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# **VALIDATION REPORT**

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**Comprehensive utilization of waste coal gas or  
electricity generation project in Xinglong  
Cogeneration Co. Ltd.  
People's Republic of China**

**March 10, 2008**

**JCI CDM Center  
Japan Consulting Institute**

**REPORT NO. 2007JCI-CDM-VAL-07/007  
Revision No. 01**

|                                                                                            |                                                                                    |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Date of first issue:<br><b>5 September, 2007</b>                                           | Project No.:<br><b>2007JCI-CDM-VAL-07/007</b>                                      |
| Approved by:<br><b>Akio Yoshida, Executive Director</b>                                    | Organisational unit:<br><b>JCI CDM Center<br/>Japan Consulting Institute (JCI)</b> |
| Client:<br><b>New Energy and Industrial Technology<br/>Development Organization, Japan</b> | Client ref.:                                                                       |

JCI has been commissioned by New Energy and Industrial Technology Development Organization to perform a validation of the CDM project listed below.

This validation report summarizes the results of the validation of the project.

**Project Name:** Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd.

**Country:** The People's Republic of China

**Methodology:** ACM0004 **Version:** 02

**GHG reducing Measure/Technology:** Grid-connected power generation utilizing waste coal gases (surplus blast furnace gas and converter gas) from iron/steel works to replace the electricity of the grid generated with fossil fuels / Installation of two (2) waste gas-fired boilers (evaporation: 130t/h each) and two (2) steam turbine generators (capacity: 25MW each) in the Longmen Iron & Steel Group Co. Ltd. site.

**ER estimate:** 270,045 tCO<sub>2</sub>e/year and 1,890,315 tCO<sub>2</sub>e for first crediting period

**Size**

☒ Large Scale

☐ Small Scale

**Validation Phases:**

☐ Desk Review

☐ Follow up interviews

☒ Resolution of outstanding issues

**Validation Status**

☐ Corrective Actions Requested

☐ Clarifications Requested

☒ Full Approval and submission for registration

☐ Rejected

It is the opinion of JCI CDM Center that "Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd." in the People's Republic of China, as described in the PDD Version **09 of "6 March 2008"**, meets all the relevant UNFCCC requirements for the CDM and all the related host country's criteria, and the approved consolidated baseline and monitoring methodology ACM0004 version 02 is correctly applied. Therefore JCI CDM Center requests the registration of the project as a CDM project.

|                                                                                                                                                                                            |                                                 |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------|
| Report No.:<br><b>2007JCI-CDM-<br/>VAL-07/007</b>                                                                                                                                          | Date of this revision:<br><b>10 March, 2008</b> | Rev. No.<br><b>01</b> |
| Report title:<br><b>Comprehensive utilization of waste coal gas for<br/>electricity generation project in Shaanxi Xinglong<br/>Cogeneration Co. Ltd. in the People's Republic of China</b> |                                                 |                       |
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| Work verified by:<br><b>Hideyuki Sato, Manager, Assessment Group,<br/>JCI CDM Center</b>                                                                                                   |                                                 |                       |

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## Abbreviations

|                 |                                                                          |
|-----------------|--------------------------------------------------------------------------|
| BM              | Build Margin                                                             |
| CAR             | Corrective Action Request                                                |
| CDM             | Clean Development Mechanism                                              |
| CDM EB          | CDM Executive Board                                                      |
| CEF             | Carbon Emission Factor                                                   |
| CER             | Certified Emission Reduction                                             |
| China           | Peoples' Republic of China                                               |
| CLAR            | Clarification Request                                                    |
| CM              | Combined Margin                                                          |
| CO <sub>2</sub> | Carbon dioxide                                                           |
| CSRI            | Coal Science Research Institute                                          |
| DNA             | Designated National Authority                                            |
| DOE             | Designated Operational Entity                                            |
| EIA             | Environmental Impact Assessment                                          |
| EPBSP           | Environmental Protection Bureau of Shaanxi Province                      |
| ERs             | Emissions Reductions                                                     |
| GHG             | Greenhouse Gas                                                           |
| IETA            | International Emission Trading Association                               |
| JCI             | Japan Consulting Institute                                               |
| KP              | Kyoto Protocol                                                           |
| LISGCO          | Shaanxi Longmen Iron & Steel Group Co. Ltd.                              |
| LOA             | Letter of Approval                                                       |
| NDRC            | National Development and Reform Commission of Peoples' Republic of China |
| NEDO            | New Energy and Industrial Technology Development Organization            |
| NWPG            | Northwest Power Grid                                                     |
| MP              | Monitoring Plan                                                          |
| OM              | Operating Margin                                                         |
| PDD             | Project Design Document                                                  |
| SDRC            | Shaanxi Development and Reform Commission                                |
| UNFCCC          | United Nations Framework Convention for Climate Change                   |
| VVM             | Validation and Verification Manual                                       |
| XCC             | Shaanxi Xinglong Cogeneration Co.Ltd., Project participant               |

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### **Reference :**

Appendix A: CDM Validation Protocol

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## 1 EXECUTIVE SUMMARY – VALIDATION OPINION

Japan Consulting Institute CDM Center (hereafter referred as JCI CDM Center) has performed validation of the project design document of the proposed project “Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd.” (hereafter referred as “the project”) in the Peoples’ Republic of China (hereafter referred as China) for CDM. The validation was performed in accordance with UNFCCC criteria for CDM and the criteria of the host country, as well as all relevant guidance and decisions by CDM EB.

The review of the project design documentation and the subsequent follow-up interviews have provided JCI CDM Center with sufficient evidence to determine the fulfillment of the stated criteria. The host country is China and the Annex I country is Japan. Both countries fulfill the participation criteria and have approved the project and authorized the project participants for the CDM.

The DNA of China confirmed that the project assists China in achieving sustainable development. The project correctly applies “Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation” ACM0004 version 02 together with “Consolidated baseline methodology for grid-connected electricity generation from renewable source” ACM0002 version 06 and “Tool for the demonstration and assessment of additionality” version 03.

The Project activity utilises waste coal gases (surplus blast furnace gas and converter gas) from the neighbouring iron/steel works for electricity generation as the fuel for waste gas-fired power plants constructed by the project instead of flaring them, which will displace the grid electricity generated by burning coal mostly.

The project results in reduction of GHG emission that is real, measurable and gives long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reduction attributable to the project is hence additional to any that would occur in the absence of the project activity. The expected total amount of the emission reduction will be about 270,045 tCO<sub>2</sub>e annually and 1,890,315 tCO<sub>2</sub>e for the first crediting period of seven years. The crediting period is expected to start on 1 December 2007. The emission reduction forecast was checked and it is considered that the stated amount of the reduction will be achieved given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been and will be implemented.

In summary, it is the opinion of JCI CDM Center that the project “Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd.” in China, as described in the PDD Version 09 of 6 March, 2008, meets all relevant UNFCCC requirements for CDM and all relevant criteria of the host country and correctly applies the approved baseline and monitoring methodology of ACM0004.

JCI CDM Center, therefore, requests the registration of the project as a CDM project activity.

