
Validation Report

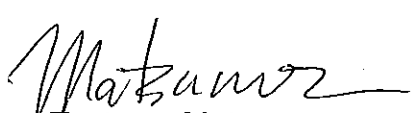
Client: Mitsubishi UFJ Securities Co., Ltd.

“Controlled combustion of municipal solid waste (MSW) and energy generation in Linyi City, Shandong, China”

Project No. JQA-C0072
(1812000083)
Date: 24 April 2009



JAPAN QUALITY ASSURANCE ORGANIZATION

Date of issue: 24 April 2009	Project No.: JQA-C0072
Approved by:  Tsutomu Matsuno	Client: Mitsubishi UFJ Securities Co., Ltd.
<p>Summary:</p> <p>This is the Validation Report for the project activity "Controlled combustion of municipal solid waste (MSW) and energy generation in Linyi City, People's Republic of China", which validation agreement is contracted with Mitsubishi UFJ Securities as a consultant company</p> <p>This project activity involves the controlled combustion of municipal solid waste (MSW) and energy generation and heat. The approved baseline and monitoring methodology, AM0025 version 10 "Avoided emissions from organic waste through alternative waste treatment processes" is applied.</p> <p>The summary is as follows:</p> <ol style="list-style-type: none"> 1. Project design document The PDD (Version 4.0, 10/02/2009) uses the latest template and guidance. 2. Project description The project description is accurate and complete for the methodology selected. 3. Baseline and monitoring methodology <ol style="list-style-type: none"> a) Applicability of the selected methodology AM0025 version 10 "Avoided emissions from organic waste through alternative waste treatment processes" is selected. Requests for registration of the methodology can be submitted until 04 Aug 09 23:59 GMT. The project activity is in conformance with all applicability conditions of the methodology. b) Project boundary Clearly delineated using flow diagram. c) Baseline identification Appropriately identified in accordance with the methodology. d) Algorithms and/or formulae used to determine emission reductions In the calculation of the emission factor of North China Power Grid, the value of each emission factor of fuel is used in accordance with the comment provided by the Chinese authority. 4. Additionality of the project activity <ol style="list-style-type: none"> a) Prior consideration of the CDM <ul style="list-style-type: none"> ➤ The minutes of the Board meeting was provided. b) Investment analysis <ul style="list-style-type: none"> ➤ Benchmark: 8% ➤ Project IRR: 5.2% ➤ Input values: Feasibility Study Report, quote, average local price 	

- Sensitivity analysis: +/- 10% for key parameters
- c) Common practice
 - The proposed project activity is not common in Shandong, China.
- 5. Monitoring plan
The key monitoring equipment and their locations are correctly described.
- 6. Local stakeholder consultation
The procedures are appropriate.
- 7. Environmental impacts
The EIA has been conducted.

Estimate of anticipated reductions in tons of CO₂: 83,399 t-CO₂e/year

JQA confirmed that the project activity meets all relevant criteria. Through the Certification Committee deliberation, JQA determines the project activity to be valid as a CDM project activity.

Report No : JQA-C0072-VaR (Version 01.1)	Title: Controlled combustion of municipal solid waste (MSW) and energy generation in Linyi City, People's Republic of China
Assessed by : Team Leader: Itaru Watanabe Member : Hiroshi Motokawa (UO)	Verified by: Leader: Mr. Shigenari Yamamoto Member: Dr. Hiroshi Kuribayashi (External) Dr. Michiaki Harada (External)

Abbreviations

AF	Adjustment Factor
BM	Build Margin
BE	Baseline Emission
CAR	Corrective Action Request
CCW	Fraction of Carbon Content in Waste
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CECIC	CECIC Blue-sky Investment Consulting & Mangement Co., Ltd.
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
COP	Conference of the Parties
COP/MOP	Conference of the Parties serving as the Meeting of the Parties
DOE	Designed Operational Entity
DRC	Development and Reform Commission
DNA	Designated National Authority
EIA	Environmental Impact Assessment
EPB	Environmental Protection Bureau
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GWP	Global Warming Potential
JQA	Japan Quality Assurance Organization
LoA	Letter of Approval
MSW	Municipal Solid Waste
MUS	Mitsubishi UFJ Securities Co., Ltd.
NDRC	National Development and Reform Commission
OM	Operating Margin
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
QA/QC	Quality Assurance and Quality Control
SD	Sustainable Development
UNFCCC	United Nations Framework Convention on Climate Change

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Appendix A: CDM Validation Checklist

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1 INTRODUCTION

1.1 Objective

The objective of the validation is to review whether the project activity is in conformance with the requirements defined by the UNFCCC, the Kyoto Protocol, CDM Modalities and Procedures and related decisions by COP/MOP and CDM-EB. The most important thing to be confirmed is to achieve GHGs emissions reductions against the baseline in along with the China's sustainable development policy.

1.2 Scope

The scope of this validation process is set as follows:

- a) Documentary
 - UNFCCC
 - Kyoto Protocol
 - Relevant decisions of COP/MOP and CDM-EB, including Clean Development Mechanism Validation and Verification Manual (Version 01)
 - AM0025 (Version 10)
 - Tool to calculate the emission factor for an electricity system (Version 01)
 - Tool for the demonstration and assessment of additionality (Version 05)
 - Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site (Version 02)
 - PDD (Version 1.0 & 2.0) for AM0025/Version 9 and PDD (Version 3.0 & 4.0) for AM0025/Version 10
- b) Physical
 - The project site
- c) Organizational
 - Linyi National Environmental New Energy Co., Ltd

1.3 Validation Team

The validation team was assigned on 11 September 2007 based on the JQA CDM Quality Manual (Version 5, 6 December 2006).

Team Leader	Itaru Watanabe	JQA Certified CDM Lead Assessor
Member	Hiroshi Motokawa	Under Observation (Trainee)

The role and responsibility of the team leader is mainly to prepare the validation plan including the Desk Review, the Site-visit and related documentation and to manage the validation activities of the team. And the leader is responsible for stating the validation opinion and conclusion in the validation report.

The role and responsibility of the member is to implement the Desk Review and the Site-visit including the investigation and collection of background information and interviews with the project participants and related stakeholders, and also to indicate potential CARs and/or CLs through the validation activities.

A trainee, who is under observation, is not a team member formally. However, he/she is required to assist the team activities under the instruction of the team leader.

JQA's CDM Quality Manual allows to assign only one assessor as a validation team, if the assessor is competent to the sectoral scope of the given project activity and has enough time to conduct the validation with the assistance of a trainee.

Itaru Watanabe, who is the team leader, is a chemical engineer and qualified as a lead assessor of CDM. Before entering this department he worked as a lead assessor for environmental management systems (ISO 14001) in the department of environmental management system. Since he was engaged in the validation of the Nubarashen LFG project in Yerevan, Armenia (Ref. No. 69), through which JQA was accredited the scope of (1) and (13), he has participated in several validations of registered CDM project activities relating to LFG recovery and power generation, manufacturing factory's energy efficiency and HFC23 decomposition.

2 VALIDATION PROCESS

The validation process of JQA consists of the following phases:

- 1) Desk Review of the PDD,
- 2) Background Investigation with Site-visit for collecting the local information and interviewing with local governmental officials and stakeholders,
- 3) Preparation of the Validation Report after clarification requests (CLs) and corrective action requests (CARs), if any.

The PDD shall be submitted to the EB for inviting the public stakeholders' comments immediately after the check for the completeness of the PDD received. If JQA receives any public comments, the comments are informed to the project participants and the CDM secretariat for uploading them on the UNFCCC website.

In the validation, the CDM Validation Checklist is utilized as a tool. The checklist serves the following purposes:

- It organizes, details and clarifies the requirements that a CDM project is expected to meet; and
- It ensures the validator achieves a transparent and complete validation process and, as the result, contributes to enhance a high validation quality.

In case, any non-conformance is identified in the process, "CAR" (Corrective Action Request) or "CL" (Clarification Request) is marked in the checklists with comments.

CAR requires the project participants to take some corrective actions without fail, while CL indicates that it is desirable that the project participants take some corrective actions or others though not mandatory.

The validation process does not provide the project participants with any consulting service, but if they take justifiable and appropriate corrective action for CAR and CL items, JQA is confident to contribute to substantial improvement of the PDD.

Criteria for identification of CAR or CL are as follows:

<CAR (Corrective Action Request)>

- a) Non-compliance with laws and regulations of the host country;
- b) Non-conformance with requirements defined by the UNFCCC, COP/MOP, Kyoto Protocol, Decision 3/CMP.1, EB; or
- c) Items, which would affect CER calculation significantly.

<CL (Clarification Request)>

- a) Insufficient description from the view of accuracy, reliability, completeness and /or consistency;
- b) Vague expressions

All correspondences by the PPs against the CARs and CLs are described in *italics* in the checklist with the validation comments.

