
Validation Report

Client: Japan Carbon Finance, Ltd.

“A power generation project using waste heat from the Coke Dry Quenching (CDQ) equipment in China”


Project No. JQA-CDM-L-P0056

(No.1812000066)

Date: 21February 2008



JAPAN QUALITY ASSURANCE ORGANIZATION

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Approved by:  8 April 2008 Tsutomu Matsuno	Client: Japan Carbon Finance, Ltd.
<p>Summary:</p> <p>This is the validation report for the project activity "A power generation project using waste heat from the Coke Dry Quenching (CDQ) equipment in China", proposed by Shanxi Antai Group Holding Co., Ltd. (China), Japan Carbon Finance, Ltd. (Japan) and Tohoku University (Japan).</p> <p>This project activity aims at reducing GHG emissions by installing Coke Dry Quenching (CDQ) equipment in Antai Steelworks located in Shanxi Province, and displacing the electricity imported from the North China Power Grid and captive electricity, which are mainly generated by fossil fuels. Through the implementation of the project activity, the annual average amount of emission reductions is expected to be 134,656 tCO₂e.</p> <p>The Japan Quality Assurance Organization (JQA) as a DOE conducted the validation on the basis of UNFCCC, Kyoto Protocol, relevant decisions of COP/MOP and CDM EB and the requirements in China.</p> <p>. Through the validation process, JQA confirms that the proposed project documentation is in line with all requirements. Through the Certification Committee's deliberation, JQA also determines the project activity to be valid as a CDM project activity.</p>	

Report No : JQA-CDM-L-P0056-VaR	Report Title : Validation Report
Assessed by : Team Leader : Dr. Ikuo Tamori Member : Mr. Shigenari Yamamoto Mr. Hiroshi Motokawa Under Observation (UO)	Verified by : Leader : Mr. Itaru Watanabe (JQA) Member : Dr. Hiroshi Kuribayashi (External) Dr. Takahisa Yokoyama (External)

Abbreviations

AM	Approved Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDQ	Coke Dry Quenching
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
COP/MOP	Conference of the Parties serving as the Meeting of the Parties
CWQ	Coke Wet Quenching
DNA	Designated National Authority
DRC	Development and Reform Commission
EB	CDM Executive Board
EIA	Environmental Impact Assessment
EPD	Environmental Protection Department
GHG	Greenhouse Gas
IETA	International Emissions Trading Association
IRR	Internal Rate of Return
ISO	International Organization for Standardization
JQA	Japan Quality Assurance Organization
ODA	Official Development Assistance
OM	Operating Margin
PCF	Prototype Carbon Fund
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
QA/QC	Quality Assurance and Quality Control
SD	Sustainable Development
SEPA	State Environmental Protection Agency
UNFCCC	United Nations Framework Convention on Climate Change
UO	Under Observation

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1 INTRODUCTION

The Japan Quality Assurance Organization (JQA) performed the validation on, “A power generation project using waste heat from the Coke Dry Quenching (CDQ) equipment in China”, which Shanxi Antai Group Holding Co., Ltd. (China), Japan Carbon Finance, Ltd. (Japan) and Tohoku University (Japan) plan to develop in Shanxi Province, China. This report summarizes the findings obtained during the validation process and the validation opinion.

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 EB. The most important point to be confirmed is the achievement of GHG emission reductions in line with the Chinese Sustainable Development (SD) Policy.

1.2 Scope

The scope of this validation process is set as follows:

a) Documentation

- UNFCCC
- Kyoto Protocol
- Relevant decisions of COP/MOP and CDM-EB
- Chinese environmental laws and regulations
- Project Design Document (PDD) (Version 01.0, as of 02 November 2006), PDD (Version 01.1, as of 10 November 2006), PDD (Version 01.8, as of 11 January 2008) and PDD (Version 02.2, as of 12 February 2008)
- ACM0004/Version 02 and ACM0002/Version 06

b) Physical aspect

The project boundary is delineated as including Antai Power Grid (containing captive power plants), CDQ and CWQ (Coke Wet Quenching) as well as the North China Power Grid.

c) Organizations

- Shanxi Antai Group Holding Co., Ltd. (China)
- Japan Carbon Finance, Ltd. (Japan)
- Tohoku University (Japan)

d) Time frame

- The expected operational lifetime is 21 years, and the first crediting period of the project activity is set at 7 years.
- The project activity is expected to start on 1 July 2009.