## 2 INTRODUCTION

The project participants of the project are Shaanxi Xinglong Cogeneration Co. Ltd. (hereafter referred as XCC) in China and New Energy and Industrial Technology Development Organization in Japan (hereafter referred as NEDO), which has commissioned JCI CDM Center to perform the validation of the project.

This report summarizes the findings through the validation of the project design document, performed on the basis of UNFCCC criteria for CDM, as well as the criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, CDM modalities and procedures, and the subsequent decisions made by the CDM Executive Board (hereafter referred as CDM EB).

## 2.1 Objective

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

## 2.2 Scope

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

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

## 3 METHODOLOGY

The validation consists of the following three phases:

- I Desk review of the project design documents
- II Follow-up interviews with project stakeholders
- III Solution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each phase of the validation in more detail.

### 3.1 Desk Review of the Project Design Document

The following table outlines the documents reviewed during the validation:

|      |                                                                                                                                                                                                                                 |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /1/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 02, 27, November 2006                                                                  |
| /2/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 03, 06, April 2007                                                                     |
| /3/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 04, 25, May 2007                                                                       |
| /4/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 05, 08, June 2007                                                                      |
| /5/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 06, 18, June 2007                                                                      |
| /6/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 07, 2, July 2007                                                                       |
| /7/  | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 08, 20, August 2007                                                                    |
| /8/  | International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): Validation Verification Manual (v 4.0 & 5.0). <a href="http://www.vvmanual.info">http://www.vvmanual.info</a>                 |
| /9/  | CDM Validation report Template, Version 5.0, November 2006                                                                                                                                                                      |
| /10/ | ACM0004, version 02 "Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation" and "Consolidated monitoring methodology for waste gas and/or heat and/or pressure for power generation" |
| /11/ | ACM0002, version 06 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"                                                                                                        |
| /12/ | "Tool for the demonstration and assessment of additionality", version 03                                                                                                                                                        |
| /13/ | Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventory                                                                                                                                                              |
| /14/ | China Energy Statistical Yearbook 2003~2005                                                                                                                                                                                     |
| /15/ | China Electric Power Yearbook 2000~2005                                                                                                                                                                                         |
| /16/ | China's CDM Rules by Sun Cuihua, National Development and Reform Commission                                                                                                                                                     |
| /17/ | Presentation to National Development and Reform Commission by XCC                                                                                                                                                               |
| /18/ | Approval letter from National Development and Reform Commission China, May 22, 2007                                                                                                                                             |
| /19/ | Project Approval by Shaanxi Development and Reform Commission, May 16, 2005 & April 12, 2006                                                                                                                                    |
| /20/ | Letter of Approval of the Project from DNA of Japanese government, July 20, 2007                                                                                                                                                |
| /21/ | EIA Report (Phase-1, March 2005) and EIA Report (Phase-2, March 2006) by CSRI                                                                                                                                                   |
| /22/ | Letter of Approval by Shaanxi Environmental Protection Bureau, [2005]106 and [2006] 85,                                                                                                                                         |
| /23/ | Records of Stakeholders' Comment Invitation, May 2006, May 2007                                                                                                                                                                 |
| /24/ | MOM with stakeholders of May 15                                                                                                                                                                                                 |
| /25/ | Feasibility Study Report by CSRI, January 2006                                                                                                                                                                                  |
| /26/ | Purchase Agreement between Shaanxi Xinglong Cogeneration Co. Ltd. and Shaanxi Longmen Iron & Steel Group of Blast Furnace Gas and Converter Gas, Dec. 2006                                                                      |

|      |                                                                                                                                                                                                   |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /27/ | Cooperation Agreement between Shaanxi Xinglong Cogeneration Co. Ltd. and Shaanxi Longmen Iron & Steel Group, between NWPG and Shaanxi Longmen Iron & Steel Group, Jan.1 2007                      |
| /28/ | Project Economic Assessment and Parameters (Version 3,2006) by NDRC: Bench mark of FIRR                                                                                                           |
| /29/ | Single Line Diagrams (1), (2), (3)                                                                                                                                                                |
| /30/ | Technical administrative code of electric energy metering DL/T 448-2000                                                                                                                           |
| /31/ | Verification regulation of electric energy metering appliance SD 109-83                                                                                                                           |
| /32/ | Electricity Law                                                                                                                                                                                   |
| /33/ | Metrology law of China                                                                                                                                                                            |
| /34/ | Project Construction Schedule                                                                                                                                                                     |
| /35/ | China Shaanxi Longmen Iron & Steel Group catalogue                                                                                                                                                |
| /36/ | <a href="http://www.serc.gov.cn/opencms/export/serc/laws/index.html">http://www.serc.gov.cn/opencms/export/serc/laws/index.html</a> (website of SERC)                                             |
| /37/ | <a href="http://nyj.ndrc.gov.cn">http://nyj.ndrc.gov.cn</a> .                                                                                                                                     |
| /38/ | ( <a href="http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ">http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ</a> ) |
| /39/ | <a href="http://cdm.ccchina.gov.cn/">http://cdm.ccchina.gov.cn/</a>                                                                                                                               |
| /40/ | PDD of Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd., Version 09, 6, March 2008                                        |



The main changes of the PDD between the version 03 published for the 30 days stakeholder commenting period and the final version submitted for registration are basically the modification of the expression of the description and the addition of **the supplementary description and data** to the PDD for the clear understanding and the increased credibility of the PDD which include the followings:

1) Utilization of waste coal gases (item A.2. of the PDD)

Utilization of total amount of gases is described for the blast furnace gas and converter gas in revised PDD.

2) Map of the project site (item A.4.1.4.)

The maps which show the project site are replaced with clear copies with place names in English. The physical location is indicated with the longitude and latitude.

3) Technology employed (item A.4.3.)

The description of the technology used for the project is explained in more detail.

4) Diagram of the project boundary (item B.3.)

The drawing of the project boundary is modified to show the system of the equipment installed by the project to be in consistent with the description in the PDD.

5) Calculation of FIRR (item B.5.)

As the FIRR was described for the original operating condition as described in item 1) above, the FIRR calculated for the actual operating condition of total (phase 1 and phase 2) is added. The spread sheets of FIRR calculation are attached to Annex 3 of the PDD.

**The description of the validation of the input values used in the investment analysis , in particular the transfer price of the waste gas is supplemented.**

6) Barrier analysis

**The description of barrier analysis including investment barriers other than the economic/financial barriers and technological barriers is supplemented.**

7) Common practice analysis

**The description of common practice analysis is added.**

8) Background information of the emission factors (item B.6.1.)

The emission factors (OM and BM) for the calculation of the baseline emissions were derived from the official data published by DNA of the host country. The calculation sheets which show the detail of the calculation process and figures are added in Annex 3 of the PDD.

9) Data and parameters monitored (item B.7.1.)