2.1 Schedule

The process was implemented as follows:

- 02 October 2007: Start of GSP on the UNFCCC website (PDD Version 1.0)
- 31 October 2007: End of GSP (one comment received on 14/10/2007)
- 02 November 2007: Desk Review Report
- 08 November 2007: Request for deviation (acceptance at EB 37)
- 15 - 17 January 2008: Site-visit to Linyi City, Shandong, China
- 30 January 2008: Site-visit Report
- 29 May 2008: Start of 2nd GSP (PDD Version 3.0)
- 27 June 2008: End of 2nd GSP (No comment received)
- 18 November 2008: Revised Checklist, taking into account EB41 decisions
- 10 February 2009: Receipt of PDD Version 4.0
- 18 February 2009: Draft Validation Report
- 27 February 2009: Certification Committee
- 04 March 2009: Validation Report (Version 01)

2.2 Desk Review of Documents

The Desk Review is conducted using by the CDM Validation Checklist (Appendix A), which is prepared for a CDM project activity originally by JQA.

The main purposes of the Desk Review are as follows:

- Confirm the completeness of the PDD in accordance with the “Guidelines for Completing the PDD (CDM-PDD), Version 07” and “Glossary of CDM terms (Version 04)”
- Review the PDD in order to judge the conformity of the project activity against the requirements
- Collect information regarding the project activity from an independent source for verification, if necessary
- Identify the issues at the Site-visit

And also, it focuses on:

- Justification and appropriateness of the baseline and monitoring methodologies for the proposed project
- Transparency and conservativeness of the assumptions for the baseline
- Technological, political, socio-demographic and environmental and legal aspects and trends relevant to the proposed project
- Additionality of the proposed project
- Appropriateness of the calculation of GHG emission reductions
- Responsibility and authority for monitoring, measurement and recording activities in the monitoring plan including quality control and quality assurance

2.3 Background Investigations

The background investigations include the Site-visit to the project site and the interviews mainly with the key persons in the host country including local project participants and governmental officials.

On this process, the followings are investigated:

- SD policy in the host country including Environmental Impact Assessment
- CDM approval and authorization procedures by DNA
- Technologies related to the project activity in the host country

2.4 Resolution of Clarifications and Corrective Action Requests

The project participants are requested to respond how to resolve the CLs and CARs pointed out in the Desk Review Report and the Site-visit Report.

Though resolving the CLs and CARs, the project participants revise the PDD and submit it to JQA.

2.5 Internal Quality Control

The Manager of CDM/JI Assessment Division organizes the validation team after considering the expertise of the project, the assessor qualification suitable for the technical and regional aspects of the project, and the knowledge of environmental laws and regulations in the host country. Through the validation process, the validation team establishes the draft validation report including draft conclusion. The team leader of the validation team submits the documents including the outline of the validation result and the conclusion of the team to the Certification Committee of JQA, as a function to ensure that the validation is appropriately carried out. The Certification Committee, upon receipt of the draft validation report from the team, deliberates appropriateness of the validation and its procedures, and reports the result of judgment to the Senior Executive of JQA. Finally the Senior Executive decides the validity of the project activity as DOE.

3 VALIDATION FINDINGS

The summary of findings at Desk Review for PDD version 1.0 is as follows:

One CAR is pointed out in Table 2 of the CDM Validation Checklist.

1) Name of PP (Checklist A.3): CAR 1

The name of PP in the section A.3 is not the same as one in Annex I.

CAR 1 was resolved in the revised PDD.

And there are several issues specific to the project activity as CLs. Major CLs are as follows:

1) Adjustment Factor (AF) (Checklist B.6.2): CL 2

The change of "AF" is to be monitored at the beginning of each crediting period. Accordingly, this item should be listed in the section B.6.2 or B.7.1.

AF was listed in the section B.2 and B.7.1 of the revised PDD.

2) Boiler efficiency (Checklist B.6.2): CL 3

Regarding the value used in the PDD, there is no sufficient evidence provided. As the PDD shows one document published by NDRC suggests the efficiency is within the range 72-80%, more concrete evidence should be provided.

A survey of boilers within Linyi City was conducted by an independent research institute, and the PDD were amended according to the results..

And also, the findings at Site-visit are follows:

- 1) Linyi Development and Reform Committee, Environmental Health Bureau and Environmental Protection Bureau
 - Permissions and/or licenses:
 - 23/07/2002: EIA approval was issued.
 - 20/09/2006: A minor change to the project activity was accepted.
 - 19/10/2006: Permission for the construction to begin
 - 03/08/2007: 2nd minor change was accepted.
 - The waste generation amount in Linyi City is currently 1kg/head/day and the population of 5 districts (Lanshan, Luozhuang, Hedong, High Technology Development District and Economical Development District), which use the landfill site, is approximately 1 million. The population and waste are forecasted to increase by 0.5 %/y and 8-10%/y relatively in the next 10 years.
 - The landfill site is owned and operated under the control of Linyi City.
 - Currently there is no obligation to the recovery or destruction of methane at a landfill site
 - Currently NO_x content in the flue gas is not included in the emission standards
 - The applicable national standards to the boilers are different from the capacity: 65 t/hr more or less. Accordingly GB13221-2003 is applied for this project activity (75 t/hr).
- 2) Landfill disposal site and waste relay point
 - The Linyi landfill site is well managed in the following items:
 - Cover material
 - Mechanical compaction
 - Leveling of the waste
 - Leachate treatment
 - Fencing around the site
 - Methane gas purging equipment
 - The waste is brought into the site from the three districts (Lanshan, Hedong and High Technology Development District) out of 5 districts, via the relay point, where the waste amount is measured and recorded.
 - According to the monthly records, the waste amount from Lanshan district was 500 –600 tons/day last year and 200-300 tons/day from other two districts
- 3) Project site
 - The waste –combustion fluidized-bed boilers (rated steam capacity: 75 t/h) with power generator (30 MW) have been installed and operated since November 2007.
 - The temperatures in the furnace are around 880 – 900 degrees centigrade.
 - The capacity of the waste stockyard at the project site is approximately 5000 tons.
 - Currently there is no PPA (Power Purchase Agreement) with Linyi Power Company, while there is a contract agreement for test operation of the plant.
 - The thermal energy (steam) is to be supplied to nearby industries. The

measurement equipment is to be set at the user side, taking into account the decrease of enthalpy by the distribution.

- Key assumptions and parameters were discussed in details. As the result of the discussion, following items are to be reviewed based on the latest information:
 - Electricity tariff
 - Boiler efficiency
 - Values of CCW

The followings are the findings in the PDD version 4.0 (10/02/2009).

3.1 Approval by the parties involved

The approval letter of China was issued on 30/07/2008. And the approval letter of Portugal was issued on 27/11/2008. Both approval letters were provided by the PPs and there is no doubt in their authenticities.

The validation team determined each letter confirms that:

- (a) The Party is a Party to the Kyoto Protocol;
- (b) Participation is voluntary;
- (c) In the case of the host Party, 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.

The validation team determined the letters of approval are unconditional with respect to (a) to (d) above, and there is no doubt in the authenticity of the letters of approval, although the letters were provided from the project participants through the consulting service agency contracted by the project participant in the host country.

3.2 Participation

The validation team determined that the participation of each project participant has been approved by one Party involved in a letter of approval, and confirmed that only entities than its approved as a project participant are included in the PDD.

3.3 Project design document

The PDD (Version 4.0, 10/02/2009) uses the latest template and guidance.

3.4 Project description

The Project activity involves the controlled combustion of municipal solid waste (MSW) to generate electricity and heat in Linyi City, Shandong Province, China. Linyi City disposes of its MSW at the Linyi Landfill Site, a managed anaerobic solid waste disposal site.

- Project Participants: Linyi National Environmental New Energy Co., Ltd.
LUSO Carbon Fund
- Non-Annex 1 Party: China
- Annex 1 Party: Portugal
- Project Site: Hengyuan, Linyi City, Shandong Province, China
- Coordinate of the site: 118°13'46"E, and 35°06'37"N
- Starting date of the project activity: 16/09/2006
- Expected operation lifetime of the project activity: 22 years 00 months
- Starting date of the first crediting period: 01/07/2009, to be updated accordingly by teh secretariat should registration occur after this date

- Length of the first crediting period: 7 years 00 months
- Technology: Two waste-combustion fluidized-bed boilers
One 25MW steam turbine-generator
- Estimate of anticipated reductions in tons of CO₂: 83,399 t-CO₂e/year

Currently in Linyi city, the municipal waste is disposed of to the Landfill site. The PPs install two waste-combustion fluidized bed boilers to avoid methane emissions to ambient air at the landfill site. And steam produced by boilers feeds into a 25 MW turbine-generator and excess steam is exported to customers in a nearby wood-processing industrial park.

The project activity applies the approved methodologies AM0025 (Version 10) and aims to reduce GHG emissions through avoidance of methane emissions at the landfill site, displacement of fossil fuel at an electricity grid and for small boiler users at an industrial park.

