after the operation start with the same level of concern as did during the construction period, anticipated environmental impacts by the project activity would be controlled at a minimum level.

11. Result of stakeholder consultation process

- The PDD version 01 of 21 July 2011 was made publicly available on UNFCCC CDM website (<http://cdm.unfccc.int/Projects/Validation/index.html>) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 26 July 2011 to 24 August 2011.
- JCI confirmed that no comment was received.



APPENDIX A: CDM VALIDATION PROTOCOL

(Version 06)

Industrial Wastewater Methane Recovery Project of Bengbu Tushan
Thermoelectricity Co., Ltd.

1. INTRODUCTION

This document is prepared as the Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

The validation protocol is prepared for the following purposes:

- To ensure that, in accordance with the Validation Verification Manual version 01.2 (Annex 1, CDM-EB55, "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.

<Index>

TABLE-1 Requirements Checklist Page 1-1

TABLE-2 Resolution of Corrective Actions and Clarification Requests Page 2-1

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.


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	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	CAR-1 CL-15
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 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	--
2)	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	To be confirmed by LoA	CAR-1
3)	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	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 >	Para.56 VVM	OK	--
3.2 1)	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	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	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.			
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: <ul style="list-style-type: none"> • 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	NO	CAR-3 CL-1 CL-2
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. <ul style="list-style-type: none"> • 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; <ul style="list-style-type: none"> • 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	NO	CL-3 CL-4 CL-22
4.3	In section A.4.4 of the PDD, <ul style="list-style-type: none"> • 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 VVM	OK	--
4.5	If the proposed CDM project activity involves the alteration of an existing installation or process, Does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	Para.63 VVM	OK	--
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tb v)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
(a)	General requirement	Para.65-67 VVM	--	--
	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.65-93 VVM	--	--
(b)	Applicability of the selected methodology to the project activity	Para.68-77 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, including that the used version is valid. Specific guidance provided by the CDM Executive Board in respect to any approved methodology shall be applied.	Para.68 VVM Para.69 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. <ul style="list-style-type: none"> 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.70 VVM	NO	CL-5
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.71 VVM	OK	--
1)				
2)	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.65-93 VVM	--	--
(c)	Project boundary	Para.78-80 VM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	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.78 VVM	--	--
5.3 1)	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.79 VVM	NO	CL-6
2)	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	NO	CL-6
3)	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	NO	CL-6
4)	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	NO	CL-6
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--
(d)	Baseline identification	Para.81-88 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.81 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.82 VVM	--	--
5.4	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.83 VVM	OK	--
5.5	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.84 VVM	NO	CL-7


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tb v)	
No.	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		
5.6	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 < http://cdmunfccc.int/Reference/COPMOP/08a01.pdf#page=6 >, and Latest, "Clarifications on the consideration of national and/or sectoral policies and circumstances in baseline scenarios".	Para.85 VVM Para.45 CDM/M&P	NO	CL-7
5.7	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.86 VVM	NO	CL-8 CL-9
5.	Baseline and monitoring methodology	Para.65-93 VVM	--	--
(e)	Algorithms and/or formulae used to determine emission reductions	Para.89-93 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.89 VVM	--	--
5.8	The equations and parameters in the PDD shall be correctly applied by comparing them to those in the selected approved methodology.	Para.90 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	--
5.9	The justification shall be given in the PDD for the choice of data and parameters used in the equations.	Para.91 VVM	NO	CAR-5
	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	NO	CAR-4
	If data and parameters will be monitored on implementation and hence become available only after validation of the project activity, it shall be demonstrated that the estimates provided in the PDD for these data and parameters are reasonable.	ditto	OK	--
5.10	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	PDD Guidelines	OK	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tb v)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	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 .			
5.11	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	NO	CAR-5 CL-21
5.12	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.94-121 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 98-121 in VVM, not all elements discussed below will be applicable to all proposed CDM project activities.	Para.94 VVM Para.43 CDM/M&P	--	--
6.	Additionality of a project activity	Para.94-121VVM	--	--
(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.98-104 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.98 VVM	--	--
6.1	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_v03.pdf Latest Glossary of CDM terms	Para.99 VVM	OK	--
	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, and a description of the evidence available to support this start date.	ditto	OK	--
	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	--
6.2	It shall be identified whether it is a project activity with a start date on or after 02 August 2008 in accordance with the guidance from the CDM Executive Board, or a project activity with a start date before 02 August 2008.	Para.100 VVM	OK	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tb v)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	(See Latest Guidelines on the Demonstration and Assessment of Prior Consideration of the CDM)			
6.3	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 Latest, .Prior consideration of the CDM form, currently located at < https://cdm.unfccc.int/EB/048/eb48_repan62.pdf >, for the standardized form.	Para.101 VVM	NA	--
6.4	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.102 VVM	OK	--
1)				
2)	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	OK	--
3)	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	OK	--
4)	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	OK	--
5)	Evidence to support this should include, inter alia, <ul style="list-style-type: none"> 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, Publication in newspaper, Interviews with DNA, Earlier correspondence on the project with the DNA or the UNFCCC secretariat. 	ditto	OK	--
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(b)	Identification of alternatives	Para.105-107 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	Para.105 VVM	--	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	required.			
6.5 1)	The list of alternatives shall include as one of the options that the project activity is undertaken without being registered as a proposed CDM project activity;	Para.106 VVM	Tbv	CL-19 CL-20
2)	The list shall contain 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	Tbv	CL-19 CL-20
3)	The alternatives shall comply with all applicable and enforced legislation.	ditto	Tbv	CL-19 CL-20
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(c)	Investment analysis	Para.108-114 VVM	--	--
6.6	<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.108 VVM	--	--
6.7	Project participants can show this through one of the following approaches, by demonstrating that:	Para.109 VVM	--	--
1)	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	OK	--
2)	The proposed CDM project activity is less economically or financially attractive than at least one other credible and realistic alternative;	ditto	OK	--
3)	Financial returns of the proposed CDM project activity would be insufficient to justify the required investment.	ditto	OK	--
6.8	The DOE shall comply with the latest version of the "Guidelines 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 51 report, annex 58 currently located at < http://cdm.unfccc.int/Reference/Guidclarif/reg/reg-guid03.pdf >.)	Para.110 VVM Annex 5 EB62	--	--
1)	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 5 EB62	OK	--
2)	The evidences on which input values in the investment analysis are based shall be provided.	ditto	OK	--
6.9 1)	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.111 VVM	OK	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
2)	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 5 EB62	OK	--
3)	The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.	ditto	OK	--
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	OK	--
5)	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	OK	--
6)	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	OK	--
6.10	The suitability of any benchmark applied in the investment analysis:	Para.112 VVM	--	--
1)	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 can validate that they are applicable to the project activity and the type of IRR calculation presented.	Annex 5 EB62	Tbv	CL-23
2)	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	OK	--
3)	The effectiveness of the applied benchmark shall be demonstrated with appropriate evidence.	ditto	OK	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
4)	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 themselves 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.112 VVM	NA	--
6.11	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 the EB 38 report, paragraph 54, currently located at < http://cdm.unfccc.int/EB/038/eb38rep.pdf >.	Para.113 VVM Para.54 EB38	--	--
1)	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	NO	CL-10 CL-11 CL-12
2)	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	NO	CL-12
3)	It shall be confirmed that the input values from the FSR are valid and applicable at the time of the investment decision.	ditto	NO	CL-11 CL-12
6.	Additionality of a project activity	Para.115-121 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.115-118 VVM	--	--
6.12	<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.115 VVM	--	--
1)	(a) Prevent the implementation of this type of proposed CDM project activity; (See Latest .guidelines for objective demonstration and assessment of barriers., currently located at (b) Do not prevent the implementation of at least one of the alternatives.	Para.115 VVM	OK	--
6.13 1)	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.116 VVM	OK	--
6.14 1)	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.117 VVM	OK	--