As the exported electricity by the project (EGy) is calculated as follows:

$$EG_y = EG_{gen,y} - EG_{aux,y}$$

Where,

EG<sub>gen,y</sub> : Electricity generated by the plants

EG<sub>aux,y</sub> : Electricity used by the plant auxiliaries

Therefore the description is modified to show the installation and monitoring of both electricity meters of EG<sub>gen,y</sub> and EG<sub>aux,y</sub>.

Description of the monitoring and maintenance/calibration of the meters together with the standard/manual are referred.

10) Organization chart for CDM project activity (item B.7.2.)

In order to show the organization for the project activity clearly, the organization chart for the CDM project activity and the power plant operation is added.

### 3.2 Follow-up Interviews with Project Stakeholders

Following persons were interviewed during the on-site assessment for the confirmation of various subjects:

|      | Date        | Name                                                                                                                                                                                                                                                       | Organization                                                                                        | Major Topics                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| /40/ | 14 May 2007 | Ms. LUO Beibei<br>(President Assistant)<br>Mr. WANG Jianzhong<br>(Construction Engineer )<br>Mr. ZHAO Menqi<br>(Production Engineer)<br>Mr. ZHANG Jing<br>(Secretary)<br><br>Mr. Hiroyuki Hasegawa<br>(Representative/Beijing Office)                      | Xinglong Cogeneration Co., Ltd (XCC)<br><br><br><br><br>NEDO                                        | <ul style="list-style-type: none"> <li>➤ Opening Meeting</li> <li>➤ Business overview of XCC</li> <li>➤ Technology employed including information of local licensee</li> <li>➤ Approval status of the Project</li> <li>➤ Discussion on Preliminary Protocol</li> <li>➤ Current progress in the construction</li> </ul>                                                                                        |
| /41/ | 14 May 2007 | Ms. MA Su Mei<br>(General Manager of Planning and Regional Economy Dept / CDM Project )                                                                                                                                                                    | Shaanxi Development and Reform Commission (SDRC)                                                    | <ul style="list-style-type: none"> <li>➤ Approval of the Project by the local government &amp; the national government</li> <li>➤ Current economic, energy, environmental situation</li> </ul>                                                                                                                                                                                                                |
| /42/ | 15 May 2007 | Ms. LUO Beibei<br>(President Assistant)<br>Mr. WANG Jianzhong<br>(Construction Engineer )<br>Mr. ZHAO Menqi<br>(Production Engineer)<br>Mr. ZHANG Jing<br>(Secretary)<br><br>Mr. WEI Futian<br>(Vice Director)<br>Mr. FAN Dingmin<br>(Environmental Dept.) | Xinglong Cogeneration Co., Ltd (XCC)<br><br><br><br><br>Shaanxi Longman Iron & Steel Group (LISGCO) | <ul style="list-style-type: none"> <li>➤ Business overview of LISGCO</li> <li>➤ Steel Production Rate and Waste Coal Gas Balance</li> <li>➤ Observation of the project site (Power Generation Plant)</li> <li>➤ Mutual relationship between LISGCO and XCC</li> <li>➤ Confirmation of the agreements between SEPCO, LISGCO and XCC</li> <li>➤ Outcome of the stakeholders' meeting for the Project</li> </ul> |
| /43/ | 15 May 2007 | Twelve (12) Representative of Local Residents                                                                                                                                                                                                              | Teacher, Student, Doctor, Journalist, Civil Servant, Farmer                                         | <ul style="list-style-type: none"> <li>➤ Stakeholders' comments on the Project</li> </ul>                                                                                                                                                                                                                                                                                                                     |
| /44/ | 16 May 2007 | Mr. HAO Yanwei<br>(General Manager of EIA Department)                                                                                                                                                                                                      | Environmental Protection Bureau of Shaanxi Province (EPBSP)                                         | <ul style="list-style-type: none"> <li>➤ Approval of EIA Report</li> <li>➤ Environmental Problems around the project site</li> </ul>                                                                                                                                                                                                                                                                          |
| /45/ | 16 May      | Ms. ZHAO Shurong (Senior Engineer in Planning &                                                                                                                                                                                                            | Shaanxi Electric Power Company                                                                      | <ul style="list-style-type: none"> <li>➤ Policy &amp; Regulation on power generation by private entities</li> </ul>                                                                                                                                                                                                                                                                                           |

|      | Date        | Name                                                                                                                                                                  | Organization                         | Major Topics                                                                                                                                                                        |
|------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | 2007        | Power sources Dept.)                                                                                                                                                  | (SEPCO)                              | including EIA<br>➤ Outline of power generation & distribution<br>➤ Policies of purchasing of electricity from IPP<br>➤ Confirmation on the agreements between SEPCO, LISGCO and XCC |
| /46/ | 17 May 2007 | Ms. LUO Beibei<br>(President Assistant)<br>Mr. WANG Jianzhong<br>(Construction Engineer )<br>Mr. ZHAO Menqi<br>(Production Engineer)<br>Mr. ZHANG Jing<br>(Secretary) | Xinglong Cogeneration Co., Ltd (XCC) | ➤ Closing Meeting<br>➤ Summarization of follow-up interviews                                                                                                                        |
| /47/ | 18 May 2007 | Dr. ZHOU Sheng<br>(Global Climate Change Institute (PDD Author) )<br>Mr.LIANG Xiao<br>(Beijing Office)                                                                | Tsinghua University (TU)<br><br>NEDO | ➤ Discussion on PDD & Preliminary Protocol                                                                                                                                          |

### 3.3 Resolution of Outstanding Issues

The objective of this phase of validation is to solve any outstanding issue which need to be clarified prior to JCI's conclusion of verification of the project design. In order to ensure transparency, Appendix A Validation Protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from the validation of the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of three tables. Guidance for the columns in these tables is described in figure 1 below. The completed validation protocol for the project is enclosed in Appendix A of this report.

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

- 1) Mistakes have been made with direct influence on project results;
- 2) CDM and/or methodology specific requirements have not been met; or
- 3) There is risk that the project would not be accepted as CDM project or that emission reductions will not be certified.

“Request for clarifications (CLAR)” are issued where additional information is needed to fully clarify an issue.

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

| <b>Validation Protocol Table 2: Requirement checklist</b>                                                                                                                                                       |                                                                                           |                                                                                                                                                                              |                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Checklist Question</b>                                                                                                                                                                                       | <b>Reference</b>                                                                          | <b>Means of verification (MoV)</b>                                                                                                                                           | <b>Comment</b>                                                                                                                                                     | <b>Draft and/or Final Conclusion</b>                                                                                                                                                                                                                                                                       |
| The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in five different sections same as the PDD. Each section is then further sub-divided. | Gives reference to documents where the answer to the checklist question or item is found. | Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable. | The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. | This is either acceptable based on evidence provided ( <b>OK</b> ), or a <b>corrective action request (CAR)</b> due to non-compliance with the checklist question (See below). A <b>request for clarification (CLAR)</b> is used when the validation team has identified a need for further clarification. |

| <b>Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests</b>                   |                                                                                              |                                                                                                                                          |                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Draft report clarifications and corrective action requests</b>                                                | <b>Ref. to checklist question in table1 &amp; 2</b>                                          | <b>Summary of project owner response</b>                                                                                                 | <b>Validation conclusion</b>                                                                                                                                       |
| If the conclusions from the draft Validation are either a CAR or a CLAR, these should be listed in this section. | Reference to the checklist question number in Table1 & 2 where the CAR or CLAR is explained. | The responses given by the project participants during the communications with the validation team should be summarised in this section. | This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion". |

**Figure 1 Validation protocol tables**

### 3.4 Internal Quality Control

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

### 3.5 Validation Team

| Role/Qualification       | Last Name | First Name | Country |
|--------------------------|-----------|------------|---------|
| Team Leader, CDM auditor | Okada     | Masaki     | Japan   |
| CDM auditor              | Hisatome  | Masatoshi  | Japan   |
| CDM auditor              | Yoshizawa | Jyunji     | Japan   |

The qualification of each individual validation team member is detailed in Appendix B to this report.