The key technology employed is as follows:

- Boilers
 - MSW treatment: max. 500 t/d; rated 400t/d
 - Rated steam: 75 t/h
 - Rated steam temp.: 485 °C
 - MSW:Coal by wt.: 4:1
 - Efficiency: 81 %
- Turbine
 - Rated power: 25 MW
- Generator
 - Rated power: 30 MW
 - Efficiency: 97.4 %

There is one CL remained as follows:

- * There is no description about the monitoring equipments and their locations.
 - *A clear description was provided in the section B.3.*

3.5 Baseline and monitoring methodology

(a) Applicability of the selected methodology to the project activity

- Condition: The project activity involves one or a combination of the following waste treatment options for the fresh waste that in a given year would have otherwise been disposed of in a landfill

The proposed project activity is applicable to the option e) Incineration of fresh waste for energy generation, electricity and heat. The thermal energy generated is exported to a nearby facility. Electricity generated is exported to the grid. The incinerator is rotating fluidized bed or hearth or grate type.

The request for deviation regarding the term “rotating fluidized bed” was submitted on 06/11/2007 as follows:

- *Use of a circulating fluidized bed incinerator does not require an approach to handling the MSW that is not permitted under the methodology.*
- *Although a circulating fluidized bed incinerator may use more fossil fuel, in this case coal, than a rotating type, which will lead to more greenhouse gas emissions in the stack gas, the greenhouse gas*

emissions resulting from the use of fossil fuel in the incinerator are all included as project emissions under standard application of the methodology and, in addition, filtration technology will be installed to reduce all other harmful emissions in the stack gas to well below the level required in national regulations.

- *Coal is added to ensure complete combustion of the MSW. The carbon content of the residual waste in the incinerator will meet the applicability condition requiring that it contains less than 1% residual carbon. As in standard application of the methodology, this will be proven to the DOE at validation.*

The Board decided to accept the request for deviation at EB 37.

- Condition: In the case of incineration of the waste, the waste should not be stored longer than 10 days. The waste should not be stored in conditions that would lead to anaerobic decomposition and, hence, generation of CH₄;

The capacity of the waste stockyard is approximately 5,000 tons and equally for 4-5 days operation.

- In case of waste incineration, the residual waste from the incinerator does not contain more than 1% residual carbon;

The residual waste is less than 1% according to the feasibility report.

- The compliance rate of the environmental regulations during (part of) the crediting period is below 50%; if monitored compliance with the MSW rules exceeds 50%, the project activity shall receive no further credit, since the assumption that the policy is not enforced is no longer tenable;

Currently there is no environmental regulation regarding this condition.

- The project activity does not involve thermal treatment process of neither industrial nor hospital waste.

The waste does not include industrial nor hospital waste.

(b) Project boundary

The project boundary is clearly provided in the section B.3. The monitoring variables and mass/energy flow are provided in Figure 2 in accordance with the requirement of the Guideline.

(c) Baseline identification

The Project activity involves the controlled combustion of municipal solid waste (MSW) to generate electricity and heat in Linyi City.

The validation team confirmed through the Desk Review and Site-visit that:

- 1) All alternative scenarios for MSW management, electricity generation and heat generation are reasonably listed in accordance with the requirements of the methodology.
- 2) The PP listed all key assumptions and data including the relevant national policies and circumstances, the percentage of the waste incineration in China, the number of landfill sites in major sites based on publicly available information;
- 3) The references are correctly quoted and interpreted in the PDD;
- 4) The validation team collected additional information independently;
- 5) The identification of the baseline scenario is appropriate;

Finally, the following alternatives are identified as the baseline in accordance with the steps of the “Tool for the demonstration and assessment of additionality (Version 05)”:

- * M3 Disposal of the waste on a landfill without the capture of landfill gas.
- * P6 Existing and/or new grid-connected power plants.
- * H4 Existing or new construction of on-site or off-site fossil fuel fired boilers.

The validation team considers the set of alternatives are the logical outputs for the baseline scenario of the proposed project activity, taking into account the current laws and regulations, and conditions in China.

(d) Algorithms and/or formulae used to determine emission reductions

1) Project emissions

The following items are in accordance with the methodology and the equations and values applied for ex-ante calculation in all items are appropriate for the methodology: There is no other project emission to be considered, taking into account the amount and composition of MSW and coal as fuel.

- * Emissions from electricity use
- * Emissions from fuel used on-site
- * Emissions from waste incineration
- * Emissions from fossil-based waste
- * N₂O and CH₄ emissions from the stacks due to waste incineration
- * Emissions from wastewater treatment

2) Baseline emissions

For the calculation of the baseline emissions, the following factors are taken into account:

- * Adjustment Factor (AF)
- * Rate of compliance (RATE)
- * Methane generation from the landfill in the absence of the project activity (MB)
- * Baseline emissions from generation of energy displaced by the project activity (BE)
- * Baseline emissions from electricity generated (CEF)

The equations for the calculations of the above items are appropriate for the methodology.

Currently there is no regulation in China, which might affect the factors of AF and RATE and they are to be monitored during the crediting period.

MB was calculated in accordance with the requirements of the “Tool to determine methane emissions avoided from dumping of waste at a solid waste disposal (Version 4)”, and all factors and their values of data are appropriately applied.

The equations for BE calculation are in accordance with the requirements of the methodology. The Option 3 of A for the boiler efficiency in the baseline is selected as the most conservative assumption based on the survey of the PP and 75% is adopted as the efficiency.

CEF was calculated using the “Tool to calculate the emission factor in an electricity system”. The simple OM was selected based on the data/information in the past five years from the North China Power Grid. The simple OM for ex-ante calculation was calculated using the most recent 3-years data (2003- 2005)

at the start of GSP. In the calculation of BM, “above 20%” option was selected. CM (CEF) was calculated as $(OM + BM)/2$ in accordance with the Tool. As mentioned the above, the calculation procedure is appropriate for the methodology and tools. “CO2 emission factor of fossil fuel type” applied is used in accordance with the instruction provided by the Chinese authority.

3) Leakage

The justification is appropriately provided that the Project activity only involves the incineration of MSW.

* Emissions from transportation ($L_{t,y}$)

The equation used for the calculation of the leakage emission is appropriately introduced from the methodology. The values applied for ex-ante calculation are appropriate, too.

4) Emission reductions

The equation used and the values applied are appropriate for the methodology.

5) The calculations of the baseline, project and leakage emissions are calculated in accordance with the methodology. And also, the emission reductions are calculated ex-ante according to the methodology.

3.6 Additionality of the project activity

(a) Prior consideration of the CDM

There were one CAR and one CL remained as follows:

CAR: the minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant was not provided.

- *The minutes of the Board meeting (04/07/2007) was provided and its summary is as follows:*
 - i) *The project activity is a renewable power generation project. The financial indicator of the project activity is not good, although it is beneficial for the environmental protection. And the company believes that this project could reduce the investment risk and became profitable by applying as CDM project.*
 - ii) *The Board designated the responsible member of the Board for CDM application task.*

CL: There was no description about the timelines (implementation timeline and events/actions timeline).

- The implementation timeline appropriately described:
 - *Initial Feasibility Study* Jul 22nd, 2002
 - *Update of Feasibility Study* Jun 2006
 - *Financial closure* July 2006
 - *DRC permission to begin construction* Sep 7th, 2006
 - *Signing of construction contract for project (Project start date)* Sep 16th, 2006
 - *Starting date of operation* Nov 2007
- The events/actions timeline appropriately described:
 - *Board decision to apply for CDM* Jul 4th, 2006
 - *Hiring of local CDM consultant* Jul 5th, 2006
 - *Development of PIN* Jul 2006
 - *Hiring of Mitsubishi UFJ Securities as CDM consultant* Oct 12th, 2006

- Stakeholders' consultation Dec 27, 2006
- AM_REV_0031 – application to widen scope of AM0025 to include MSW incineration with energy generation Jan 25th, 2007
- Revision of AM0025 to include MSW incineration with energy generation May 2-4, 2007
- Hiring of DOE Sep 7th, 2007
- PDD first published for public comments Oct 2nd, 2007
- Request for deviation Nov 8th, 2007
- Site visit by DOE Jan 15-17, 2008
- Acceptance of request for deviation by EB Feb 1st, 2008
- China DNA review meeting May 13th, 2008
- PDD re-published for public comments May 29th, 2008

(b) Identification of alternatives

In line with the methodology, there are three alternatives identified for MSW management, six for electricity generation and seven for heat generation.

(c) Investment analysis

In accordance with the requirement of “Tool for the demonstration and assessment of additionality, “Option III – Apply benchmark analysis” was conducted.

- * The benchmark is adopted a national benchmark for energy generation projects of 8% (after tax).
- * The assumptions/sources for the calculation of the project IRR are explicitly explained and appropriate for the requirements of the tool:
 - Initial capital cost: Based on Quote
 - Fuel cost(coal)/year: Based on the estimation in the feasibility study
 - O & M cost/year: 3% of the initial capital cost
 - Electricity tariff: Average local price (0.36 Yuan/kWh)
 - Thermal energy tariff: Average local price
 - Project IRR: 5.20 %
- * The validation team cross-checked the Initial capital cost (ICC) and Electricity tariff by publicly available documents and then, the estimate of the proposed project activity is considered as reasonable.