1.3 GHG Project Description

Project Participants : Shanxi Antai Group Holding Co., Ltd. (China)
: Japan Carbon Finance, Ltd. (Japan)
: Tohoku University (Japan)

Non-Annex I Party : People's Republic of China (30 August 2002: Kyoto Protocol ratified)

Annex I Party : Japan (4 June 2002: Kyoto Protocol ratified)

Project Site : Jiexiu City, Shanxi Province, People's Republic of China

Starting date of the project activity : 9 October 2004

Expected operation lifetime of the project activity : 21 years and 0 months
Starting date of the first crediting period : 1 July 2009
Length of the first crediting period : 7 years and 0 months
Technology transfer : CDQ and electricity generation
The total estimate of anticipated reductions in tons of CO₂
: 134,656 tCO₂e/year

The objectives of the proposed project activity is to generate electricity by using waste heat from the CDQ equipment, and to displace the electricity imported from the North China Power Grid and/or captive electricity, which are mainly generated by fossil fuels. The power generator is expected to produce 97.92 GWh of electricity on an annual basis.

The project activity will produce GHG emission reductions by avoiding CO₂ emission from electricity generation by fossil fuel fired power plants connected to the North China Power Grid.

The first crediting period of the project activity is to be 7 years. The ex-ante annual emission reductions of the proposed project are estimated to be 134,656 tCO₂e for the first crediting period and the aggregate emission reductions during the first crediting period is estimated to be 942,593 tCO₂e.

1.4 Validation Team

The validation team was assigned on October 29, 2006 as follows, based on the JQA CDM Quality Manual (Version 4, September 13, 2004).

Team Leader	Dr. Ikuo Tamori	JQA Certified CDM Lead Assessor
Member	Mr. Shigenari Yamamoto	JQA Certified CDM Lead Assessor
	Mr. Koji Sukigara	JQA Certified CDM Assessor
	Mr. Hiroshi Motokawa	JQA Certified CDM Assessor
		Under Observation (UO)

(Mr. Motokawa replaced Mr. Sukigara on 1 July 2007.)

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 manage the validation activities of the team. The team leader is also responsible for stating the validation opinion in the validation report.

The role and responsibility of the members is to implement the Desk Review and Site-visit including the investigation of background information and interviews with the project participants and related stakeholders, and also to indicate potential Corrective Action Requests (CARs) and/or Clarification Requests (CLs) as they were derived from the validation activities.

Dr. Ikuo Tamori is a chemical engineer and qualified as a lead assessor of CDM. Before entering this department he worked as an assessor for environmental management systems (ISO 14001) and later joined the department of environmental measurements and analysis. Since he was engaged in the validation of the HFC23 decomposition project in Korea, which started as the first CDM project based on AM0001, he participated in numerous assessments of CDM and JI projects.

Mr. Shigenari Yamamoto participated in validation teams as assessor for the CDM project "HFC23 Decomposition Project in Ulsan, Korea" and the CDM project "Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan, Armenia", and so on.

He has professional experience in energy and environmental sectors for Steel Making Process. Before joining JQA, he had been working for Sumitomo Metal Industries for 18 years since 1981 and worked at Iron Making Maintenance Section and Environmental & Energy Department, Kashima Steel Works of Sumitomo Metal Industries. He was also designated as the senior manager in charge of pollution control over Kashima Steel Works for 8 years. After he worked at Kashima Steel Works, he belonged to Global Environmental Department, Tokyo Head Office of Sumitomo Metal Industries for four years. He was also designated as Environment and Energy Committee member of the Japan Iron and Steel Federation for four years. He also has a lot of experience of ISO14001 audit through auditing each Steel Works of Sumitomo Metal Industries as the lead auditor of ISO14001.

2 VALIDATION PROCESS

The validation process of JQA consists of the following three phases:

- 1) Desk Review of the PDD and preparation of the report;
- 2) Background Investigations including the Site-visit and interviews with stakeholders including Chinese governmental officials, and preparation of the report;
- 3) Resolution of CARs and CLs.

The PDD is made available to the publicly on the UNFCCC and JQA websites. If JQA receives any public comments, project participants and the CDM secretariat are notified that public comments have been received. Any comments received are to be uploaded to the UNFCCC and JQA websites.

In the validation, Table 1 and Table 2 of Annex A “Validation Checklist” based on the “Guidelines for Completing the PDD (CDM- PDD), Version 06.2, 19 December 2006” prepared by JQA are utilized as a tool for validation.