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST		(OK/No/NA/Tbv)		
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
2)	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	OK	--
6.	Additionality of a project activity	Para.94-121 VVM	--	--
(e)	Common practice analysis	Para.119-121 VVM	--	--
	<Requirement to be validated> For proposed large-scale CDM project activities, <u>unless the proposed project type is first-of-its kind</u> , 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.119 VVM	--	--
6.15	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.	Additional Tool	Tbv	CAR-4 CL-13
1)	Screening (selection) criteria for common practice analysis shall be demonstrated with appropriate evidences and justification.	ditto	Tbv	CAR-4 CL-13
2)	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	CAR-4
3)	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	Tbv	CAR-4
4)	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.122-124 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.122 VVM	--	--
7.1	<u>Compliance of the monitoring plan with the approved methodology</u>	Para.123 VVM	OK	--
1)	(i)- The list of parameters required by the selected approved methodology shall be identified.			
2)	(ii) The monitoring plan shall contain all necessary parameters, and the means of monitoring described in the plan shall comply with the requirements of the methodology;	ditto	Tbv	CL-14
3)	For each parameter, the following information shall be explicitly described in the standardized table in the PDD. <ul style="list-style-type: none"> ● Source of data ● Value of data applied ● Description of measurement methods and procedures ● QA/QC procedures ● Any comment, if any 	PDD Guidelines	Tbv	CL-14


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
	(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.			
4)	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	OK	--
5)	<u>Implementation of the plan</u> (i) The monitoring arrangements described in the monitoring plan shall be feasible within the project design;	Para.123 VVM	OK	--
6)	(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	OK	--
7.2	Relevant further background information, if any, shall be provided in Annex 4 of the PDD.	PDD Guidelines	OK	--
8.	Sustainable development	Para.125-127 VVM	--	--
	<Requirement to be validated> CDM project activities shall assist Parties not included in Annex I to the Convention in achieving sustainable development.	Para.125 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.126 VVM	NO	CAR-1 CL-15
9.	Local stakeholder consultation	Para.128-130 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.pdf , for definition of stakeholders.	Para.128 VVM Glossary of CDM terms	--	--
9.1 1)	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.129 VVM	Tbv	CL-16
2)	The summary of the comments received as provided in the PDD shall be complete.	ditto	Tbv	CL-16
3)	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	OK	--
10.	Environmental impacts	Para.131-133 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.131 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.131 VVM	Tbv	CL-17 CL-18


	JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol on Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.				