➤ Initial capital cost

	MSW, t/d	ICC million Yuan	Power GWh/y	Ref.
Proposed project	800	238.98	131.274	PDD
Ex. 1 in Taian City	800	250	119	Ref. No. 36
Ex. 2 in Suzhou	1,000	530	100	Ref. No. 30
Ex. 3 in Changshu	600	470	56	Ref. No. 30
Ex. 4 in Kunshan	1,000	300	44	Ref. No. 30
Ex. 5 in Wujiang	600	270	74	Ref. No. 30

➤ Electricity tariff

- The electricity tariff for this project activity is based on the notice from the Price department of Shangdong province (29 June 2006) (Ref. No. 19)
- Fuel cost (coal)
 - Receipts for coal purchased by plant
- O & M cost.
 - Interviews during Site-visit/ NDRC approved documents
- * The sensitivity analysis covers +/- 10% for key parameters such as Electricity tariff, Thermal energy tariff, Equipment and plant costs, Fuel costs and O&M costs. In any cases, their values are lower than 8%.
- * Accordingly, the proposed project activity is financially additional.

(d) Barrier analysis

As mentioned above, the sensitivity analysis concludes that the proposed CDM project activity is unlikely to be financially attractive. Accordingly, it is appropriate that the Barrier analysis is skipped.

(e) Common practice analysis

- * How the geographical scope of the common practice analysis has been validated;
 - Shandong is the second most populous province in China with a population of around 90 million (<http://www.stats.gov.cn/english/>). This is larger than the population of most countries and can therefore be considered a reasonable region to which to limit the scope of the common practice analysis. Additionally, as highlighted by the PP, in the expert review required for the LoA application to the China DNA, the experts' opinions are consistently in line with this understanding. Therefore, for Chinese CDM projects, it has become standard practice to limit the common practice analysis to the provincial level.
- * How the DOE has undertaken an assessment of the existence of similar projects;
 - The validation team independently confirmed that the summary of the common practice analysis in the PDD is consistent with the references provided in the PDD.
 - The validation team found a several related documents on internet website:
 - China waste management: Working paper for streams technology programme (17 May 2004)
 - Municipal Solid Waste Management by UNDP 2.2 Regional Overviews and Information Sources/Asia: (no date)
 - Development and prospects of MSW incineration in China (Environ. Sci. Engin. China 2008)
 - Status and Development Prospect on Municipal Solid Waste Incineration Technology in Our Country (November, 2007)
 - Application Prospect and Countermeasures of Domestic Refuse Incineration for Electric Power Generation (29/06/2007)
 - Technical Aspect and Development Forecast of Domestic Refuse

- Incineration
 - China Waste Management: Working paper for streams technology programme (17/05/2004)
- * How the DOE has assessed the essential distinctions between the proposed CDM project activity and any similar projects that are widely observed and commonly carried out;
 - The validation team found that the identified projects that are similar to the project activity face financial obstacles without CERs.
- * Confirmation by the DOE that the proposed CDM project activity is not common practice.
 - The validation team confirmed through the steps described above together with the review of documentation provided by the PP and obtained independently by the team that the proposed CDM project activity is not common practice in Shandong, China.

3.7 Monitoring plan

(a) Compliance of the monitoring plan with the approved methodology

- (i) Identification of the list of parameters in the methodology
 - * AM0025 Version 10
 - Project emissions
 - Emissions from electricity use (see “Tool to calculate the emission factor for an electricity system”)
 - Emissions from fuel use on-site ($F_{cons,y}$)
 - Emissions from waste incineration (A_i , CCW_i , FCF_i , EF_i , EF_{N2O} , EF_{CH4})
 - Emissions from wastewater treatment ($Q_{COD,y}$, $P_{COD,y}$)
 - Baseline emissions
 - Adjustment Factor (AF)
 - Rate of compliance ($RATE_{compliance}$)
 - Methane generation from the landfill in the absence of the project activity (see “Tool to determine methane emissions avoided from dumping at a solid waste disposal site”)
 - Baseline emissions from generation of energy displaced by the project activity ($EG_{d,y}$, Q_y)
 - Leakage emissions
 - Emissions from transportation ($NO_{vehicles,i,y}$, $DT_{i,y}$, VF_{cons} , NCV_{fuel} , EF_{fuel})
 - * Tool to calculate the emission factor of an electricity system (OM and BM are calculated ex-ante based on the most recent information available at the time of the PDD submission)
 - * Tool to determine methane emissions avoided from dumping at a solid waste disposal site (f , W_x , $p_{n,j,x}$, z)
- (ii) Confirmation of all necessary parameters
 - * The monitoring plan missed several parameters to be monitored in the section B.7.1: EF_{N2O} , EF_{CH4} , $P_{COD,y}$
 - * The measures of monitoring are clearly provided.]

(b) Implementation of the plan

(i) Feasibility of the monitoring plan

- * As described in the section B.7.2, the project will be managed by staff at CECIC Blue-Sky Investment Consulting & Management Co., Ltd, a subsidiary of China National Environmental Protection Corporation.
- * The monitoring plan includes several key issues such as Monitoring framework, Monitoring equipment and installation, Data collection, Calibration, Data management and Monitoring report.
- * This monitoring plan is practical and has no technological barrier to be overcome for an experienced company in this field such as CECIC Blue-Sky.
- * The validation team considers the monitoring plan is feasible.

(ii) Sufficiency of data management and QA/QC procedures

- * In the monitoring plan, the data management and QA/QC procedures are clearly explained.
- * The details (e.g. names of relevant standards and regulations) are to be defined prior to the start of the first crediting period.

3.8 Sustainable development

The approval letter of China (host Party) dated on 30 July 2008 clearly states the proposed project activity “assists China in achieving sustainable development”.

3.9 Local stakeholder consultation

The validation team confirmed the followings through the interviews with several local governmental officials, who attended the consultancy meeting held on 27 December 2006.

They were invited with the announcement in a local daily newspaper, on the internet and through the posters. 37 people including local governmental officials attended the meeting.

The concerns raised were as follows:

- * The production of dioxins during the combustion process
- * Whether the Project activity's handling process for MSW would lead to any pollution of the local environment
- * Whether the proportion of MSW to coal would meet the national standards.

The owners appropriately responded to these concerns and the local stakeholders were satisfied.

3.10 Environmental impacts

The validation team confirmed the followings.

The environmental impact assessment report of the proposed project activity was completed. In the report, the analysis of environmental impacts by the project was conducted, taking into account relevant regulations such as MSW Combustion Emission Standard, Stench Emission Standard, Integrated Wastewater Emission Standard, Industrial Enterprise Boundary Noise Standard, Construction Boundary Noise Limitation and Technical Guidance of Stack Gas Emission Monitoring in Coal/Oil-Fired Power Plant.

The report has been approved by the Environment Protection Bureau of Shandong Province (03 August 2007).

4 GLOBAL STAKEHOLDER PROCESS

1) Description of how and when the PDD was made publicly available:

The comments by Parties, stakeholders and NGOs for PDD/Version 1.0 (28 September 2007) were invited from 15/09/2007 to 14/10/2007 on the UNFCCC website.

And for PDD/Version 3.0 (27 May 2008), the GSP was conducted from 29 May 2008 to 27 June 2008 on the UNFCCC website.

2) Description of how comments were received and made publicly available:

There was one comment received through the JQA website on October 14, 2007 7:00 PM. The comment has been publicly available on the following URL:

http://www.jqa.jp/service_list/environment/service/cdm/detail_of_project_msw.html

There was no comment received for the second GSP.

3) Explanation of how due account has been taken of comments received:

The validation team considered the comment includes two issues.

One is regarding "Deviation from AM0025 applicability condition".

For this issue, JQA submitted the "Request for deviation" to CDM-EB on 08/11/2008 and got the following decision: "The CDM-EB decided to accept the request for deviation".

Another issue is to be discussed in the validation process.

As the result, the validation team concluded that the comment does not affect a significant impact on the proposed project activity as follows:

- AM0025 does not exclude the use of coal by 20 wt%, if the emission reductions generated only from MSW has been appropriately evaluated in the PDD.
- The reference in the comment is regarding the Chinese criteria for incentives of renewable energy. If the coal usage is lower than 8%, the project may sell the electricity generated to the grid at a higher price.

4) Compilation of all comments received:

From: <teresachang@consultant.com>

To: <publiccomment@jqa.jp>

Sent: Sunday, October 14, 2007 7:00 PM

Subject: [publiccomment:00052] Public Comment --Controlled combustion of municipal solid waste (MSW) and energy generation in Linyi City, Shandong, China (the Project activity or the Project) --

■ Name

Teresa Chang

■ Mr. or Ms.

Ms.