## 4 VALIDATION FINDINGS

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

The final validation findings relate to the project design as documented and are described in the revised and resubmitted project design document of Version 08 dated 20 August, 2007.

### 4.1 Participation Requirements

The project participants are Shaanxi Xinglong Cogeneration Co.Ltd. in China (host) and New Energy and Industrial Technology Development Organization, Japan. The host Party China and the participating Annex I Party Japan meet the requirements to participate in the CDM. The former party approved Kyoto Protocol on August 30, 2002 and the latter party accepted on 4 June, 2002

The DNA of China has issued a Letter of Approval on 22 May, 2007 authorizing Shaanxi Xinglong Cogeneration Co. Ltd. in People's Republic of China as a project participant confirming that the project assists the host country in achieving sustainable development and that it is voluntary participation.

The DNA of Japan has issued a Letter of Approval on 20 July, 2007 authorizing New Energy and Industrial Technology Development Organization in Japan as a project participant.

There has been no indication during validation process that the project uses the official development assistance (ODA) funding towards China.

### 4.2 Project Design

The project includes the construction of the power plant which consisted of two (2) trains (first phase and the second phase) of waste gas-fired boilers and steam turbine generators, substation, converter gas holder and other auxiliaries, and the operation of the plant. Each train is consisted of a waste gas-fired boiler with evaporation capacity of 130t/h and a steam turbine generator with generation capacity of 25MW. The total electricity generation capacity of the plant is 50MW.

The plant utilizes the surplus blast furnace gas of the total amount of 1270.9 million m<sup>3</sup> and the surplus converter gas of the total amount of 107.1 million m<sup>3</sup> annually for the power generation of the total amount of 321.1 GWh annually.

The electricity generated by the plant is exported outside to the adjacent Iron & Steel Works and the Northwest power grid, replacing the electricity generated by NWPG which is dominated by coal-fired power generations.

Therefore the project will reduce the emission of GHG generated by fossil fuel-fired power plants in Northwest power grid by replacing the grid electricity with that generated by the project using waste coal gases. The expected total amount of the emission reduction will be about 270,045 tCO<sub>2</sub>e annually. Renewable crediting period is chosen and the first crediting period of seven years is expected to start on 1st of December 2007 for which the emission reduction of the approximate amount of 1,890,315 tCO<sub>2</sub>e is estimated.

### 4.3 Baseline Determination

The project applies the approved baseline methodology “Consolidated methodology for waste gas and /or heat and/or pressure for power generation” ACM0004 version 02<sup>10/</sup> because that the following conditions are in compliance with those specified in the methodology.

- The project generates electricity from waste heat or the combustion of waste gases in industrial facilities.
- The project displaces the electricity generation with fossil fuels in the electricity grid or displaces captive electricity generation from fossil fuels.
- After the implementation of the project activity, no fuel switch is required in the process where the waste heat or pressure or the waste gas is produced.

The project boundary is clearly defined including the site of project activity and Northwest power grid. The Northwest power grid is an independent power grid with insignificant electricity transmissions with other power grids.

In accordance with ACM0004, the baseline is determined through the following steps:

Step 1: Identify technically feasible options

Step 2: Eliminate baseline options that do not comply with legal or regulatory requirements

Step 3: Formulate baseline scenario alternatives

Step 4: Eliminate baseline scenario alternatives that face prohibitive barriers

Step 1: The possible alternative baseline scenarios in the absence of the CDM project activity would be as follows:

- (a) The proposed project activity not undertaken as a CDM project activity;
- (b) Continuation of the current situation (no project activity is required, the electricity to Shaanxi Longmen Iron & Steel is supplied from the NWPG);
- (c) New captive power generation on-site, using other energy sources than waste gas, such as coal, diesel, natural gas, hydro, wind, etc;
- (d) A mix of options (b) and (c), in which case the mix of grid and captive power should be specified;
- (e) Other uses of the waste gas.

Step 2 & step 3: As the Chinese law<sup>36/37/</sup> prohibits construction of a new fossil fuel based power plant with a capacity below 135 MW and there are no renewable resources such as hydro and wind available at the project site, case (c) is eliminated. Case (d) is also eliminated.

Step 3: As there is no demand for coal waste gases which are presently flared such as for heating or

other industrial utilization, case (e) is not plausible. Case (f) in ACM0004 is omitted because that it is the same as case (b).

Step 4: Thus case (a) and case (b) are selected as the plausible alternatives and barrier analysis is conducted from both viewpoints of financial difficulty and technical difficulty. According to the above consideration and barrier analysis, it is verified that the most likely baseline scenario is case (b) Continuation of the current practice, that is, the practice to flare the surplus coal waste gas and the electricity required by the Steel & Iron Works is imported from Northwestern grid of which electricity is mostly generated with coal.

As for the electricity generation, the electricity delivered to the grid in the baseline is generated by the operation of the grid-connected power plants which mostly burn fossil fuels, as reflected in the estimation of the emission factors such as OM and BM. The system boundaries are presented in the following table:

| Items              | GHGs involved     | Description                                                                                                                                                                   |
|--------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baseline emissions | ① CO <sub>2</sub> | Baseline emissions from flaring the surplus coal waste gases without utilizing the energy it contains. The amount is the same as ③                                            |
|                    | ② CO <sub>2</sub> | Emissions from the power plants connected to NWPG to generate the equivalent quantity of electricity to that generated by the project utilizing the surplus coal waste gases. |
| Project emissions  | ③ CO <sub>2</sub> | Emissions from combustion of the surplus coal waste gases in the boilers installed by the project. The amount is the same as ①.                                               |
| Leakage            | ④ CO <sub>2</sub> | No leakage                                                                                                                                                                    |

#### (1) Investment barrier

The financial analysis was carried out of the plausible alternative baselines. As the FIRR of case (a) is far below than the bench mark of the industry of the host country<sup>28/</sup>, case (a) will not be a baseline because of lack of financial attractiveness.

##### Other financial barrier

In addition to the low financial attractiveness, it will be difficult to get loans from commercial banks in China because that it is the first experience of “Waste coal gas recovery and energy conservation project” in the province.