TABLE-1 REQUIREMENTS CHECKLIST			(OK/No/NA/Tbv)	
No.	Requirement	Refer. Para. VVM	Check Comment	ID. No.
10.2	Project participants shall also provide all references to support documentation of a EIA if required by the host Party	Para.132 VVM	NO	CL-17 CL-18


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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	<p>The project shall have the written approval of voluntary participation from the DNA of each Party involved.</p> <p>It should refer to the precise proposed CDM project activity in the PDD being submitted for registration.</p> <p><Page 17, Table B.5.1></p>	<p>1.1</p> <p>2.1</p> <p>2.2</p> <p>8.1</p>	<p>The project has got the written approval of voluntary participation from the DNA of both China and UK.</p> <p>The approval refers to the precise proposed CDM project activity, that is, "Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd" in the PDD being submitted for registration.</p>	<p>OK</p> <p>It was confirmed by JCI that both Letter of Approval from China DNA/71/ and UK DNA/72/ were received by the project participants.</p> <p>CAR-1 was resolved and closed.</p>
CAR-2	<p>MOC should be submitted before applying the request for registration to UNFCCC.</p>		<p>MOC is provided. See the MOC".</p>	<p>OK</p> <p>DOE have received the MOC/9/ and it was confirmed that MOC was appropriately.</p> <p>CAR-2 was resolved and closed.</p>
CAR-3	<p>It is requested to clarify whether main specifications of wastewater have been decided by comparison with the design specification of the ethanol fuel production plant or not. And it is requested to submit the brief and clear heat and material balance sheet of ethanol fuel production system as evidence.</p> <p>Ethanol Fuel Production Plant</p> <p>Ethanol fuel production capacity: 320,000t/y</p> <p>Wastewater capacity: 11,500m³/d</p> <p>Primary COD concentration: 35,000mg/l</p>	<p>4.1</p>	<p>The material balance of ethanol fuel production system is provided which document name is "Material balance of ethanol production" and "Water balance of ethanol fuel production". In that document the ethanol fuel production capacity is 320,000t/y and the wastewater is about 11,500m³/d.</p> <p>Also the historic data of the ethanol plant in 2007 which included the wastewater capacity, primary COD concentration, and other parameters have been provided which document is "9.5 The history data of fuel alcohol wastewater treatment data". In 2007,</p>	<p>OK</p> <p>JCI has received the following documents.</p> <p>(1) Material balance of ethanol production /28/</p> <p>(2) Water balance of ethanol fuel production /29/</p> <p>(3) The history data of fuel alcohol wastewater treatment data/29-1/ including wastewater capacity and Primary COD concentration</p>



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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
	<Page 2, A.2>		<p>the average COD is 34,842 mg/L which is close to 35,000 mg/L.</p> <p>The documents approved by authorized persons in Anhui Fengyuan Alcohol Company are provided.</p> <p>The copies of daily data with signature of authorized person in Anhui Fengyuan Fuel Alcohol Company are provided.</p> <p>Please see the signature of documents” The operation record of wastewater treatment by fuel alcohol plant in 2007”/26/ and “Monthly Report of wastewater treatment from alcohol plant in 2007” /27/.</p>	<p>These documents submitted have not been approved by any authorized persons in Anhui Fengyuan Fuel Alcohol Company.</p> <p>It is requested to submit the documents on which had approved by authorized persons in Anhui Fengyuan Fuel Alcohol Company. Especially, as for the history data of fuel alcohol wastewater treatment data, it is requested to submit the copies of daily data with signature of authorized person in Anhui Fengyuan Fuel Alcohol Company.</p> <p>DOE has confirmed that the above evidences/26/ and the Monthly report of alcohol plant/27/ signed by authorized person have submitted appropriately.</p> <p>CAR-3 was resolved and closed.</p>



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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	<p><u>Additionality Step 4: Common practice analysis</u> “Tool for the demonstration and assessment of additionality” have been done the version up to Version 06.0.0. Therefore it is requested to clarify whether Additionality Step 4 common practice analysis is modified according to the latest tool (Version 06.0.0).</p> <p><Page 25,Step 4></p>	6.15	<p>Step 4. Common practice analysis of Additionality in PDD has been entirely modified according to the latest additionality tool. Please see the revised PDD.</p> <p>1) After further consideration, Anhui province is chosen for common analysis instead of adding Shandong and Jiangsu province because the investment climate for each province in China is different as China is a very large country. This is due to variation of available natural resources such as coal, the economic development level, the industrial structure, the fundamental infrastructure, development strategy and the policy framework. The common analysis is revised in the PDD.</p> <p>The evidence that the investment climate of Anhui province was different from Shandong and Jiangsu province was provided to JCI on April 13th, 2012. The evidence is described at the footnote in the revised PDD.</p>	<p>OK</p> <p>JCI has confirmed that latest additionality tool (Version 06.0.0) has been applied for proposed project activity and the PDD has revised.</p> <p>However, the further clarification is requested for the following points.</p> <p>1) To further clarify the reasons why only two provinces, Jiangsu and Shandong provinces, were added to Anhui province as applicable geographical area, by using the factor such as the economic development level, fundamental infrastructure etc.</p> <p>It is requested to be clarified by evidence that the investment climate of Anhui province was different from Shandong and Jiangsu province when the investment decision of the project was carried out.</p> <p>And then, it is appropriate that the evidence is described at the footnote in PDD.</p>



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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) Yes, the technology of IC reactor and Co-fired boiler are prevailing worldwide. But according to the Paragraph 9 of the “Tool for the demonstration and assessment of additionality” (Version 06.0.0), different investment climate in the date of the investment decision can be considered to be “Different technologies”.	2) The technology used is the technology of IC reactor and Co-fired boiler. These technologies are prevailing worldwide and seem not to restrict to province. Therefore, to further clarify about the applicable geographical area. It was confirmed that it was different technologies according to the additionality tool /94/. CAR-4 was solved and closed.