■ FAX

86-13701213042

■ Country

China

■ Organization

Green Energy Consulting

■ Email

teresachang@consultant.com

■ Comment

This project uses Circulating Fluidized Bed technology for waste incineration, not rotating fluidized bed or hearth or grate type as indicated in the

methodology.

The project annually co-fires 73,000 tons coal to produce power, which equals to 20% of the waste combusted in quantity. Actually more than 50% of power generated is contributed from this portion of coal.

This project is hard to be said as a MSW combustion project. Even the Chinese regulation deems it as a coal fired power plant instead of an encouraged renewable energy project (http://www.gov.cn/ztlz/2006-01/20/content_165910.htm), which indicated projects with the ratio of the fossil fuel consumption higher than 20% of the gross heat consumption should be treated as conventional power plant. In waste combustion case, it means coal usage must be lower than roughly 8% in overall quantity.

5 VALIDATION OPINION

1. JQA performed the validation of “Controlled combustion of municipal solid waste (MSW) and generation in Linyi City, Shandong, China” by conducting Desk Review of the PDD (ver. 1.0 - 4.0) presented by Mitsubishi UFJ Securities Co., Ltd., in view of the UNFCCC, the Kyoto Protocol, Decision 3/CMP.1, relevant decisions of COP/MOP and the CDM-EB and Chinese environmental laws and regulations, and also by making follow-up interviews including investigation of the Site-visit to China.
2. The baseline scenario is appropriately established according to AM0025 (Version 10).
3. The additionality of the project is successfully demonstrated in accordance with “Tool for the demonstration and assessment of additionality (Version 05)”, especially taking into account Benchmark analysis and Sensitivity analysis. IRR is also transparently illustrated.
4. The emission reductions are evaluated in accordance with the instruction provided by the Chinese Authority.
5. The minutes related to the consideration of the decision by the Board of Directors of the project participant state that the financial indicator of the project activity is not good although it is beneficial for the environmental protection. And the CDM is useful for increasing the benefits and lowering the financial risks.
6. Other issues such as environmental impacts and local stakeholder consultation are appropriate for the requirements.
7. Letters of approval by the Parties involved have been issued, and MoC has been issued.
8. The emission reduction described in the PDD is 83,399 tons/year.

6 CONCLUSION

1. The validation team confirmed that the project activity meets all relevant UNFCCC and Host Party criteria. It is stated in the PDD that the proposed CDM project aims to contribute to the sustainable development in China due to several reasons, and this was confirmed through the LoA issued by the DNA of China. The total estimate of GHGs emission reduction by the project activity will amount to 583,796 t-CO₂e/7 years.

2. Through the Certification Committee deliberation, JQA determined the project activity to be valid as a CDM project activity.

7 REFERENCES

Category 1 Documents:

- 1 PDD (Version 1.0 - 4.0)
- 2 CER calculation (29/01/2009)
- 3 Letter of Approval of Portugal (27/11/2008)
- 4 Letter of Approval of China (30/07/2008)
- 5 Modalities of Communication (dated on 17/02/2009)

Category 2 Documents:

- 6 FS report (revision version, June 2006) "Linyi National Environmental New Energy Co., Ltd. Waste Combustion comprehensive utilization project"
- 7 Approval letter [2002] No.12 for EIA report, Environmental Protection Bureau, Shandong Province (22/07/2002)
- 8 Approval letter [2006] No.119 for EIA report on "Project Entity Modification of Linyi MSW Power Generation Project", Environmental Protection Bureau, Shandong Province (20/09/2006)
- 9 Approval letter [2007] No.429 for EIA report on "Installed Capacity Modification of Linyi MSW Power Generation Project", Environmental Protection Bureau, Shandong Province (03/08/2007)
- 10 Approval letter, Development and Reform Commission, Shandong Province Boiler Guidance [UG-75/5.3-MT 27T-SM1(A)], Wuxi Huaguang Boiler Co., Ltd.)October, 2002)
- 11 Permission of Construction (19/10/2006)
- 12 25MW Turbine Guidance [C25-4.90/0.981-4], Nanjing Turbine Engine Co., Ltd. (October, 2003)
- 13 Power Generation Guidance [QFW-30-2C, 10.5KV], Nanjing Turbine Engine Co., Ltd. (November, 2006)
- 14 Implementation Guidance to Top-Ten Energy Conservation Projects of 11th Five-Year Plan, National Development and Reform, Chinese Government
- 15 Explanation on Efficiency of Little Boilers in Linyi, Special Detection Equipment
- 16 Institute of Linyi (06/06/2008)
Copies of the base document regarding the boiler efficiency
- 17 Waste Component Analysis Report No. EMCL-JL-BG-HW200611042, Linyi Energy Monitoring Center (16/11/2006)
- 18 Issuance Notice [2006] No.1864 of "Encourage Implementation of Comprehensive Resource Utilization by Central Government", National
- 19 Development and Reform Commission, Ministry of Finance and State Taxation Bureau, Chinese Government (07/09/2006)
- 20 Notice of Tariff Price Adjustment in Shandong Province [2006] No.94,
- 21 Development and Reform Commission and Price Bureau, Linyi City (17/07/2006)
CECIC internal document [1996] No.21 "Issuance Notice of Regulating Capital
- 22 Utilization of CECIC Projects", CECIC
- 23 Minutes of the stakeholder consultancy meeting with Registration table of attendance of the stakeholder consultancy meeting (27/12/2006)
- 24 Board meeting minutes (04/07/2006)
- 25 Agreement for Consulting Services (12/10/2006)
- 26 F-CDM-DEV/Request for deviation (06/11/2007)
- 27 EB decision on Request for deviation
- 28 Construction contract (16/09/2006)

Construction contract (

Category 3 documents:

- 29 Development and prospects of municipal solid waste (MSW) incineration in China (28/20/2007)
- 30 Status and Development Prospect on Municipal Solid Waste Incineration Technology in Our Country (November, 2007)
- 31 Application Prospect and Countermeasures of Domestic Refuse Incineration for Electric Power Generation (29/06/2007)
- 32 Technical Aspect and Development Forecast of Domestic Refuse Incineration
- 33 Newsletter and Technical Publications <Municipal Solid Waste Management>, UNEP, 2.2 Topic d: Incineration East Asia/Pacific
- 34 China Waste Management: Working paper for streams technology programme (17/05/2004)
- 35 e-mail to NDRC of China on 04/02/2009 (Subject: Request for clarification on 2008 Baseline Emission Factors for Regional power Grids in China)
- 36 e-mail from NDRC of China on 09/02/2009 (Subject: Request for clarification on 2008 Baseline Emission Factors for Regional power Grids in China)
- 37 <http://www.eedu.org.cn/news/etech/home/200605/7935.html>

LIST OF INTERVIEWED PERSONS

- | | | |
|----|---------------------|---|
| 1 | Mr. Yao Shu-hua, | Department Director, Linyi DRC |
| 2 | Mr. Wang Zhong-en, | Deputy Department Director, Linyi Environmental Health Bureau |
| 3 | Mr. Ren Qing-yu, | Deputy Director, Linyi State-Asset Committee |
| 4 | Mr. Wang Hui, | Engineer, Linyi Environmental Protection Bureau |
| 5 | Ms. Wang Yu, | Officer, Linyi Environmental Protection Bureau |
| 6 | Mr. Shengtao Hong, | Mitsubishi UFJ Securities |
| 7 | Mr. Hong Soon Chan, | Mitsubishi UFJ Securities |
| 8 | Mr. Joseph Cairnes, | Mitsubishi UFJ Securities |
| 9 | Ms. Chen Ying, | Vice Director, CECIC |
| 10 | Ms. Ding Hang, | Director, CECIC Blue-Sky |
| 11 | Ms. Li Xiaozhen, | Project Manager, CECIC Blue-Sky |
| 12 | Ms. Su-xing, | CECIC Blue-Sky |
| 13 | Mr. Zhang Yi-long, | General Manager, Linyi National Environmental New Energy |
| 14 | Ms. Xu Hou-li, | Vice General Manager, Linyi National Environmental New Energy |
| 15 | Mr. Yu Hai-tao, | Deputy Department Director, Linyi National Environmental New Energy Co., Ltd. |

CDM VALIDATION CHECKLIST

Mitsubishi UFJ Securities

“Controlled combustion of municipal solid waste (MSW)
and generation in Linyi City, Shandong, China”