The Validation Checklist serves the following purposes:

- To organize, detail and clarify the requirements a CDM project is expected to meet; and
- To ensure a transparent validation process by inducing the validator to document how a particular requirement has been validated and which conclusions have been reached.

Table 1 : Comprehensive Checklist for CDM Project Activities

Table 2 : PDD Requirements and Resolution of CARs / CLs

Problems or findings identified in the process are indicated under the titles “CAR” and/or “CL” in the checklist (Table 1 and Table 2).

CAR requires project participants to take some corrective action without fail, while CL indicates that it is desirable that the project participants take some corrective action though not mandatory. The validation process does not provide the project participants with any consulting service, but if justifiable and appropriate corrective action for CAR and CL items included in this report is taken, such action will clearly contribute to substantial improvement of PDD.

The criteria for CAR and CL are as follows:

- CAR (Corrective Action Request)
 - a) Non-compliance with laws and regulations of the host country, or

- b) Non-conformance with requirements defined by the UNFCCC, COP/MOP, the Kyoto Protocol, Decision 4/CMP.1, Decision 1/CMP.2 and CDM-EB, or
- c) Items which would affect CER calculation significantly.
- Clarification (Clarification Request)
 - a) Insufficient description from the view of accuracy, reliability, completeness and/or consistency, or
 - b) Vague expressions.

Finally, all the CARs and CLs are resolved through the project participant's correspondences to those requests, which are described in italics in Table 2.

2.1 Schedule

The process was implemented as follows:

- 06 November 2006: Start of Desk Review based on the PDD (Version 01.0)
- 11 November 2006 – 10 December 2006: PDD (Version 01.1) on the UNFCCC and JQA websites
- 20 February 2007: Preparation of the Desk Review Report
- 20 - 24 November 2007: Site-visit to Jiexiu City, Shanxi Province, China
- 03 December 2007: Preparation of the Site-visit Report
- 11 January 2008: Receipt of the revised PDD (Version 01.8)
- 18 January 2008: Preparation of the Desk Review Report
- 12 February 2008: Receipt of the revised PDD (Version 02.2)
- 15 February 2008: Preparation of the Draft Validation Report
- 20 February 2008: Certification Committee of JQA

2.2 Desk Review of Documents

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

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 06.2" including "Glossary of CDM terms (Version 02)";
- Review the PDD in order to judge the conformity of the project activity for the requirements;
- Collect information regarding the project activity from an independent source for verification, if necessary;
- Identify any issues to be confirmed at the Site-visit.

In addition, the main focuses of the Desk Review are as follows:

- 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.

The following are investigated in this process,:

- SD policy in the host country including Environmental Impact Assessment
- CDM approval and authorization procedures
- Technologies related to the project activity in the host country
- Appropriateness of the project boundary including GHG emission sources
- Monitoring plan and monitoring structure
- EIA and local stakeholders consultation
- Situation of the project site including nearest towns and villages

2.4 Resolution of Clarifications and Corrective Action Requests

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

The project participants are to resolve the CLs and CARs, which are to be reflected in the revised PDD, and submit to JQA.

2.5 Internal Quality Control

The manager of Global Environmental Assessment Division organizes the validation team after considering the following:

- Project expertise requirements;
- Assessor qualification suitable for the technical and regional aspects of the project;
- 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 validation team leader submits these documents including the outline of the validation result and the conclusion of the team to the Certification Committee of JQA. The Certification Committee, upon receipt of the draft validation report from the team, deliberates on the appropriateness of the validation and its procedures, and reports the result of the judgment to the Senior Executive of JQA. Finally, the Senior Executive decides whether the project activity is valid as a CDM project activity.

3 VALIDATION FINDINGS

3.1 Participation Requirements

The project participants are Shanxi Antai Group Holding Co., Ltd. (China), Japan Carbon Finance, Ltd. (Japan), and Tohoku University (Japan).

The host Party, People's Republic of China, and Annex I Party, Japan meet the requirements to participate in the CDM.

The Chinese DNA has issued a Letter of Approval on 04 January 2008, authorizing Shanxi Antai Group Holding Co., Ltd., as a project participant. The Japanese DNA has issued the Letters of Approval on 27 April 2007, authorizing Japan Carbon Finance, Ltd. and Tohoku University to voluntarily participate in the project activity, respectively.

3.2 Project Design

The project activity is a power generation project by using waste heat from CDQ equipment to be installed at Antai Steelworks in Jiexiu City, Shanxi Province, China. The proposed project activity aims at reducing GHG emissions through displacing the electricity imported from the North China Power Grid and the captive electricity, which are mainly generated by fossil fuels.