#### (2) Technological barrier

As the project is the first one of the kind in the province, it is afraid that the lack of experience in similar projects may cause the difficulty in management and technology.

Taking the above surrounding conditions, the barriers into consideration, case (b) the continuation of the current practice is identified as the most plausible baseline scenario.

In the baseline scenario, the equivalent quantity of the electricity to be exported from the project activity to Shaanxi Longmen Iron & Steel Works and NWPG will be generated mostly by fossil fuel-fired power plants connected to the grid.

Therefore the baseline emission factor is determined as the combined margin (CM) which is based on the weighted average of the operating margin emission factor (OM) and the build margin

emission factor (BM). The weights are set 50%, the default values in “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002 version 06 which is applicable to electricity generation project connected to a grid. The values for OM and BM calculated and officially publicized by the DNA of the host country are applied in the PDD. Thus the baseline determination is transparent and appropriate.

#### 4.4 Additionality

The additionality of the project has been established using the “Tool for the demonstration and assessment of additionality” version 03 approved by CDM EB. <sup>/12/</sup>

The starting date of the project activity

The starting date of the project activity is 1 January 2006 and the crediting period is planned to start 1 December 2007 after the registration of the project activity.

Before starting the project, the project application document submitted to Shaanxi Development and Reform Commission (SDRC) which was issued in May 2005 shows the incentive from the CDM for the execution of the project and as a subsequence of the application, the approval letter was issued in April 2006 by SDRC which suggested the project participants to get support from the CDM for the execution of the project.

Based on these documents, it is justified that the project participants considered seriously the necessity of the support from the CDM for the implementation of the project before starting of the project.

Step 1: Identification of the alternatives to the project activity consistent with the current laws and regulations.

The alternatives identified for the project activity are,

- (a) The proposed project activity not undertaken as a CDM project activity;
- (b) Continuation of the import of electricity from NWPG;
- (c) New fossil fuel (coal/gas/ diesel) and renewable energy (hydro/ wind) captive power plant;
- (d) A mix of options (b) and (c);
- (e) Other use of the waste gases.

The proposed project activity not undertaken as a CDM project activity is not a realistic and credible alternative as discussed in the investment barrier below. The construction of a new fossil fuel based captive power plant does not comply with the Chinese law which prohibits constructing thermal power plants with a capacity below 135 MW in areas covered by large electric grids such as provincial grids. There are no renewable resources around the project site, thus new hydro/wind power captive power plant is not a credible alternative.

Furthermore, it has been confirmed that there is no demand for heating or other industrial utilization of the waste heat around the project site.

Hence, the only realistic and credible alternative is (b) continuation of the current practice in which the equivalent amount of electricity will be generated by the power plants of NWPG mostly using fossil fuel to that generated by the project. The electricity used by the Iron & Steel Works is imported from NWPG.

Step 2: Investment analysis.

Financial analysis was conducted. The FIRR calculated of the proposed project is 7.43% which is much lower than the benchmark FIRR of 12 % for Iron & Steel industry of the host country.



As the investment barrier is considered most critical for the implementation of the project activity, the validation of the investment analysis has been conducted with much care. As it is based on “Feasibility Study Report by CSRI, January 2006”<sup>/25/</sup>, the parameters used for “Sub-step 2c. Calculation and comparison of financial indicators”<sup>/12/</sup> including the price of blast furnace gas (BFG) and converter gas (LDG) and other items such as total investment, O& M, operation time self-use rate, electricity tariff, and various taxes have been reviewed with much care. The relevancy of the price of BFG and LDG was validated in comparison with the commercial price of coal and natural gas in the province.

#### Comparison of the price of fuels

| Items       | Price                      | NCV                      | Price per unit of energy |
|-------------|----------------------------|--------------------------|--------------------------|
| Coal        | 500 yuan/t                 | 26344 kJ/kg              | 18.98 yuan/GJ            |
| Natural gas | 1.75 yuan/Nm <sup>3</sup>  | 38931 kJ/Nm <sup>3</sup> | 44.95 yuan/GJ            |
| BFG         | 0.064 yuan/Nm <sup>3</sup> | 3559 kJ/Nm <sup>3</sup>  | 17.98 yuan/GJ            |
| LDG         | 0.080 yuan/Nm <sup>3</sup> | 6691 kJ/Nm <sup>3</sup>  | 11.96 yuan/GJ            |

Remarks: Sources of the price of fuels

The price of coal is based on the information from PP which is based on annually weighted average Year 2006 and the price of natural gas is based on the information from the local Development and Reform Committee (Document No [2005] 2756)

The exchange rate in 2005 was in-between 0.121 and 0.124 USD/yuan

As for the investment analysis, “Option III. Apply benchmark analysis” was chosen in PDD, which is in accordance with the tool<sup>/12/</sup>. The sectoral benchmark of 12 % applied in the analysis is assessed and it was confirmed that the value is based on the benchmark established by the government of the host country “Project Economic Assessment and Parameters (Version 3, 2006) by NDRC: Bench mark of FIRR”<sup>/28/</sup> and the figure was validated by comparing it with those of other related sectors and by taking the general economic condition of the industry of the country into consideration to be relevant.

#### Comparison of FIRR

| Phase         | Phse-1 | Phase-2 | Project (Phase 1 + Phase 2) | Bench mark of the industry |
|---------------|--------|---------|-----------------------------|----------------------------|
| Case (a) %    | 6.20   | 8.36    | 7.43                        | 12                         |
| The project % | 14.40  | 14.92   | 14.70                       |                            |

#### Step 3: Barrier analysis.

Barrier analysis was conducted from both viewpoints of investment barrier and technical barrier.

##### (1) Investment barrier

Because that the project activity is the first and only one of the kind in the province, It is expected that there will be the following investment barriers against the implementation of the project activity.

Remarks: A province In China is not only geographically large as a foreign country, but also is rather independent even of neighbor ones in the economic and political systems.

- Owing to the technological difficulties expected due to no similar experience, the difficulty for raising the fund especially getting loans from banks for the project activity is beyond the expectation.
- Actually the shortage of the fund is covered by the special fund raised by the staffs partially and by increasing the shareholders with the expected assistance from CDM.

## (2) Technological barrier

As the project is the first one of the kind in the province, it is afraid that the lack of experience in the similar project may cause the difficulty in management and technology required for safe and reliable operation of blast furnace gas and converter gas-fired power plants constructed by the project as follows<sup>/23/</sup>:

- Skilled and/or properly trained workforce to operate and maintain the equipment of the project activity will not be available for proper operation and maintenance of the project plant, which will cause unacceptably high risk of equipment disrepair and malfunctioning or other underperformance.
- Lack of infrastructure for implementation and logistics for maintenance of the equipment will occur.
- Risk of technological failure such as the process/equipment failure risk will be significantly greater than for other technologies that provide services or outputs comparable to those of the proposed CDM project activity as demonstrated by manufacturer information.