Project No. JQA-C0072

24 April 2009



Japan Quality Assurance Organization

Table 1 Comprehensive Checklist for CDM Project Activities

Requirements	Reference	Conclusion	Evidence
1. The purpose of the CDM	Kyoto Protocol Article 12.2		
1.1. The project activity shall assist the host country in achieving sustainable development		OK	LoA of China dated on 30/07/2008
1.2. The project activity shall assist the host country in contributing to the ultimate objective of the Convention.		OK	Ditto
1.3. The project activity shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.		OK	LoA of Portugal dated on 27/11/2008
2. Emission reductions resulting from the project activity shall be certified by DOE on the basis of:	Kyoto Protocol Article 12.5		
2.1. Voluntary participation approved by each Party involved (and Authorization of a private and/or public entity)	(a)	OK	LoA of China dated on 30/07/2008
2.2. Real, measurable and long-term benefits related to the mitigation of climate change	(b)	OK	
2.3. Reductions in emissions that are additional to any that would occur in absence of the project activity	(c)	OK	
3. CDM Modalities and Procedures (Decision 17/CP. 7)	Paragraph 37		
3.1. Participation requirements	(a)	-	
3.1.1. Participation in a CDM project activity is voluntary.	Paragraph 28	OK	LoA of China dated on 30/07/2008
3.2. A written approval constitutes the authorization by a designated national authority (DNA) of specific entity(ies)' participation as project proponents in the specific CDM project activity. The approval covers the requirements of paragraphs 33 and 40 (a) and (f) of the CDM modalities and procedures.	CDM Glossary Version 04	OK	LoA of China dated on 30/07/2008

Appendix A

3.2.1. Parties participated in the CDM shall designate a national authority for the CDM.	Paragraph 29	OK	http://maindb.unfccc.int/public/country.pl?group=kyoto
3.2.2. A host country may participate in a CDM project activity if it is a Party to the Kyoto Protocol.	Paragraph 30	OK	http://maindb.unfccc.int/public/country.pl?group=kyoto
3.3. Comments by local stakeholders	37 (b)	OK	Table 2 of this report: Section E
3.4. Analysis of the environmental impacts of the project activity	37 (c)	OK	Table 2 of this report: Section D
3.5. Additionality	37 (d)	OK	Table 2 of this report: Section B
3.6. Use of the approved baseline and monitoring methodologies	37 (e)	OK	AM0025/Version 10
3.7. Provisions for monitoring, verification and reporting	37 (f)	OK	Table 2 of this report: Section B
3.8. Other requirements including relevant decisions by the COP/MOP and the executive board	37 (g)	OK	Table 2 of this report: Section A, C
3.9. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for 30 days, and the project design document and comments have been made publicly available.	40 (c)	OK	<p>PDD/Version 1.0 (28 September 2007) for AM0025/Version 09</p> <p>Start date: 02/10/2007</p> <p>Close date: 31/10/2007</p> <p>One comment received on 14/10/2007</p> <p>PDD/Version 3.0 (27 May 2008) for AM0025/Version 10</p> <p>Start date: 29/05/2008</p> <p>Close date: 27/06/2008</p> <p>No comment received.</p>
4. PDD Format	CDM Guidelines (Version 07)		
4.1. If project participants wish to submit a project activity for validation and registration, they shall submit a fully	PART I	OK	PDD Version 4.0, 10/02/2009

Appendix A

	completed CDM-PDD.	Paragraph 3		
4.2.	The CDM-PDD shall be completed and submitted in English language to the Executive Board.	PART I Paragraph 12	OK	
4.3.	The CDM-PDD template shall not be altered, that is, shall be completed using the same font without modifying its format, font, headings or logo.	PART I Paragraph 13	OK	
4.4.	Tables and their columns shall not be modified or deleted. Rows may be added, as needed.	PART I Paragraph 14	OK	
4.5.	The CDM-PDD shall include in A.1 the version number and the date of the document.	PART I Paragraph 15	OK	
4.6.	If section of the PDD is not applicable, it shall be explicitly stated that section is left blank on purpose.	PART I Paragraph 16	OK	
4.7.	The CDM-PDD is not applicable to A/R CDM project activity.	PART I Paragraph 17	OK	
5. Modalities of communication		CDM Glossary Version 04		
5.1	The modalities of communication between project participants and the Executive Board are indicated at the time of registration by submitting a statement signed by all project participants.	CDM-EB 45 Annex 60	OK	MoC dated on 17/02/2009

Table 2 PDD Requirements

Section	Requirements	MoV	Comments	Draft Conc.	Final Conc.
Section A	General description of the project activity				
A.1	Title of the project activity				
	Title of the project activity	DR		OK	
	Version number and date of the doc.	DR	Version 1.0, 28/09/2007 Version 3.0, 27/05/2008 Version 4.0, 10/02/2009	OK	OK
A.2	Description of the project activity				
	The purpose of the project activity * Scenario existing prior to the start of the implementation of the project activity * Project scenario * Baseline scenario	DR	- Disposing of all MSW at landfill is acceptable according to the waste disposal guidelines. - The project activity involves the controlled combustion of MSW to generate electricity and heat in Linyi City. - Disposing of all MSW at landfill is acceptable according to the waste disposal guidelines.	OK	OK OK OK
	What type of technology is being employed What exact measures are undertaken	DR	- Combustion of MSW (800 tonnes /day) - Circulating fluidized bed boilers, steam turbine and generator	OK	
	The view of the PPs on Contribution to SD	DR	- Avoided MSW dumping - Job creation - Renewable energy production, reducing consumption of fossil fuels	OK	
A.3	Project participants				
	List of PPs and Parties involved	DR		OK	
	Provide contact information in Annex 1	DR	The table of A.3 is not consistent with Annex 1. <i>Correction was made in the revised PDD.</i>	CAR 1	OK

Appendix A

A.4	Technical description of the project activity				
A.4.1	Location of the project activity				
A.4.1.1	Host Party	DR	China	OK	
A.4.1.2	Region/State/Province, etc.	DR	Shandong Province	OK	
A.4.1.3	City/Town/Community, etc.	DR	Hengyuan, Linyi City	OK	
A.4.1.4	Detail of physical location				
	Fill in the field and do not exceed one page.	DR	Co-ordinates and Maps	OK	
A.4.2	Type and category(ies) and technology				
	Specify the category into which this project activity falls.	DR	Sectoral Scope 1 and 13	OK	
A.4.3	Technology to be employed by the project activity				
	<p>What kinds of technologies are employed?</p> <ul style="list-style-type: none"> * Scenario existing prior to the start of the implementation of the project activity * Scope of activities/measures * Baseline scenario <p>Description of scenarios</p> <ul style="list-style-type: none"> * A list and the arrangement of the main manufacturing/production technologies, systems and equipments involved. Include in the description information about the age and average lifetime of the equipments based on manufacturer's specifications 	DR	<p>Specifications of Turbine, Generator and Boilers</p> <ul style="list-style-type: none"> - <i>Described in the section A. 2.</i> - <i>The project activity involves the construction of a MSW incineration plan.</i> - <i>There are three lists of key specifications (Turbine, Generator, CFB boilers) provided.</i> - <i>All equipment are newly installed and the plant has been designed to have an operational lifetime of approximately 22 years</i> 	OK	<p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p>

	<p>and industry standards, and existing and forecast installed capacities, load factors and efficiencies. The monitoring equipments and their location in the systems is of particular interest;</p> <ul style="list-style-type: none"> * Emission sources and GHGs involved in the project activity, according to the methodology used; and existing and forecast energy and mass flows and balances of the systems and equipments included in the project activity; * Types and levels of services provided by the systems and equipments <p>The description should clearly explain how the same types and levels of services provided by the project activity would have been provided in the baseline scenario.</p> <p>How environmentally safe and sound technology, and know-how to be used, is transferred to the host Party.</p>		<ul style="list-style-type: none"> - <i>There is no description about the monitoring equipments for Fcons, Wx, EGd, Qy and their location.</i> - <i>Those are resolved in the final PDD.</i> - <i>Emission sources and GHGs are described in the section B.3.</i> - <i>The outline of mass and energy balances are listed.</i> - <i>Electricity for displacing grid-generated electricity</i> - <i>Thermal energy for displacing the steam produced in small coal-fired boilers.</i> <p>Descriptions of environmentally safe and sound technologies such as air and water pollution controls and waste treatment</p>	CL	<p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p>
A.4.4	Estimated amount of emission reductions				
	Indicate the chosen crediting period	DR	Renewable 7 years	OK	

Appendix A

	Provide the total estimation of emission reductions as well as annual estimates. Information on the emission reduction shall be indicated using the format.	DR	Total: 583,796 tCO ₂ e/7 years Average: 83,399 tCO ₂ e/year The annual change of emission reductions is appropriately expressed.	OK OK	
A.4.5	Public funding of the SS project activity				
	In case public funding from Annex 1 Parties, provide information in Annex 2.	DR	No public funding from Annex 1	OK	
Section B	Application of a baseline and monitoring methodology				
B.1	Title and reference of the approved baseline and monitoring methodology applied				
	Refer to the UNFCCC CDM web site <ul style="list-style-type: none"> - Approved methodology(ies) and version(s) - Tools and their versions 	DR	Methodologies applied: AM0025 version 10 <ul style="list-style-type: none"> - The latest version on the starting date of GSP (29/05/2008) Tool to calculate the emission factor of an electricity system (Version 01) <ul style="list-style-type: none"> - The latest version on the starting date of GSP (29/05/2008) Tool for the demonstration and assessment of additionality (Version 05) <ul style="list-style-type: none"> - The valid version on the date of the request for registrations Tool to determine methane emissions avoided from dumping at a solid waste disposal site (Version 02) <ul style="list-style-type: none"> - The latest version on the starting date of GSP (29/05/2008) 	OK	OK OK OK OK
B.2	Justification of the choice of the methodology and why it is applicable to				