Antai Steelworks has the mechanical coke production plants (coke ovens) and further had an extension plan of installing another coke oven in early 2008. However, they have not installed the CDQ equipment yet, and the heat of red-hot coke has been cooled with the water spray quenching (CWQ).

Because of high investment cost and low profitability, the installation of CDQ in steelworks has not been widely diffused throughout China, so the proposed project activity would be the first project in Shanxi Province that goes ahead without a foreign government's Official Development Assistance (ODA).

The outline of project design is as follows:

- CDQ technology

CDQ is a process through which red-hot coke is pushed out of a coke oven (approx. 1,000°C), and cooled with low temperature inert gas in a shaft-like cooling unit (200-250°C) to a max 150 ton-coke/hour.

The temperature of red-hot coke is about 1,000 °C, and with the CDQ it is cooled to 200-250°C. The inert gas, which is heated to 900-950 °C through the process of heat exchanges, will be introduced to the boiler. The hot gas exchanges its heat with boiler water and produces steam, and the steam is sent to an electricity generator. The temperature of the cooled gas is about 200°C.

High concentration dust in the hot gas is removed by the primary dust collector, and low concentration dust in cooled gas is collected in the second dust collector.

In addition, the coke treated by the CDQ process will be used to reduce iron ore in the blast furnace of the Antai Group Company, and this will improve the efficiency of iron making by decreased coke/iron ratio, which will also lead to GHG emission reduction.

- Electricity generation by CDQ

The steam (volume: 74 t/hr, pressure: 4.14 MPa, temperature: 450°C) in the boiler is sent to extraction-condensing turbines to generate electricity (capacity: 12MW, amounts: 97.9 GWh/year).

The amount of emission reductions to be achieved by the project activity will be 134,656 tonnes CO₂ e./year.

The project boundary was revised to include the Antai Power Grid, CDQ and CWQ as well as the North China Power Grid. The emission sources and gases of the baseline and project activity are listed in the table of section B.3 in the PDD.

In Table 6 not only CO₂ but also CH₄ and N₂O are considered as GHG emissions from sources within the boundary.

The starting date of the project activity was revised to 9 October 2004, based on the correspondence between the President of Shanxi Antai Group Holding Co., Ltd. and a professor of Tohoku University. The starting date of the first crediting period is set as 1 July 2009 when the operation of CDQ is scheduled to start.

3.3 Baseline

The approved CDM methodology ACM0004/Version 02 “Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation “ is applied to the baseline establishment in the project.

This methodology covers both new and existing facilities. This project activity utilizes waste heat from hot coke with the existing capacity. And therefore, it is not new facilities and the heat capacity doesn’t change between baseline and the project activity.

While six alternative baseline scenarios are given in the methodology, alternative scenario (d) is chosen as a baseline scenario in the PDD. A mix of “(b) Import of electricity from the grid” and “(c) Existing or new captive power generation on-site” is considered the most economically attractive alternative.

The Chinese DNA made the latest OM, 1.1208tCO₂e/MWh and BM, 0.9397tCO₂e/MWh data for the North China Electricity Grid publicly available on 9 August 2007. According to the DNA, the OM is 1.1208tCO₂e/MWh and the BM is 0.9397tCO₂e/MWh. PDD directly referred to the data and calculated the emission factors for the North China Electricity Grid by using weighting factor 50% for both OM and BM, in line with ACM0002/Version06.

The emission factors for captive power plants were appropriately calculated, based on the caloric value, carbon factor of the fuel and fuel consumption during 2004-2006 in the captive power plants of Antai Steelworks.

As a result, the PDD decides the emission factor for the baseline by calculating the weighted average of above two emission factors for the North China Electricity Grid and captive power plants.

3.4 Additionality

The PDD discusses two of four barriers shown in “Tool for the demonstration and assessment of additionality”, which are “Investment Barrier” and “Technology barrier”. The “Investment Barrier” demonstrated is added to section B.5. of the PDD through validation.

There are three options in the investment analysis. The project activity can generate revenue from electricity sales, thus simple cost analysis is not applicable and the project needs to choose either investment comparison analysis or benchmark analysis. In the PDD, the latter is chosen and the benchmark of the project IRR is set

at 12%, which is the rate published by the Chinese government for an investment project in the iron and steel industry.