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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-5	<p>Step 2: (2) Project emission in item B.6.1.</p> <p>As for the project emission in the ACM0014, “PE_{CH4,effluent,y}” has been included in the project emission PE_y, which has been neglected in PDD/1/. However, according to the requirement of ACM0014 it seems not to be described that “PE_{CH4,effluent,y}” may be neglected.</p> <p>It is requested to add appropriately “PE_{CH4,effluent,y}” to the calculation of project emission.</p> <p><Page 31, (2) Project Emission></p>	5.9 5.11	PE _{CH4,effluent,y} is added in the emission reduction calculation in the ER calculation sheet and the relevant parts are revised in the PDD.	<p>OK</p> <p>JCI has confirmed that the PE_{CH4,effluent,y} is added in the emission reduction calculation/4/ in the ER calculation sheet and PDD/2/ is revised appropriately.</p> <p>CAR-5 was resolved and closed.</p>
CL Clarification Requests				
CL-1	<p>It is requested to provide the evidence to clarify that the biogas and the sludge from wastewater treatment will be utilized in the boilers to generate steam.</p> <p><Page 2,A.2></p>	4.1	From the on-site visit on October 12 th , 2011, it can be seen that the biogas and the sludge from wastewater treatment now is utilized in the boilers to generate steam. Please refer to the “Schematic diagram of the biogas and sludge utilization of the Tushan project”	<p>OK</p> <p>JCI has confirmed that the biogas and sludge from wastewater have been used as the fuel of boilers during on-site assessment.</p> <p>And also the Schematic diagram of the biogas and sludge utilization of the Tushan project/157/ was submitted.</p> <p>CL-1 was resolved and closed.</p>
CL-2	The clarification is requested for Class 1 of the “Integrated Wastewater Discharge Standard	4.1	The wastewater will be finally discharged into Huai River, so Class 1 of the “Integrated	<p>OK</p> <p>JCI has received the Integrated</p>


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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
	(GB8978-1996)”) of the local wastewater quality standards. And also it is requested to provide the standard with English translation of important sentences as evidence. <Page 2,A.2>		Wastewater Discharge Standard (GB8978-1996)/113/ should be met. The standard with English translation of important sentences is provided to JCI as evidence. Please refer to document “Integrated wastewater discharge standard (GB8978-1996)”.	Wastewater Discharge Standard/113/. CL-2 was resolved and closed.
CL-3	Clarification is requested for the reason that H ₂ S must be removed from biogas. And it is requested to clarify whether there is or not the regulation or standard to remove H ₂ S from biogas for using as the fuel of the boiler. <Page 3,A4.3>	4.2	The H ₂ S is co-product of the wastewater treatment in the MIC digesters. H ₂ S is removed from biogas in order to avoid corruption of pipe where the biogas pipe is about 1.5km from the biogas tank to the co-fired boilers. There is no regulation or standard to remove H ₂ S from biogas for using as the fuel of the boiler in China at present. The concentration of H ₂ S in the biogas inlet line of H ₂ S removed facility is measured by the project owner. See the documents for the concentration of H ₂ S in biogas”/33//48/. The influence of corruption of high concentration of H ₂ S is provided in the document for the influence of H ₂ S”/34/.	OK JCI has confirmed that there are no regulation or standard to remove H ₂ S from biogas for using as boiler fuel in China at present. Further clarification is requested for the concentration of H ₂ S in the biogas inlet line of H ₂ S removed facility and the influence of corruption of high concentration H ₂ S. DOE received the documents in which the concentration of H ₂ S in the biogas/33//48/ and the influence of corruption of high concentration of H ₂ S/34/ have been described properly as evidences. CL-3 was resolved and closed.


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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	It is requested to provide the purchase order and the photo of name plates for boiler I , II and III on which the date of manufacture was described as shown in Table A.4.3.1. <Page 7, Table A.3.1>	4.2	The photo of name plates for boiler I, II, and III have already been provided on site. The date of manufacture for the boilers is added in Table A.4.3.1.	OK JCI has received the name plate of all boilers used in the proposed project/159/ and confirmed the date of manufacture of some boilers during on-site assessment. CL-4 was resolved and closed.
CL-5	<u>For scenario 1 in Table B.2.2</u> It is requested to submit the Chinese/ provincial regulations that they do not prevent discharge of wastewater in anaerobic open lagoons. <Page 14,Table B,2.2>	5.1	In China, for the wastewater treatment, the project owner should comply with the regulation of “Integrated Wastewater Discharge Standard (GB8978-1996). There is no regulation for prohibiting methane emission. Please refer to the standard of “Integrated emission standard of air pollutants (GB16297-1996)”. So the anaerobic lagoon is not forbidden in China. According to the rules of EB, common practice will be conducted in B.5 section in the PDD. So, the sentence “It is a common practice adopted by many industries in China” in table B.2.2 and “most commonly used practice” in table B.4.1 of the PDD are deleted.	OK JCI has received the Chinese Standard GB8078-1996 for wastewater discharge/113/ and GB16297-1996/61/ for air pollutants and open lagoons. CL-5 was resolved and closed.
CL-6	<u>The Figure B.3.1</u> It is appropriate to delete the outside frame line of Schematic diagram of the project boundary from Figure B.3.1 because it is not necessary for describing in the figure.	5.3	In Figure B.3.1, The outside frame is deleted.	OK It was confirmed that the outside frame was deleted from project boundary of the revised PDD/2/.