Appendix A

	the project activity				
	<p>Justify the choice of methodology by showing that the proposed project activity meets each of the applicability conditions.</p> <p>Explain documentation has been used and provide the references to the document or include the documentation in Annex 3.</p>	<p>DR</p> <p>DR</p> <p>DR</p> <p>SV</p> <p>DR</p> <p>SV</p>	<p>The choice of AM0025 applied to the project activity is justified. Whether the methodology includes “Circulating fluidized bed” as one of applicability conditions or not is to be clarified by the EB as a deviation from AM0025.</p> <p><i>The CDM-EB decided to accept the request for deviation (CDM-EB 37). (http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_M3LB5YOGYRF3TYQ0LA5L7NOJP8V795).</i></p> <p>Explanation is OK, while several documents referred are to be provided at Site-visit.</p> <p><i>Confirmed at Site-visit and related documents are provided.</i></p> <p>Reporting timing of Note 2 is to be confirmed at Site-visit</p> <p><i>The description in the PDD regarding the “compliance rate” is revised in accordance with the current situation.</i></p>	<p>N/A</p> <p>N/A</p> <p>N/A</p>	<p>OK</p> <p>OK</p> <p>OK</p>
B.3	Description of the sources and gases included in the project boundary				

Appendix A

	<p>Describe which emission sources and gases are included in the project boundary for the purpose of calculation project emissions and baseline emissions, using the table.</p> <p>Present a flow diagram of the project activity</p> <p>In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, explain and, where necessary, justify the choice.</p>	<p>DR</p> <p>SV</p> <p>DR</p> <p>DR</p>	<p>The Project boundary is shown in Figure 2. Detailed material and energy flow are to be confirmed at Site-visit.</p> <ul style="list-style-type: none"> - <i>Confirmed at the project site.</i> - <i>The monitoring variables are to be provided in Figure 2..</i> <ul style="list-style-type: none"> ➤ <i>Appropriately provided.</i> 	<p>N/A</p> <p>CL</p> <p>OK</p>	<p>OK</p> <p>OK</p>
B.4	Description of how the baseline scenario is identified and description of the identified baseline scenario.				
	<p>Explain how the most plausible baseline scenario is identified. Where the procedure involves several steps, describe how each step is applied and transparently document the outcome of each step.</p> <p>Explain and justify key assumptions and rationales.</p> <p>Provide relevant documentation or references. Illustrate in a transparent manner all data used to determine the baseline scenario (variables, parameters, data sources etc.), preferably in a table form.</p>	<p>DR</p> <p>SV</p>	<p>The most plausible baseline scenario regarding the disposal of waste at a landfill is identified in accordance with AM0025.</p> <p>Key assumptions and rationale are to be confirmed at Site-visit.</p> <p><i>The assumptions and parameters regarding Linyi landfill site, IRR calculation, MSW transportation, etc., are confirmed at Site-visit. And the data and information of the boiler efficiency are provided.</i></p>	<p>OK</p> <p>N/A</p>	<p>OK</p>

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	Provide a transparent and detailed 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 project activity, taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector.	SV	The description is to be confirmed at Site-visit. <i>The description is confirmed through interview with local governmental officials and observation of the project site and landfill site.</i>	N/A	OK
B.5	Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality)				
	Explanation of how and why this project activity is additional and therefore not the baseline scenario in accordance with the selected baseline methodology. Where the procedure involves several steps, describe how each step is applied and transparently document the outcome of each step. Explain and justify key assumptions and rationales, including contractual requirements, mandatory regulations,	DR	The additionality tool is applied. The PDD description is OK. However, details of assumptions/sources/values (IRR benchmark and other financial details) are to be confirmed	OK N/A	

	or other requirements.	SV	<p>at Site-visit.</p> <p><i>The assumptions and parameters regarding the benchmark and financial indicators are appropriate:</i></p> <ul style="list-style-type: none"> ➤ <i>Electricity tariff is based on Notice issued by Shandong Province.</i> ➤ <i>Initial investment cost is based on Quotes.</i> ➤ <i>The fuel cost (coal) is based on the FS.</i> ➤ <i>The IRR calculation reflects the period of expected operation.</i> ➤ <i>The benchmark is based on the publicly available source edited by NDRC.</i> ➤ <i>The sensitivity analysis is appropriately conducted.</i> 	OK	OK
	<p>Provide relevant documentation or references.</p> <p>Illustrate in a transparent manner all data used to assess the additionality of the project activity (variables, parameters, data sources etc.), preferably in a table form.</p>	DR	<p>Data sources are clearly identified.</p> <p><i>The validation team confirmed through the steps described in the main text together with the review of documentation provided by the PP and obtained independently by the team that the proposed CDM project activity is not common practice in Shandong, China</i></p>		OK
	<p>If the starting date of the project activity is before the date of validation, provide evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity. This evidence shall be based on (preferably official, legal and/or other</p>	SV	<ul style="list-style-type: none"> - <i>The starting date of the project activity is 07/09/2006, on when the Notice from NDRC was issued.</i> - <i>The approval for construction to begin was issued on 19/09/2006. the date the construction contract for the plant was signed.</i> 		OK

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	<p>timeline of the proposed CDM project activity. The timeline should include, where applicable, the date when the investment decision was made, the date when construction works started, the date when commissioning started and the date of start-up (e.g. the date when commercial production started). In addition to this implementation timeline project participants shall provide a timeline of events and actions which have been taken to achieve CDM registration, with description of the evidence used to support these actions.</p>		<p><i>of the decision by the Board of Directors is not provided.</i></p> <p>➤ <i>The minutes of the Board meeting were provided.</i></p>		OK
B.6	Emission reductions				
B.6.1.	Explanation of methodological choices:				
	<p>Explain how the procedures, in the approved methodology to calculate project emissions, baseline emissions, leakage emissions and emission reductions are applied to the proposed project activity. Clearly state which equations will be used in calculating emission reductions.</p>	<p>DR</p> <p>DR</p>	<p>The additional leakage item regarding “ash transportation to disposal site” should be considered, although the whole amount of ash might be sold.</p> <p>- <i>There is no transportation to disposal site. The plans for sale of the ash to the cement factory and the distances involved were confirmed.</i></p>	<p>OK</p> <p>CL1</p>	OK
B.6.2	Data and parameters that are available at validation				
	This section shall include a	DR	“Adjustment Factor (AF)” is not listed in the	CL 2	

	<p>compilation of information on the data and parameters that are not monitored throughout the crediting period but that are determined only once and thus remains fixed throughout the crediting period AND that are available when validation is undertaken.</p>	DR	<p>section B.6.2, while it is taken into account in the section B.6.1.</p> <ul style="list-style-type: none"> - <i>“AF” is listed in B.6.2 in the revised PDD</i> 		OK
	<p>Provide for each data or parameter the chosen value or, where relevant, the qualitative information, using the table provided.</p>	DR		OK	
	<ul style="list-style-type: none"> - Provide the actual value applied. 	DR	<p>The value of Energy efficiency of boilers is to be checked.</p>	CL3	
		SV	<p><i>The boiler efficiency has been applied as 75% as the highest and most conservative value, taking into account statistical uncertainty.</i></p>		OK
	<ul style="list-style-type: none"> - Explain and justify the choice for the source of data 		<p>The MCF value applied is confirmed at Site-visit.</p>	N/A	
		DR	<p><i>The management and control of the disposal site is good and meets the criteria as “anaerobic managed solid waste disposal site”</i></p>		OK
	<p>Provide clear and transparent references or additional documentation in Annex 3.</p>	SV		CAR	
	<ul style="list-style-type: none"> - Where values have been measured, include a description of the measurement methods and procedures (e.g. which standards have been used), indicate the 	SV	<p><i>The details regarding data for the North China Power Grid are shown in Annex 3. However, the values of EFs are not consistent with the requirement of “Tool to calculate the emission factor of an electricity system”.</i></p> <ul style="list-style-type: none"> - <i>JQA received the comment from Chinese Authority (CDM Project Management</i> 		OK