The project IRR without CER revenue is 8.21% and 13.25% with CER revenue. The validation team confirmed the calculation of project IRR through investigating the Excel sheet shown in Appendix and detailed data. As compared with a similar project already registered as a CDM project, the amount of investment cost of the project activity is considered reasonable, taking the difference of their power capacities into account. Annual operating cost includes all the operation-related cost including production cost, maintenance cost and management cost. Also, sensitivity analysis is appropriately conducted and shows that the project IRR is still less than the benchmark of 12%, while the three critical parameters vary from –10% to +10%.

Regarding the technology barrier, the PDD discusses the situation that the CDQ penetration rate is very small less than 3% in the case of small and medium sized company with less than five million steel ton/annual in China, and CDQ installation is limited to state-owned steel companies. The PDD clearly explains that the proposed project activity would be the first CDQ installation by a private company in Shanxi Province.

3.5 Monitoring Plan

The approved methodology ACM0004/Version 02 “Consolidated monitoring methodology for waste gas and/or heat and/or pressure for power generation “ is applied to the monitoring plan in the project.

There are eight electric meters for eight captive electricity generators and one electric meter for import/export between the North China Electricity Grid and Antai Power Grid. The grid-connection agreement between Antai Steelworks and the utility company requires that every electric meter meets the national standard GB/T17883-1999 and electricity standard DL/T614-1997.

3.6 Calculation of GHG Emissions and Reductions

Taking into account the captive electricity generation of this projects, the ex-ante calculation of emission reductions is conducted in accordance with the methodologies.

Using the data on the supply and demand of electricity in Antai Steelworks during 2004-2006, the emission factor for the baseline is calculated as the weighted average of the emission factors for the North China Electricity Grid and captive power plants as previously mentioned.

During the crediting period, the amount of electricity generated by CDQ equipment, and the amount of electricity from the North China Power Grid and captive power plants will be monitored and used for the ex-post calculation of emission reductions. The electricity consumption by CDQ and CWQ equipment will be treated in the same manner.

The GHG emission replaced by the net CDQ electricity generation and the GHG emission due to the electricity consumption of the CWQ treatment are included in the baseline emission, and the sum of above two emissions is the baseline emission. The sum of all emissions derived from on-site coke powder consumption, electricity consumption by CWQ operation and steam consumption for CDQ start-up is the project emission.

All data and parameters that are available at validation are appropriately listed and justified in the PDD. However, in the PDD (Version 01.8), the calculation errors in Table 5 and Table 17 were found. These errors pointed out as CAR1 and CAR2 are appropriately corrected.

In summary, the annual average emission reductions over the crediting period are estimated to be 134,656 tCO₂e.

3.7 Environmental Impacts

State Environmental Protection Administration (SEPA) approved the construction plan of the coke production plant in 2005 from the view point of environmental protection.

EPD of Shanxi Province approved the construction plan of the CDQ facility in 2006.

These approvals, based on the environmental impacts assessment submitted by the company, are valid at present and in the future if there are no significant changes in the project plan. The approvals previously issued for the factory continue to be valid because no significant change have occurred in this project.

Therefore, the stakeholder consultation using the questionnaire-based investigation method was conducted in September 2007, in compliance with the Provisional Rules on Public Participation in EIA stipulated in March 2006.

3.8 Comments by Local Stakeholders

3.8.1 Public Consultation

1) Factory workers

- The CDQ project has several advantages such as energy saving, environmental protection and coke quality improvement (mechanical strength).
- The CDQ project is expected to contribute to zero-emission while the CWQ process has the environmental impacts such as air and water pollution.
- The factory has not received any complaints regarding environmental issues from residents. The CWQ process generates a significant amount of steam containing dust.
- In spite of many advantages, the CDQ process requires a significant capital investment.

2) Residents

- All interview participants recognize the benefits of this CDM project.
- JQA confirmed that there is neither claim nor suit on the factory regarding environmental issues.
- Air quality, through dust reduction, is expected to improve with the introduction of the CDQ process.

3) Technical expert

- The first introduction of the CDQ process in China, by Baoshan Steel Co., Ltd., was supported by Nippon Steel Corporation. Ukrainian CDQ technology has also been introduced into some steelworks in China.
- Due to the significant investment required, only 10-20% of steelworks in China has introduced the CDQ process, which includes those under construction and planning.