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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
	<p>It is requested to clarify whether the steam cogenerations and Grid are included in the project boundary or not.</p> <p>It is requested to clarify whether water flow line is necessary or not in project boundary.</p> <p><Page 11, Figure B.3></p>		<p>The project owner is a thermal and electricity producer by steam cogeneration. And for the project owner, the generated electricity is sold his own user which is not supplied to East China Power Grid (ECPG). Therefore these equipments are included in project boundary.</p> <p>The boiler feed water is added.</p>	<p>JCI confirmed that these equipments are included within project boundary during on-site assessment.</p> <p>It was confirmed that boiler feed water line was added in the project boundary of revised PDD/2/.</p> <p>CL-6 was resolved and closed</p>
CL-7	<p><u>W3 and W6 in Table B.4.1 in Step 1</u></p> <p>It is requested to provide the document of footnote 1 and 2 with English translation of important sentences.</p> <p><Page 18, Table B.4.1></p>	5.5 5.6	<p>The two evidences with English translation of important sentences are shown in the annex. Please refer to the document "Footnote1-Organic industry wastewater treatment theory and technology" and "Footnote2-Standards for irrigation water quality (GB 5084-2005)"/60/.</p> <p>There is a new updated <i>standard of Standards for irrigation water quality (GB 5084-2005)</i> that substitutes the standard "(GB 5084-1992)". The PDD is updated with the new standard. In this new standard, the wastewater COD is low 200mg/L for dry land irrigation.</p>	<p>OK</p> <p>JCI received the two footnote documents as evidences and confirmed that the content described in PDD was appropriately.</p> <p>Moreover, JCI confirmed that the numerical value of the wastewater COD of PDD was revised according to new Standards for irrigation water quality (GB 5084-2005)/60/</p> <p>CL-7 was resolved and closed.</p>
CL-8	<p><u>H3 in Table B.4.2 in Step 1 Heat generation scenarios,</u></p> <p>It has been described that there are no</p>	5.7	<p>The exploitable renewable resource for heat generation in industry production is the biomass straw energy utilization.</p> <p>In Bengbu city, there has been a biomass</p>	<p>OK</p> <p>It is requested to clarify about the difference between the biomass</p>


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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
	<p>economically exploitable renewable resources in the neighbouring area of the project site.</p> <p>It is requested to clarify based on the evidence the reason that economically exploitable renewable energy is not in the neighbouring area of the project site.</p> <p><Page 16,B.4></p>		<p>power plant of Wuhe Kaidi Biomass Power Project¹, and the other biomass power plant in Huaiyuan county is one of the major construction projects of twelfth Five-Year plan². Please see the document of “Bengbu Huaiyuan County Biomass power generation”. The location of Huaiyuan county and the Wuhe county are indicated in the map of “Bengbu city map”/62/. Because the biomass power generation will consume a lot of biomass straw, the project owner wouldn’t use biomass as the boiler fuel as the competing the biomass straw. Also around the project site, there is no exploitable renewable energy for heat generation.</p> <p>Furthermore, the project owner needs to ensure the stable heat supply for the steam user, it is unrealistic feasible to use the biomass as the fuel because the most of biomass in this region is used by the other biomass power project.</p> <p>The biomass production in Bengbu city is 2,758,500 t annually in which 30% is available based on “The straw comprehensive utilization planning in Anhui province”. Therefore, the total amount of available biomass in Bengbu</p>	<p>consumption in the biomass power facilities and the biomass production in Bengbu City and Huaiyuan County.</p> <p>It was confirmed by the explanation of the left column and the received evidence /37/ that the economically exploitable renewable resources had not</p>

¹ <http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1256212563.8/view>

² http://www.ahhy.gov.cn/E_ReadNews.asp?NewsID=1795


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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
			city is $2,758,500 \times 30\% = 827,550$ t annually. At present, there are two biomass power facilities in Bengbu city, located at Guzhen and Wuhe country. The annual consumption of Wuhe and Guzhen biomass power plant is $400,000\text{t}^3$ and $240,000\text{t}^4$, respectively. There is 187,550 t ($827,550 - 400,000 - 240,000 = 187,550$) left. However, another biomass power plant located in Huaiyuan country is planned to establish. The left 187,550t will be utilized too. Therefore, the Project Owner would not have enough biomass to use as the baseline. Please refer to the document of "The straw comprehensive utilization planning in Anhui province"/37/	been in the neighbouring area of the project site. CL-8 was resolved and closed.

³ <http://anhui.mofcom.gov.cn/column/print.shtml?sjdixiansw/200803/20080305452255>

⁴ http://www.nbe.cn/HomePage/2011-03-10/page_211.shtml


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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	<p>As for the Table 5.1, the following items should be added in it.</p> <ul style="list-style-type: none"> (1) Approval of FSR (2) Letter of approval by UK (3) Main equipments of contract (4) Stakeholder meeting (5) Others (6) Early consideration of CDM <p>Note: Specific items will be discussed during the On-site assessment</p> <p><Page 21, Table B.5.1></p>	5.7	<p>Some other events are added into the Table B.5.1. The evidence is provided.</p> <p>The approval of FSR is the official document(No.[2008]41)/74/, which is also the project approval. It is added in the PDD.</p>	<p>OK</p> <p>It is confirmed that the additional events discussed during the on-site assessment was appropriately added in the timeline of revised PDD without the Approval of FSR.</p> <p>However JCI confirmed that Approval of FSR was included in Official document (No.[2008]41)/74/.</p> <p>But, as FSR has included many important data to calculate IRR, ER, etc., it is requested that it is added to the footnote of PDD that Approval of FSR have been included within Official document (No.[2008]41)</p> <p>It was confirmed that the footnote, the approval of FSR is the official document, was added in the revised PDD.</p> <p>CL-9 was resolved and closed.</p>
CL-10	<p>It is requested to clarify the following items.</p> <ul style="list-style-type: none"> (1) Which company completed the FSR? (2) Which official organization approved the FSR? 	6.11. 1)	<ul style="list-style-type: none"> (1)The FSR was completed by Hefei Design and Research Institute of Coal Industry. (2)FSR was approved by Bengbu Economic Commission. 	<p>OK</p> <p>It was confirmed that the name of FSR author's company and FSR approval's body make clear and these names were described in</p>