## Step 4: Common practice analysis

The project is located in Shaanxi province in China. The common practice analysis of the region shows the following condition:

- As the project activity is the first and only one of the kind in the region<sup>/23/</sup>. In more accurately speaking, there is a much smaller factory in the province which is not provided with such equipment as waste gas recovery / utilization equipment.
- In China, a province is not only geographically large in area as a foreign country, but also the economic and political systems of provinces are rather independent even of neighboring ones. Therefore the experience in a province has basically nothing to do with that in other provinces. Nevertheless, the experience of similar project activities in the adjacent northwestern provinces including Shaanxi, Gansu, Ningxia, Qinghai and Xinjiang has been surveyed referring to a publication "China Energy Statistical Yearbook 2005"<sup>/14/</sup> and it is confirmed that there is no project activity in those provinces except one which recovers the waste gas and utilize for heating but not for power generation.

As shown in the investment analysis, the potential benefit of CDM income has enabled the project to secure financing from banks and will be a great help to repay the bank loan and maintain the power generation facilities. It will also ensure repair and replacement of equipments, guaranteeing the smooth running of the first waste coal gas-fired power station in the province, and thus the investment risk is reduced.

The registration of the project activity as a CDM project will also encourage other iron and steel enterprises to apply similar technology for power generation and contribute to sustainable development.

As described in the above, it is sufficiently demonstrated in the PDD that the project is not a likely baseline scenario and that emission reductions by the project can hence be deemed additional.

JCI CDM Center has assessed the reliability and credibility of all discussion for the demonstration of the additionality, verifying all data, assumptions, justifications and documentation provided by the

project participants and confirmed that those discussions are appropriate and credible. JCI CDM Center, therefore, judges that the project is additional.

#### 4.5 Monitoring Plan

The project applies the approved monitoring methodology, “Consolidated monitoring methodology for waste gas and/or heat and/or pressure for power generation” ACM0004 version 02. The selected monitoring methodology is justifiably applicable to the project activity as it involves power generation using waste energy for electricity generation and there is no fuel switch in the process from which the waste gas is generated.

The methodology ACM0004 version 02 requires monitoring of the following:

- Net electricity generation from the proposed project activity;
- Data needed to calculate carbon dioxide emissions from fossil fuel consumption due to the project activity;
- Data needed to recalculate the operating margin emission factor, if needed, based on the choice of the method to determine the operating margin emission factor (OM), consistent with “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002 version 06;
- Data needed to recalculate the build margin emission factor (BM), if needed, consistent with “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002 version 06;
- Data needed to calculate the emissions factor of captive power generation.

There is no auxiliary fuel firing due to the project activity. The power generated by the project will displace the grid power of the equivalent amount but not the captive power generation. The emission factors of the regional grid to which the project is connected is calculated *ex-ante*, using the combined margin method based on the most recent information available as described in ACM0002. Therefore the net electricity generation from the proposed project activity will be the only item to be monitored. The net electricity generation from the proposed project activity is the difference between the total electricity generated from the project and the auxiliary electricity; both are to be measured continuously. NWPG is qualified and responsible for the operation and calibration of measurement equipment.

No leakage is considered under ACM0004 version 02 and thus it is not considered for the project. Monitoring of sustainable development indicators is not required by Chinese DNA.

The environmental affect which will be favorable for the local environment as well as for mitigation of global warming will be monitored by the local environmental authority.

The monitoring plan of the CDM project activity described in the PDD includes:

- Description of the organization for the monitoring the CDM project activity including responsibilities and authorities of the personnel concerned with the project management and each function.
- Procedures for monitoring, recording, calculation of emission reduction, reporting, and QA/QC,
- Description of the installation, operation and calibration of metering equipment which will be carried out by NWPG in accordance with the relevant laws and standards,
- Description of the measuring equipment (electricity meters) installed by NWPG,
- Description of training and maintenance for monitoring.

The procedures and the organization for the monitoring of the CDM activity is transparent and accords with the methodology. Detailed procedures for daily activity have been developed and are in place. These will be maintained and implemented for the verification of emission reductions.

#### 4.5.1 Parameters determined ex-ante

The following parameters are used for the determination of *ex-ante* emission factors. The method for the calculation of emission factors was approved in precedent project in the host country by CDM EB.

| Data and parameters                           | Unit                                                                                                      | Value applied                                                                                                                                  | Source of data used                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Emission factors                              | tC/TJ                                                                                                     | Raw coal: 25.8<br>Washed coal: 25.8<br>Fuel oil: 21.1<br>Diesel oil: 20.2<br>Coke oven gas: 13.0<br>Other gas: 13.0<br>Natural gas: 15.3       | Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories                                                                                                                                                                                                                                               |
| Net calorific value                           | Coal:TJ/10 <sup>3</sup> t-coal<br>Oil:TJ/10 <sup>3</sup> t-oil<br>Gas:TJ/10 <sup>6</sup> –Nm <sup>3</sup> | Raw coal: 20.91<br>Washed coal: 26.34<br>Fuel oil: 41.82<br>Diesel oil: 42.65<br>Coke oven gas: 16.73<br>Other gas: 5.23<br>Natural gas: 38.93 | China Energy Statistical Yearbook 2003~2005                                                                                                                                                                                                                                                                        |
| Oxidation factor of fuel                      | -                                                                                                         | Raw coal: 0.98<br>Washed coal: 0.98<br>Fuel oil: 0.99<br>Diesel oil: 0.99<br>Coke oven gas: 0.995<br>Other gas: 0.995<br>Natural gas: 0.995    | Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories                                                                                                                                                                                                                                               |
| Efficiency for BM calculation                 | %                                                                                                         | Coal: 36.53<br>Oil: 45.87<br>Natural gas: 45.87                                                                                                | Chinese DNA<br><a href="http://cdm.ccchina.gov.cn">http://cdm.ccchina.gov.cn</a>                                                                                                                                                                                                                                   |
| Operating margin of Northwest Power Grid (OM) | tCO2/MWh                                                                                                  | 1.0329                                                                                                                                         | ACM0002 (version 06)<br>Chinese DNA<br><a href="http://cdm.ccchina.gov.cn">http://cdm.ccchina.gov.cn</a>                                                                                                                                                                                                           |
| Build Margin of Northwest Power Grid (BM)     | tCO2/MWh                                                                                                  | 0.6491                                                                                                                                         | ACM0002 and CDM EB guidance ( <a href="http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ">http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ</a> )<br>Chinese DNA,<br><a href="http://cdm.ccchina.gov.cn">http://cdm.ccchina.gov.cn</a> |

#### 4.5.2 Parameters monitored ex-post

The following parameters need to be monitored for the calculation of the electricity exported outside (Shaanxi Longmen Iron & Steel Works and NWPG). The parameters to be monitored are considered appropriate.

##### For project emissions:

- None

##### For baseline emissions:

- Electricity generated by the project (**EG<sub>gen</sub>**, y)
- Electricity used by the auxiliaries of the project (**EG<sub>aux</sub>**, y)

##### For leakage:

No leakage needs to be addressed in the project. See also in 4.6.

All of the above parameters will be monitored continuously.