- Taiyuan Steel Co., Ltd. was the first to introduce the CDQ process in Shanxi Province. This proposed project is the second, however, the first completely founded by a private company i.e. no public capital investment.
- There are many coke factories in Shanxi Province and in Juexie City. There are over ten coke factories in the city, which means the city has the most coke factories in China.

3.8.2 Interview with Government Officials

- 1) Development and Reform Committee (DRC), Shanxi Province
 - The proposed CDM project activity will contribute to Sustainable Development in Shanxi Province.
 - Of 41 CDM projects activities in Shanxi Province approved by the Chinese DNA, this project is the only CDQ project.
 - There is neither policy nor guideline on the introduction of the CDQ process issued by the Chinese government or Shanxi Province government. The CDQ process is going to be voluntarily introduced into coke production factories. However, it is not so popular because of the significant investment required.
 - The CDM project activity will contribute to environmental protection, energy saving and electricity generation. The CDM project is welcomed as current electricity supply is insufficient, and electricity demand is expected to increase in Shanxi Province in the future.
- 2) Environmental Protection Department (EPD), Shanxi Province
 - The proposed CDM project activity will contribute to SD in Shanxi Province.
 - State Environmental Protection Administration (SEPA) approved the construction plan of the coke production plant in 2005 from the viewpoint of environmental protection.
 - EPD of Shanxi Province approved the construction plan of the CDQ facility in 2006.
 - The approval issued for this project plan, based on the EIA submitted by Antai Steelworks, is valid and will continue to be unless there are significant changes.
 - However, the CDM scheme requires the PP to conduct stakeholder consultation for the CDQ-CDM project. Therefore, the stakeholder consultation, using the questionnaire-based investigation method, was conducted in September 2007, in compliance with Provisional Rules on Public Participation in EIA stipulated in March 2006.
 - As a result, the PP applied for the approval of the EIA report, including the stakeholder consultation to EPD of Shanxi Province, and EPD of Shanxi Province issued the approval letter on 19 September 2007.
 - There are many coke production companies in Shanxi Province. Of these, Antai Group is one of the three biggest.
 - The approval of the CDQ-CDM project plan, based on the EIA, prepared by a private company, is the first in Shanxi Province.

- EPD, Shanxi Province is supportive of the project because the CDQ project is highly effective in environmental protection, especially with respect to particulate emissions, waste heat recovery, coke quality improvement, coke-ratio improvement in the blast furnace, and water use reduction.
- This company is highly conscious of environmental protection and compliance with laws and regulations. The company was certified as a most advanced and environment-friendly company in Shanxi Province in 2006 by SEPA.

3) DRC and EPD, Jiexiu City

- The CDM project will contribute to SD in Jiexiu City.
- Water resources are limited in Shanxi Province. The CDQ project is welcomed because the CDQ process does not use water. The Antai Group's project is expected to be a model project.
- An additional 160 MW of electricity is generated by the CDQ process in the city, and connected to the grid. Electricity is in short supply in the city, so the CDM project will contribute to the solution of the electricity shortage in the city.
- The environmental monitoring department of the city is conducting measurements of source emissions in the factory. There have been no violations of regulation laws in the factory.
- The Jiexiu City government has strengthened the control measures against environmental pollution. There is no environmental trouble in the city until now. The city has a considerable margin for the total emission regulation of SO_x and COD.
- The city government is supportive of the CDM project because of environmental loads reduction including dust emissions, waste heat recovery and electricity generation, coke quality improvement, coke use reduction in the blast furnace, and water usage reduction in the project.

4 GLOBAL STAKEHOLDER PROCESS

4.1. Description of how and when the PDD was made publicly available:

The comments by Parties, stakeholders and NGOs were invited from 11/11/2006 to 10/12/2006 on the UNFCCC website.

4.2. Description of how comments were received and made publicly available:

There was no comment received.

4.3. Explanation of how due account has been taken of comments received:

Not applicable

4.4 Compilation of all comments received:

Not applicable

5 VALIDATION OPINION

1. JQA performed the validation of the power generation project using waste heat from CDQ, by conducting Desk Review of the PDD presented by Japan Carbon Finance, 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 regulations and laws and also by making follow-up interviews including investigation of the Site-visit at Jiexiu City.

The results of reviews and follow-up interviews were described in the Desk Review Report and Site-visit Report making use of the CDM Validation Checklist. Where the validation team had identified issues which needed clarification or presented a risk to the fulfillment of the project activity, CARs or CLs were issued in the checklist according to the requirements, and the reasons for them were provided in the column "Comments."