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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
	<Page 21, Table B.5.1>		They are both added in the PDD. And both names are added to the PDD.	PDD. CL-10 was resolved and closed.
CL-11	<p><u>Sub-step 2b: Option III.</u></p> <p>It is requested to clarify again the reason that in spite of the chemical industrial plant to produce the ethanol fuel, the benchmark IRR for the thermal power station project was selected as suitable benchmark.</p> <p><Page 22, B.5></p>	<p>6.11. 1)</p> <p>6.11. 3)</p>	<p>The project owner of “Industrial wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd” is Bengbu Tushan Thermoelectricity Co., Ltd. Although the wastewater is from ethanol fuel plant, the benchmark IRR should reflect the expected profit of the project owner, i.e. Bengbu Tushan Thermoelectricity Co., Ltd. In China, the benchmark for the thermal power station is 10% (after tax) regardless of whether the electricity is supplied to National Power Grid. The document of “Construction Project Economic Evaluation Methods and Parameters (Version 3)” does not distinguish the thermal power station of whether the electricity is supplied to National Power Grid. Furthermore, the benchmark of 10% does not consider the risk premium of obtaining the biogas by wastewater treatment.</p> <p>Yes, benchmark of chemical industry is appropriate. The Project Owner chose 10% as the benchmark when he made the investment decisions. As we can see from the document of “Benchmark choice”/38/, the benchmark of chemical industry is 12%, less than the benchmark of thermal power generation 10%.</p>	<p>OK</p> <p>The proposed project included the facility to recover the biogas from wastewater of fuel ethanol production. But the electric power facility is not included in it.</p> <p>So, it must be appropriate that the Benchmark of chemical industry field instead of thermal electricity generation field is selected as the benchmark of proposed project.</p> <p>Further clarification is requested for the benchmark of the proposed project.</p> <p>DOE has confirmed the document “Benchmark choice”/38/ submitted as the evidence of benchmark. The benchmark seemed to be for the project IRR.</p> <p>It is requested to clarify if the</p>



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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
			<p>Therefore, 10% is conservative. The Project is additional with benchmark of 10% which means it's still additional with benchmark of 12%.</p> <p>There is no loan in Tushan Project. It is added in page 24 in the PDD. The project IRR is equal to the Equity IRR. Therefore, 10% is the equity IRR according to the para 12 of Guidance of the assessment of investment analysis.</p>	<p>value of bench mark 10% is the value based on Equity IRR, according to the para 12 of Guidance of the assessment of investment analysis/94/</p> <p>DOE confirmed that the power production work was included in business license of proposed project/77/ issued by Bengbu City Industry and commerce Administration and the benchmark of 10% in the thermal power station was described in the Economic evaluation measurements and parameters of constructive project (version 3) /38/. Therefore, DOE judged that the benchmark 10% of this project was appropriate.</p> <p>CL-11 was resolved and closed.</p>
CL-12	<p>The items of design description in Table 5.4, It is requested to clarify and provide evidences of the followings.</p> <ol style="list-style-type: none"> 1. Displace coal 2. Coal price (without tax) 3. Total investment cost 4. Annual running cost 	<ol style="list-style-type: none"> 6.11. 1) 6.11. 2) 6.11. 3) 	<ol style="list-style-type: none"> 1. About the displaced coal please refer to the ER sheet, also the PDD is added a footnote for it. 2. In the FSR, the expected project operation year is 2010. The coal price is expected base on the coal price derive from the contract of 'Tushan Coal Contract' which was valid in year 2007 and the transportation cost which would be saved after the project activity. The FSR is 	<p>DOE confirmed that following items have been selected appropriately based on the evidences though they were applied from FSR/5/.</p> <ol style="list-style-type: none"> 1. It is confirmed that NCV of displaced coal was added in



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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
	5. CERs Price 8 6. Coal VAT 7. Electricity VAT 8. Urban construction tax 9. Education surtax 10. Corporation TAX (Income TAX) 11. Depreciation method 12. Building depreciation period 13. Equipment depreciation period 14. Salvage value <Page 20, Table 5.4>		<p>completed in January 2008. So, it is appropriate to use the price at that time of the FSR completed. If we have further research on the website, please refer to the evidence "The coal price in Jan 2008 of Tushan Project"/39/, the average coal price in January 2008 is (540+525+500+465+450)=496 RMB/t. Therefore, 500RMB/t chosen in FSR is reasonable.</p> <p>3. Please refer to the "Contrast of FSR and actual investment of Tushan Project /31/".</p> <p>4. Please refer to the related folder "Tushan annual running cost document"/32/.</p> <p>5. Please refer to the ERPA/147/ in folder of "Tushan annual running cost document".</p> <p>6. Please refer to the document "5-09CL-16 Regulation VAT for metallic or non metallic minerals 1994[22]"/56/.</p> <p>7. Please refer to the document "5-09CL-15 Taxes"/55/.</p> <p>8. Same as 7.</p> <p>9. Same as 7.</p> <p>10. Same as 7.</p> <p>11. Please refer to the document of "5-09CL-14 Depreciation cost"/54/.</p> <p>12. Same as 11.</p> <p>13. Same as 11.</p> <p>14. Same as 11.</p>	<p>footnote in PDD/2/.</p> <p>2. The evidences of coal price /39/ have been clarified correctly.</p> <p>3. The contrast of FSR and actual investment/31/ was submitted to DOE appropriately..</p> <p>4. Tushan annual running cost document/32/ was submitted to DOE appropriately.</p> <p>5. ERPA/147/ was submitted to DOE appropriately.</p> <p>6. VAT of coal was described in the regulation VAT for the metallic or non metallic minerals/56/ appropriately.</p> <p>7., 8., 9., & 10. The evidences/55/ for VAT of electricity, Urban construction TAX, Education surtax and Corporation TAX were submitted to DOE appropriately.</p> <p>11., 12., 13. and 14. The evidences/54/ for Depreciation method, Building depreciation period, Equipment depreciation period and Salvage value were submitted to DOE appropriately. CL-12 was resolved and closed.</p>