#### 4.5.3 Management system and quality assurance

The organization for monitoring of the CDM project activity is established for smooth flow of the activities and for the management. The activities required for monitoring such as monitoring electricity meters, recording/archiving the data, calculating emission reduction, preparing report, review/ management and training are identified and personnel are assigned with authority and responsibility to each function. In addition Check System of QA/QC of the project activity is organized by the responsible personnel of each function and management personnel. NWPG is responsible for monitoring and maintenance/ calibration of the electricity meters. The organization for CDM activity is integrated with the organization of the power plant operation.

The responsibility and authority for each CDM project activities have been properly addressed in the PDD.

JCI CDM Center was able to verify that the procedures related to data handling, quality assurance and training of monitoring personnel would be appropriately implemented.

#### 4.6 Estimate of GHG Emissions

Estimation of GHG emissions are in accordance with the formulae given in “Consolidated baseline and monitoring methodology” ACM0004 version 02 and “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002 version 06.

##### Project emissions:

There is no on-site fuel consumption due to the project activity. Though the project generates the emissions from the combustion of the waste coal gases as the fuel for the boilers, the equivalent amount of emissions is generated in the baseline. Therefore it is not necessary to take the emissions into consideration for GHG emissions reduction calculation.

##### Baseline emissions:

The baseline emissions consist of the CO<sub>2</sub> emissions *BE<sub>y</sub>* generated by NWPG to produce the equivalent quantity of electricity by burning fossil fuels which is replaced with the electricity generated by the project activity.

The method is in accordance with “Consolidated baseline methodology ACM0004 version 02 and ACM0002 version 06 which ACM0004 requires to apply for the estimation of the emission factors of the grid to which the power plants constructed by the project and Shaanxi Longmen Iron & Steel Works are connected.

As the plant specific fuel consumption and electricity generation data are not publicly available in

China, the operating margin (OM) and build margin (BM) emission coefficients were determined following the guidance made by the CDM EB for the application of the methodology AM0005 in China because that the EB guidance for AM0005 is deemed to be applicable also to ACM0002 due to the similarities of both methodologies.

For the estimation of the emission reduction of NWPG, the combined margin emission factor (CM) for NWPG is determined *ex-ante*. The operating margin (OM) is calculated using the “simple OM” method which is justified due to that the low cost must run projects constitute less than 50% of the total grid generation. The aggregated electricity generation data are derived from China Electric Power Yearbook 2001~2005, and the fuel consumption data and the country specific data for net calorific value (NCV) are derived from China Energy Statistical Yearbook 2003~2005 because that those data specific to each power station of NWPG are not available in China. The emission factor (tC/TJ) and the oxidation factor (%) are derived from “Revised 1996 IPCC Guidelines for National greenhouse Gas Inventories” of each type of fossil fuel. Both OM and BM publicized by the DNA of China are correctly evaluated to be 1.0329 tCO<sub>2</sub>/MWh and 0.6491 tCO<sub>2</sub>/MWh respectively. The weights for OM and BM for the calculation of combined margin (CM) are selected as 0.5 and 0.5 respectively which are stipulated as the default values in ACM0002 version 06.

As reviewed above, JCI CDM Center acknowledges that the procedure and the values used for the baseline emission determination are transparent and appropriate.

### Uncertainty

The major sources for the uncertainty concerning the estimation of emission reductions of the project will be:

- Accuracy of the electricity meters (EGgen, EGaux)
- Accuracy of emission factors for the displaced electricity of NWPG

As reviewed, the former equipment will be operated, maintained and calibrated by NWPG in accordance with the relevant laws and standards of the host country, uncertainty is expected marginal. The grade of the accuracy of the meters is 0.5S with the maximum electric current error of  $\pm 0.5\%$ . As the emission factors are determined basing basically on the approved methodology ACM0002 and the guidance made by CDM EB and referring to the IPCC guidelines and the authorized/ publicized data book of the host country, the uncertainty is expected to be minimal from the practical point of view.

### 4.7 Environmental Impacts

The environmental impact assessment (EIA) was conducted of the project (for both stages of Phase 1 and Phase 2) by Coal Science Research Institute (CSRI) and approved by Environmental Protection Bureau of Shaanxi Province (EPBSP) in April and May of 2006. (The report number are [2005]106 and [2006]85).

The main conclusions from the EIA are as follows:

- No impact by the project activity on the water quality of Yellow River owing to the recycled use through the circulation system
- The air quality will be improved by the project activity owing to the cleaning (removal of the particulate matter and SO<sub>2</sub>) by the project.
- The noise from the project meets the third standard of GB3096-93, the national standard for industrial noise.
- As the fuel for the power plants is waste coal gas, no slag is generated different from coal.

Thus no significant adverse impact on the environment is expected.

#### **4.8 Comments by Local Stakeholders**

The project participants invited stakeholders' comments by carrying out questionnaire survey of 100 stakeholders to find the public concern over the project on October 25, 2006. Effective answers were responded from 95 stakeholders, of which 83% were supporting the project believing that the project will greatly promote the sustainable development of the region. From viewpoint of the environmental condition, all of the respondents supported the project.

At the consultation meeting with 12 representative stakeholders, all of them expressed their supportive comments for the project. They believe that the utilization of waste coal gases for the generation of electricity will reduce not only emission of GHG, but also the local air pollution gaining the environmental benefit. Some of them suggested the expansion of the project for further improvement of local air quality.

There were some villagers who expressed their concern about the noise emitted by the power plants, for which countermeasures have been taken already.

Auditors of JCI CDM Center interviewed stakeholders on the occasion of on-site assessment and confirmed that they were considering that the project would be effective for the sustainable development of the region and the improvement of the environmental condition of the region.

Considering the technology used for the project and the referring to the comments from the stakeholders on the effect of the project, JCI CDM Center acknowledges that the project will contribute to the sustainable development of the region while improving the environmental condition.

#### **4.9 Comments by Parties, Stakeholders and NGOs**

The PDD version 03 dated 6 April 2007 was made publicly available on 11 April both on the website of JCI's climate change (<http://jci-plant.or.jp/english/030cdm/05project.htm>) and on the CDM website which invited comments from Parties, stakeholders and NGOs for the period of 30 days from 11 April 2007 to 10 May 2007.

No comment was received during the period.

## APPENDIX A

### CDM VALIDATION PROTOCOL

#### INTRODUCTION

This document contains the Validation Protocol on **PDD Ver. 08, Dated 20, August 2007** for the proposed CDM project “**Comprehensive Utilization of Waste Coal Gas for Electricity Generation Project in Xinglong Cogeneration Co. Ltd.**”.

The validation protocol is prepared for the following purposes:

- To organise, detail and clarify the requirements that the CDM project is expected to meet
- To ensure a transparent validation process with the documenting how a particular requirement has been satisfied and which conclusions have been reached

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

**Table 1** shows the mandatory requirements, which the proposed project activity has to meet as a CDM project activity and the conclusion by the validator of how the requirements are met.

**Table 2** contains the checklist with questions which ask how the requirements in Table 1 are fulfilled methodologically, qualitatively and quantitatively, and conclusion by the validator with such marks as **OK**, **CAR**, **CLAR** and **OBS\***.