2. In this validation process a lot of CARs and CLs were presented in the Desk Review Report with the CDM Validation Checklist issued on 20 February 2007 after inviting public comments on the websites. After the Site-visit to the project site conducted during 20-24 November 2006, the PDD was entirely revised on 15 January 2008 as Version 01.8. Therefore, another Desk Review Report (Version 02) has been prepared on 18 February 2008.

Resolutions of CARs and CLs pointed out in the Version 02 are shown in the revised CDM Validation Checklist (Version 03).

3. The CDQ and power generation technologies are commonly utilized in Japan and other advanced countries. Moreover, they are not in practical application in Shanxi Province at all, in spite of having been introduced into large-scaled, state-owned steel companies in Shanxi Province and other provinces. Although the project participants will introduce a domestic technology in the project, Tohoku University, one of the project participants has been collaborating with the Antai Group Company and will continue to transfer the knowledge about the technology as well as coke/steel production.

The validation team considers the technology transfer will be successfully transferred to the company through the project activity.

4. In the Antai Group Company the electricity generated by the captive power plants is connected to the North China Power Grid through the in-house power grid. Because the baseline was set by importing a grid power in the PDD (Version 01.1 as of 10 November 2006), several CARs were issued in the Desk Review Report (version 1 as of 20 February 2007). After that the entirely revised PDD (Version 01.8 as of 11 January 2008) has established the baseline considering the weighed captive power generation.

5. Investment analysis is implemented for demonstrating additionality using “Tool for the demonstration and assessment of additionality”. The benchmark of the project IRR set at 12% is the rate that Chinese government published for an investment project in the iron and steel industry, and the benchmark of the project IRR is regarded valid. The project IRR without CER revenue is 8.21% and 13.25% with CER revenue. Furthermore, the sensitivity analysis is appropriately conducted and the project IRR is still less than the benchmark of 12%, while the three critical parameters vary from –10% to +10%. The validation team considers the CDM project activity is additional.

6. The contribution of the project activity to the sustainable development of China and the local community is clearly described. The introduction of CDQ equipment will reduce the emissions of air pollutants, especially dust emitted from the coke production. The expectation was confirmed through interviews with officials of the local government and several residents during the site-visit.

7. The EIA of the CDQ introduction project was conducted as a part of the EIA of the coke oven construction project. Shanxi Province EPD approved the construction plan of the CDQ facility in 2006. The validation team confirmed the approval of the plan based on the EIA report submitted by the Antai Group Company is still valid through interview with the official of Shanxi Province EPD. The environmental performance of the company has been highly assessed by the official, who introduced that the company was certified as an environment-friendly company in Shanxi Province in 2006 by SEPA.

6 CONCLUSION

1. As the results 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 for several reasons, and this was confirmed through interviews with key persons of the local government.
The total estimate of GHG emission reduction by the project activity will amount to 134,656 tCO₂e/year. The fixed value will be determined by the ex-post assessment using the monitoring plan defined in the PDD and by checking the electricity, coke amounts treated with the CDQ and CWQ, etc.
2. Through the Certification Committee deliberation, JQA determined the project activity valid as a CDM project activity.

7 REFERENCES

Category 1 Documents:

- 1 PDD (Version 01.0), PDD (Version 01.1), PDD (Version 01.8) and PDD (Version 02.2)
- 2 Letter of Approval issued by National Development and Reform Commission of the People's Republic of China (No. 845, January 2008)
- 3 Letter of Approval issued by Japanese DNA (27 April 2007)
- 4 Statement on the Modalities for Communication with the Executive Board and the UNFCCC Secretariat (5 February 2008)
- 5 Approval letter [2005] No.185 for EIA report on the CDQ project of Antai Group, Environmental Protection Department, Shanxi Province
- 6 Approval letter [2006] No.198 for National Ecology Industrial Park Project of Antai Group, Environmental Protection Department, Chinese Government
- 7 Approval letter [2007] No.711 for the continuation of the approval letter [2005] No.185, Environmental Protection Department, Shanxi Province
- 8 Approval letter [2005] No.180 for the CDQ project of Antai Group, Economic Committee, Shanxi Province
- 9 Approval letter for the grid-connection of power generation in Antai Steelworks, Electricity Power Company of Shanxi Province

Category 2 Documents:

- 10 Chinese Provisional Rules on Public Participation in EIA,
http://www.sepa.gov.cn/law/gz/bmgz/200701/t20070122_99957.htm
- 11 Emission Factor of the North China Electricity Grid,
<http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=2184>
- 12 ISO 9002:1994 Standard CERTIFICATE issued 6 Dec. 2000
- 13 ISO 14001:1996 Standard CERTIFICATE issued 19 Apr. 2001
- 14 ISO 9001:2000 Standard CERTIFICATE issued 15 Dec. 2003
- 15 ISO 14001:1996 Standard CERTIFICATE issued 26 Dec. 2003
- 16 Testimonial by China Qu198 for National Ecology Industrial Park Project of Antai Group", Environmental Protection Department, Chinese Government
- 17 Antai Group Company Standard – Environment Management Manual
- 18 Detailed maps of Antai Steelworks
- 19 Power distribution diagram of Antai Steelworks
- 20 Leaflet of Antai Industrial Park
- 21 Letter from the Antai president to Professor Kawahara of Tohoku University
- 22 Questionnaires to local residents living in the area around Antai Steelworks
- 23 Current situation and 11th five year developing program of the electrical system in Antai Steelworks
- 24 Grid-connection Agreement between Jinzhong power Co., Ltd. and Antai group
- 25 EIA report on the CDQ project of Antai
- 26 EIA report on the coke production project of Antai (only sections on air pollution control and management organization)

- 27 Feasible study report of CDQ project in Shanxi Antai Group (December 2004)
- 28 PDD and Appendices of “Baotou Iron and Steel Coke Dry Quenching and Waste Heat Utilization for Electricity Generation Project” (Reference No. 1281)

8 LIST OF INTERVIEWED PERSONS

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|----|---------------------|--|
| 1 | Ms. Pan Jun-xiang, | Deputy Director, Development and Reform Commission, Shanxi Province |
| 2 | Ms. Li Wen-bin, | Deputy Director, Environmental Protection Department, Shanxi Province |
| 3 | Mr. Lei Zhen-guo , | Director, Development and Reform Commission, Jiexiu City |
| 4 | Mr. Yan Xiao-hong, | Deputy Director, Development and Reform Commission, Jiexiu City |
| 5 | Mr. Ren Jian-guo, | Deputy Director, Environmental Protection Department, Jiexiu City |
| 6 | Mr. Wang Li-duan, | Vice President, Shanxi Antai Group Holding Co., Ltd |
| 7 | Mr. Wu Hui, | Vice President, Shanxi Antai Group Holding Co., Ltd |
| 8 | Ms. Huang Jing-hua, | Chief Engineer and Director of Environment Management Division, Shanxi Antai Group Holding Co., Ltd |
| 9 | Mr. Wang Nan, | Secretary of Vice President, Shanxi Antai Group Holding Co., Ltd |
| 10 | Mr. Li Bo, | Secretary of Vice President, Shanxi Antai Group Holding Co., Ltd |
| 11 | Mr. Zhao Bao-fu, | Deputy Manager, Safety and Environment Management Division, Coke Plant Department, Shanxi Antai Group Holding Co., Ltd |
| 12 | Mr. Ren Chong-tian, | Deputy Manager, Coke Plant Department, Shanxi Antai Group Holding Co., Ltd |
| 13 | Mr. Li Jun-bao, | Manager, Coke Plant Department, Shanxi Antai Group Holding Co., Ltd |
| 14 | Mr. Chen Wen-hu, | Chief Engineer, Coke Plant Department, Shanxi Antai Group Holding Co., Ltd |
| 15 | Mr. Duan Xiao-dong, | Director, Electricity Generation Plant Department, Shanxi Antai Group Holding Co., Ltd |
| 16 | Mr. Ji Xiu-ping, | Deputy Director, Electricity Distribution Division, Shanxi Antai Group Holding Co., Ltd |
| 17 | Mr. Wang Gen-sheng, | Electricity Assistant chief, Coke Plant Department, Shanxi Antai Group Holding Co., Ltd |
| 18 | Mr. Ren Jin-kui, | Local villagers living in the area around Antai Steelworks |
| 19 | Mr. Guo Ru-quan, | Local villagers living in the area around Antai Steelworks |
| 20 | Mr. Jin Qing-yun, | Local villagers living in the area around Antai Steelworks |
| 21 | Mr. Ren Yun-tai, | Local villagers living in the area around Antai Steelworks |
| 22 | Mr. Song Yi-ping, | Local villagers living in the area around Antai Steelworks |
| 23 | Mr. Wang Zhi-qing, | Senior Adviser, Former Baoshan Steelworks |