	<p>responsible person / entity having undertaken the measurement, the date of measurement(s) and the measurement results.</p> <ul style="list-style-type: none"> - More detailed information can be provided in Annex 3. 		<p><i>Center, Energy Research Institute, NDRC) on 09/02/2009:</i></p> <p><i>"Baseline Emission Factors for Regional power Grids in China" is released by China DNA and updated annually. Till now, all PDDs related to China power grids CO2 EF are referring this document and the parameters defined in this document. Some projects have already been registered. CDM EB recognize the authority of this document. It is same for 2008 version of course.</i></p>		
B.6.3.	Ex-ante calculation of emission reductions				
	<p>Provide a transparent ex-ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage emissions expected during the crediting period, applying all relevant equations provided in the approved methodology.</p> <p>Use estimations for parameters that are not available when validation is undertaken or that are monitored during the crediting period.</p> <p>Document how each equation is applied, in a manner that enables the reader to reproduce the calculation.</p> <p>Where relevant, provide additional background information and/or data in Annex 3, including relevant</p>	<p>DR</p> <p>SV</p>	<p>The calculation of Baseline and Project emissions are explicitly clear. Data and parameters applied are appropriate for ex-ante calculation.</p> <p><i>At the Site-visit, it is confirmed that there is no increase of waste transportation distance.</i></p>	<p>OK</p> <p>OK</p> <p>OK</p>	<p>OK</p>

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	electronic files (i.e. spreadsheets).				
B.6.4.	Summary of the ex-ante estimation of emission reductions				
	Summarize the results of the ex-ante estimation of emission reductions for all years of the crediting period, using the table	DR	The two assumptions, annual increase of emission reductions by avoiding waste disposal and the stable project emissions for each year, are appropriately calculated and summarized.	OK	
B.7.	Application of the monitoring methodology and description of the monitoring plan				
B.7.1	Data and parameters monitored				
	<p>This section shall include specific information on how the data and parameters that need to be monitored would actually be collected during monitoring for the project activity.</p> <p>Provide for each parameter the following information, using the table provided:</p> <ul style="list-style-type: none"> - The source(s) of data that will be actually used for the proposed project activity (e.g. which exact national statistics). - Where several sources may be used, explain and justify which data sources should be preferred. - Where data or parameters are supposed to be measured, specify the measurement methods and procedures, 	<p>DR</p> <p>DR</p> <p>DR</p> <p>SV</p>	<p>The items regarding the amount of ash and its sales should be monitored.</p> <p><i>There is no effect on the project emissions or leakage due to the use for raw material for cement.</i></p> <p>The sources of data (e.g. Total amount of waste, Other references data) are to be confirmed at Site-visit.</p> <p><i>The amount of waste generated in the project region is confirmed at Site-visit.</i></p>	<p>OK</p> <p>CL1</p> <p>N/A</p>	<p>OK</p> <p>OK</p>

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	<p>including a specification which accepted industry standards or national or international standards will be applied, which measurement equipment is used, how the measurement is undertaken, which calibration procedures are applied, what is the accuracy of the measurement method, who is the responsible person / entity that should undertake the measurements and what is the measurement interval.</p> <p>- A description of the QA/QC procedures (if any) that should be applied.</p>	DR		OK	
B.7.2.	Description of the monitoring plan				
	<p>Provide a detailed description of the monitoring plan. Describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects generated by the project activity.</p> <p>Clearly indicate the responsibilities for and institutional arrangements for data collection and archiving. The monitoring plan should reflect good monitoring practice appropriate to the type of project activity.</p>	DR	<p>The operational and management structure is to be confirmed at Site-visit.</p> <p><i>The operational and management structure is confirmed:</i></p> <ul style="list-style-type: none"> - <i>Monitoring equipment and installation</i> - <i>Data collection</i> - <i>Calibration</i> - <i>Data management</i> 	<p>N/A</p> <p>OK</p>	OK

B.8.	Date of completion of the application of the baseline and monitoring methodology and the name of responsible person(s)/entity(ies):				
	Provide date of completion of the application of the methodology to the project activity study in DD/MM/YYYY. Provide contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity and indicate if the person/entity is also a project participant listed in Annex 1.	DR	27/05/2008	OK	
Section C	Duration of the project activity/Crediting period				
C.1	Duration of the project activity				
C.1.1	Starting date of the project activity				
	The starting date of a CDM project activity is the earliest of the date(s) on which the implementation or construction or real action of a project activity begins/has begun (EB33, Para 76/CDM Glossary of terms/EB41). The CDM-PDD 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.	DR SV	To be confirmed at Site-visit. - 16/09/2006 based on the date that the construction contract for the plant was signed.	N/A	OK
C.1.2	Expected operational lifetime				

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	State the expected operational lifetime in years and months	DR		OK	
C.2	Choice of crediting period and related information				
C.2.1	Renewable crediting period				
C.2.1.1	Starting date of the first crediting period				
	State the dates in DD/MM/YYYY	DR	01/12/2008 - 01/07/2009 (Date is to be revised, taking into account the timing of Request for Registration)	OK	OK
C.2.1.2	Length of the first crediting period				
	State the length of the first crediting period in years and months	DR		OK	
C.2.2	Fixed crediting period				
	Fixed crediting period shall be at most 10 years.	DR	Not applicable for this project activity.	N/A	
C.2.2.1	Starting date of the first crediting period				
	State the dates in DD/MM/YYYY	DR	Not applicable for this project activity.	N/A	
C.2.2.2	Length				
	State the length in years and months	DR	Not applicable for this project activity.	N/A	
Section D	Environmental impacts				
D.1	Documentation on the analysis of the environmental impacts, including transboundary impacts:				
	Attach the documentation to the CDM-PDD, if available.	DR SV	To be confirmed at Site-visit. <i>EIA approval is provided.</i>	N/A	OK
D.2.	If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment				

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	undertaken in accordance with the procedures as required by the host Party.				
		DR SV	To be confirmed at Site-visit.	N/A	OK
Section E	Stakeholders' comments				
E.1	How comments by local stakeholders have been invited and compiled				
	Describe the process by which comments by local stakeholders have been invited and compiled. An invitation for comments by local stakeholders shall be made in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. In this regard, project participants shall describe a project activity in a manner, which allows the local stakeholders to understand the project activity, taking into account confidentiality provisions of the CDM modalities and procedures. The local stakeholder process shall be completed before submitting the proposed project activity to a DOE for validation.	DR SV	To be confirmed at Site-visit. <i>Through the interviews of local governmental officials and others, the description is confirmed.</i>	N/A	OK
E.2	Summary of the comments received				
	Identify stakeholders that have made comments and provide a summary of these comments	DR SV	To be confirmed at Site-visit. <i>Through the interviews of local governmental officials and others, the description is</i>	N/A	OK

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			<i>confirmed.</i>		
E.3	Report on how due account was taken of any comments received				
	Explain how due account have been taken of comments received.	DR SV	To be confirmed at Site-visit. <i>Through the interviews of local governmental officials and others, the description is confirmed.</i>	N/A	OK
Annex 1	Contact information on PPs				
	Fill for each organization listed in section A.3 the following mandatory fields: Organization, Name of contact person, Street, City, Postfix/ZIP, Country, Telephone and Fax or e-mail.	DR DR	The contact information of LUSO Carbon Fund is missing. <i>Revised.</i>	CAR 1	OK
Annex 2	Information regarding public funding				
		DR	No public funding.	OK	
Annex 3	Baseline information				
	Provide any further background information used in the application of the baseline methodology.	DR	<i>The details regarding data for the North China Power Grid are shown in Annex 3. However, in the revised PDD, the values of EFs are not consistent with the requirement of “Tool to calculate the emission factor of an electricity system”. – This issue was resolved (see the section B.6.2).</i>	OK CAR	OK
Annex 4	Monitoring information				
	Provide any further background information used in the application of the monitoring methodology.	DR	No further information.	OK	

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Remarks: MoV: Means of Validation (DR: Desk Review, SV: Site-visit &Interviews)

CAR: Corrective Action Request

CL: Clarification Request

OK

N/A:

Certificate

Mr. Itaru WATANABE

Grade: Lead Assessor
Assessor No.: CDM - LA002
Assigned Date: 2003.08.11

This is to certify that Mr. Itaru WATANABE is assigned as
CDM Lead Assessor by the Japan Quality Assurance Organization.

Date: February 26. 2007

Japan Quality Assurance Organization

M. Ueda

President Matahiro UEDA

Grant of sectoral scope to CDM/JI assessor

Assessor Name: Mr. Itaru WATANABE
Grade: Lead Assessor
Assessor No.: CDM-LA002 / JI-LA002

Sectoral Scope	Granted date
1. Energy industries (renewable - / non-renewable sources)	1 Jun. 2003
2. Energy distribution	1 Jun. 2003
3. Energy demand	17 Sep. 2004
4. Manufacturing industries	1 Jun. 2003
5. Chemical industry	1 Jun. 2003
6. Construction	-
7. Transport	-
8. Mining/Mineral production	1 Jun. 2003
9. Metal production	-
10. Fugitive emissions from fuels (solid, oil and gas)	1 Jun. 2003
11. Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	1 Jun. 2003
12. Solvents use	1 Jun. 2003
13. Waste handling and disposal	17 Sep. 2004
14. Afforestation and reforestation/Land use, land-use change and forestry	-
15. Agriculture	-

This is to certify that Mr. Itaru WATANABE is granted by the Japan Quality Assurance Organization.

Date: 18/APR/2007

Director of the Global Environment Department
Japan Quality Assurance Organization


Masaki MAEGAITO