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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-13	As for the Table B.5. in PDD/2/ based on the additionality tool (Version 06.0.0), it is requested to clarify that CDM projects are included in table B.5. If CDM projects will be included in table, please indicate the projects in table. And then please submit the copy of website of companies in table B.5., in which output of project with English translation should be included.	6.15. 1) 6.15. 2)	There are no other CDM projects except Tushan Project in table B.5. The copy of website of companies in which English translation is included is shown in the evidences for the alcohol companies in Anhui Province /63//63-1//63-2//63-3//63-4//63-5/. The evidences were submitted to DOE. .	OK It was confirmed that the copy of website of alcohol companies with English translation were submitted to DOE. And also it was confirmed CDM project with same technology in the Anhui Province was not included in table 5 in PDD/2/. CL-13 was resolved and closed.
CL-14	As for the B.7.1 “Data and parameters monitored”, it is requested to describe the calibration method and their interval for all monitoring instruments. <Page 35-38, B.7.1>	7.1	The description of the measurement procedures and monitoring frequency of the parameters are added in the revised PDD.	OK It was confirmed that the information on the measurement procedures and monitoring frequency of the parameters including the calibration method and interval was appropriately added to the revised PDD. CL-14 was resolved and closed.
CL-15	It is requested to clarify whether proposed project contributes to the sustainable development on the host party according to the requirement of CDM by the documented evidence	1.1 8.1	As described in LoA approved by NDRC from China, the Project assists China in achieving sustainable development. The LoA has been provided.	OK It is confirmed that the information on the contribution to the sustainable development of China have been described in LoA of China DNA/71/. CL-15 was resolved and closed.



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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
	<Page 2,A.2>			
CL-16	<p>As for the brief description of proposed project to stakeholder, it is requested to clarify when and where the meeting to explain it had been implemented. It is requested to provide the handout, photo and so on as evidence.</p> <p><Page 50,E-1></p>	9.1	<p>The meeting was held in the meeting room of the project owner on February 27th, 2008. The MOM has been provided.</p> <p>On Feb 27th 2008, the Project owner held a meeting to ask for stakeholders' opinion on the Project. In the meeting, the residents were asked to fill in the questionnaires. The project owner kept a record of the situation of the meeting, that is, the MOM. Therefore, it is obvious the three events happened on the same date.</p> <p>In China, the MOM is used for keeping record of the events and also for summarizing the content of the meeting. The Project Owner summarized the content of the meeting and recorded in the MOM.</p> <p>It is added in the footnote of PDD.</p>	<p>OK</p> <p>JCI received the bill of explanation of proposed project, MOM and the returned questionnaires.</p> <p>However, the date held the meeting, the issued date of MOM and the issued date of questionnaires were same date (27 Feb. 2008). In addition, the summarized result of questionnaires has already been described in MOM.</p> <p>It is requested to explain the reason why the date of these events was same.</p> <p>It was confirmed your explanation that PO summarized the content of the meeting and recorded in the MOM. It is appropriate for that to be described in footnote of PDD.</p> <p>It was confirmed it was added on footnote in PDD/2/ that the content of meeting had been summarized as MOM.</p> <p>CL-16 was resolved and closed.</p>


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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-17	It is requested to provide the approval letter of EIA report dated on 20 March 2008 approved by EPA of Bengbu City. <Page 49,D.1>	10.1 10.2	The approval letter of EIA report has been provided.	OK JCI received the approval letter of EIA report/73/. CL-17 was resolved and closed.
CL-18	It is requested to provide following standard with English translation of important sentences. (1) "thermal power plant emission standards for air pollutants" (GB13223-2003) (2) Integrated wastewater discharge standard (GB8978-1996) (3) Urban regional environmental noise standard (GB3096-1993). <Page 62,D.1>	10.1 10.2	The three standards with English translation of important sentences have been provided.	OK JCI received these standard and confirmed that the controlled purposes was indicated properly in PDD. GB13223-2003/111/, GB8978-1996/113/, GB3096-1993/112/ CL-18 was resolved and closed
CL-19	<u>Item W4 in Table B.4.1</u> This scenario,W4 is described that "this scenario needs much higher investment and operational cost than anaerobic open lagoons and generates no revenue unlike the scenario W5.". More clarification is requested for the specific explanation in the cost. <Page 18, Table B.4.1>	6.5. 1) 6.5. 2) 6.5. 3)	The description "this scenario needs much higher investment and operational cost than anaerobic open lagoons" is deleted. The scenario W4 nearly has the same investment and operational cost as W5 while W4 with biogas flaring has no revenue. W5 is more financial attractive than W4. Therefore, W4 is excluded. It is revised in the PDD.	OK It was confirmed that W4 was less financial attractive than W5 and W4 in table B.4.1 of PDD/2/ was revised appropriately. CL-19 was resolved and closed.



CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.

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	<p><u>Item W7 in Table B.4.1</u></p> <p>This scenario, W7 is described that “The water content of the project’s wastewater is higher than 90%, which is not appropriate for dewatering.”. More clarification is requested for the water contents of project’s wastewater explained by the material balance sheet.</p> <p><Page 19, Table B.4.1></p>	6.5. 1) 6.5. 2) 6.5. 3)	The water content is 96.3% (11076.49/11500=96.3%) according to the documents named “Water balance of ethanol fuel production”/29/ and “Material balance of ethanol production”/28/. The water content is added in footnote of the PDD.	<p>OK</p> <p>It was confirmed that the value of water content of wastewater was higher than 90% by the documents/28//29/ submitted as evidences, and the water content was added in footnote of the PDD appropriately.</p> <p>CL-20 was resolved and closed.</p>
CL-21	<p>Efficiency of boiler ($\eta_{PJ, boiler}$) is different by PDD and emission reduction calculation sheet, namely 0.91 in Table B.6.3.2 of PDD/1/ and 0.9074 in ER calculation sheet.</p> <p>It is requested to clarify which value is correct, 0.91 or 0.9074.</p> <p><Page 39, Table B.6.3.2></p>	5.11	0.9074 in ER calculation sheet is revised to be 0.91. The weighted average of the efficiency of boilers is 90.76% $(0.91 \times 3 \times 260 + 0.9021 \times 2 \times 130 + 0.9063 \times 3 \times 130) / (3 \times 260 + 2 \times 130 + 3 \times 130) = 90.76\%$. 91% is chosen for ER calculation which is conservative.	<p>OK</p> <p>It is confirmed that since the weighted average of the efficiency of boilers is 90.76% the value of boiler efficiency was round up 91% in conservative manner, which was used for ER calculation.</p> <p>DOE confirmed that both boiler efficiencies for PDD/2/ and for ER calculation were same.</p> <p>CL-21 was resolved and closed.</p>


 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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-22	<p>It is requested to clarify the specification for the inlet and outlet concentration of biogas in the desulfurization equipment, and to describe in the footnote of PDD (A.4.3. (b) in 6 page).</p> <p>< Page 6, A.4.3. (b)></p>	4.2	The concentration of CH ₄ in the inlet of desulfurization system is 63.32%. After desulfurization, the H ₂ S in the biogas (about 8.52g/m ³) will be removed. It is added in the footnote of the PDD.	<p>OK</p> <p>DOE confirmed that CH₄ concentration of Bio-gas in inlet of desulfurization system and the removal capacity of H₂S have been indicated in footnote in the PDD/2/.</p> <p>CL-22 was resolved and closed.</p>
CL-23	<p>(Business licence of Bengbu Tushan thermoelectricity Co., Ltd.)</p> <p>This project is the business of methane recovery from wastewater of the Anhui Fengyuan Fuel Alcohol Company. Therefore, the business of proposed project seems to be included in the business of industrial field. As for the business license of Bengbu Tushan thermoelectricity Co. Ltd./77/, the business license of methane recovery is not included in it.</p> <p>It is requested to clarify whether Project Owner has the business license of the methane recovery field or not.</p>	6.10.1)	<p>The Project Owner has got FSR approval and EIA approval of the project, which means it's legal for Bengbu Tushan thermoelectricity Co.,Ltd to do the business of methane recovery from wastewater of Anhui Fengyuan Fuel Alcohol Company. Moreover, according to the "Administration of registration of the business scope", the Project Owner should choose the scope complying with "Classification of national economic industries" in which thermal power generation includes power generation activities by utilizing waste heat, gas and so on. Therefore, the Project Owner utilizing the recovered methane to generate power is within his business scope. Please see the document "Administration of registration of the business scope" /35/ and "Classification of national economic industries"/36/.</p>	<p>OK</p> <p>JCI confirmed that the Project Owner has got the project approval letter including the FSR approval /74/ and the EIA approval letter/73/ by evidences. And also JCI have received the copies of relative document for business scope/35/ and Classification of national economic industries/36/.</p> <p>However, JCI could not judge since it is not clear whether the business of methane recovery from wastewater of industries is included in the business scope of BTCC or not.</p> <p>Therefore it is requested to submit the evidence clearly described on the business scope.</p>




 JCI CDM Center	APPENDIX A	No : JCI-CDM-VAL-11/043	Rev.No 00
CDM Validation Protocol for Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.			

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
			Please see the document "The explanation from the local authority"/75/.	DOE confirmed that the fuel alcohol wastewater treatment and utilization the recovered biogas have been included in the business scope of the Project Owner by the evidence /75/ CL-23 was resolved and closed.
FAR	Forward Action Requests			
FAR-1				

APPENDIX B**Certificate of Appointment of Validation Team**

Project Title	Industrial Wastewater Methane Recovery Project of Bengbu Tushan Thermoelectricity Co., Ltd.
Applied Methodology	ACM0014-Ver.04.1.0 Sectoral Scope 13
Date: 2011. 7.15	
Designated Operational Entity: Japan Consulting Institute (JCI)	
<p>Reflecting the competence criteria of JCI in accordance with the latest "CDM Accreditation Standard for Operational Entities", 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, and Validation Procedure established by JCI CDM Center.</p> <p style="text-align: right;">Signature  Akio Yoshida, Executive Director, JCI CDM Center</p>	
Date: 2011. 7.15	
Client: LAKEWOOD CARBON CORP.	
<p>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.</p> <p>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.</p> <p style="text-align: right;">Signature  (Name) Mutsuo K. Andersen, Jr. (Title) CEO.</p>	

Validation Team

Validation Team	Name	Qualified Technical Areas related to the Project
Leader	Masaki OKADA	Waste handling and disposal (TA 13.1)
Member	Mutsuo KATO	Waste handling and disposal (TA 13.1)
Technical Reviewer	Haruo SAWADA	Waste handling and disposal (TA 13.1)