**Table 3** shows the corrective actions or clarifications which are requested to be taken in Table 2.

\*Note:

- **CAR** (Corrective Action Request) is marked in case that the following conditions are found in the description of the PDD. Corrective action or modification of the expression in the PDD is requested of the item,
  - (a) Mistake is made with a direct influence on project results
  - (b) The project does not meet the requirements of CDM or Host party
  - (c) There is an unacceptable risk as CDM project or a risk that emission reductions cannot be verified and certified
- **CLAR** (Clarification) is marked, when the additional information or clarification is required of the description in the PDD.
- **OBS** (Observation) is marked, when both of the participants and validators have to observe the unsettled surrounding conditions which may affect the proposed project activity such as government policy and regulations till the settlement.

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**Table 1. Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities and Validator's comments**

| Requirement                                                                                                                                                                           | Reference                                                         | Cross-reference               | Conclusion             | Comments by validator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3                                         | Kyoto Protocol Art.12.2                                           | PDD A.3. A.4.4.               | OK                     | The proposed project activity will assist the party in Annex 1 (Japan in this project activity) in achieving emission reduction commitment.                                                                                                                                                                                                                                                                                                                                                                                    |
| 2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof                                 | Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a  | PDD A.2.                      | <del>CAR-1</del><br>OK | The written confirmation of the contribution of the project to sustainable development by the DNA of the host country shall be provided.                                                                                                                                                                                                                                                                                                                                                                                       |
| 3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC                                                                               | Kyoto Protocol Art.12.2.                                          | PDD A.2. A.3.                 | OK                     | The project will contribute to the emission reduction of GHG and to sustainable development of non Annex1party with registration as CDM project.                                                                                                                                                                                                                                                                                                                                                                               |
| 4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved                                             | Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a |                               | <del>CAR-2</del><br>OK | The written approval of voluntary participation by the DNA of the Parties shall be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change                                                          | Kyoto Protocol Art. 12.5b                                         | PDD A.4.4. B.2. B.3. B.7.1.   | OK                     | The PDD states that the same amount of the electricity generated with fossil fuel in Northwest Grid (NWPG) will be replaced with the electricity generated by the project with surplus waste gases which are flared presently, reducing the GHG emission produced by the grid accordingly. It is measurable and gives long-term benefit related to the mitigation of climate change by reducing GHG emission on long-term basis. The emission reduction is real, measurable by measuring the exported electricity to the grid. |
| 6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional as anthropogenic emissions of | Kyoto Protocol Art.12.5c, Marrakesh Accords, CDM Modalities §43   | PDD B.5. B.6.1. B.6.3. B.6.4. | OK                     | The reduction in GHG emission by the project will be additional, as it is discussed and demonstrated in the PDD using "Tool for the demonstration and assessment of additionality ver. 03" .                                                                                                                                                                                                                                                                                                                                   |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Requirement                                                                                                                                                                                                                                                                                                                                                       | Reference                              | Cross-reference       | Conclusion              | Comments by validator                                                                                                                                                                                                                                                                                                                           |
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| greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity                                                                                                                                                                                                                                |                                        |                       |                         |                                                                                                                                                                                                                                                                                                                                                 |
| 7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance                                                                                                                                                                                                                                   | Marrakesh Accords                      | PDD A.4.5.            | OK                      | The project fund is not diversion of official development assistance (ODA).                                                                                                                                                                                                                                                                     |
| 8. Parties participating in the CDM shall designate a national authority for the CDM                                                                                                                                                                                                                                                                              | Marrakesh Accords, CDM Modalities §29  |                       | OK                      | National Development and Reform Commission (NDRC) is the designated national authority for the CDM of China.<br>The Liaison Committee for the Utilization of the Kyoto Mechanisms is the designated national authority for CDM of Japan.                                                                                                        |
| 9. The host country shall be a Party to the Kyoto Protocol                                                                                                                                                                                                                                                                                                        | Marrakesh Accords, CDM Modalities §30  |                       | OK                      | China, host country, has been a party to the Kyoto Protocol since 30/08/02.                                                                                                                                                                                                                                                                     |
| 10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received                                                                                                                                                                                                                           | Marrakesh Accords, CDM Modalities §37b | PDD E.1.<br>E.3.<br>I | <del>CLAR-1</del><br>OK | The information of the procedure for the invitation of the stakeholders' comments shall be described in more detail including the reason why questionnaire survey was adopted instead of facilitation or interview survey, how the 90 stakeholders were selected, when the survey was conducted. It shall be briefed at the on-site assessment. |
| 11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out. | Marrakesh Accords, CDM Modalities §37c | PDD D.1.              | <del>CLAR-2</del><br>OK | The report of EIA carried out by Coal Science Research Institute (CSRI) and approved by Environmental Protection Bureau of Shaanxi Province (EPBSP) shall be provided and briefed at the on-site assessment. The title, reference number and the date of approval of the report shall be stated in Annex 3 of the PDD.                          |
| 12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology                                                                                                                                                                                                                                                                       | Marrakesh Accords, CDM Modalities §37e | PDD B.1.<br>B. 2.     | OK                      | "Approved consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation ACM0004" ver. 02 and "consolidated monitoring methodology for waste gas and/or heat and/or pressure for                                                                                                                              |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Requirement                                                                                                                                                                                            | Reference                                                   | Cross-reference                | Conclusion                     | Comments by validator                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Panel                                                                                                                                                                                                  |                                                             |                                |                                | power generation ACM0004” ver. 02 are applied to the project with the justification of their applicability.                                                                                                           |
| 13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP                          | Marrakesh Accords, CDM Modalities §37f                      | PDD B.7. 1.                    | <del>CLAR-3</del><br><b>OK</b> | The electricity generated EGEN and that supplied to the power plant auxiliary EGAUX shall be measured for the calculation of the net electricity exported outside to Iron & Steel Works and NWPG EGy.                 |
| 14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the project activity and the project design document have been made publicly available for minimum 30 days. | Marrakesh Accords, CDM Modalities, §40                      | PDD E.                         | <b>OK</b>                      | The PDD has been made publicly available on JCI CDM Centre web site which is linked to the UNFCCC CDM web site since April 11 for the invitation of the comments by Parties, stakeholders and UNFCCC accredited NGOs. |
| 15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances                          | Marrakesh Accords, CDM Modalities, §45c,d                   | PDD B.6.1.<br>B.6.2.<br>B.6.3. | <b>OK</b>                      | Baseline is established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.                                                    |
| 16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure                                                          | Marrakesh Accords, CDM Modalities, §47                      | PDD B.6.1.                     | <b>OK</b>                      | The baseline methodology excludes to earn CERs for the decreases in activity levels outside the project activity or due to force majeure.                                                                             |
| 17. The project design document shall be in conformance with the UNFCCC CDM-PDD format                                                                                                                 | Marrakesh Accords, CDM Modalities, Appendix B, EB Decisions |                                | <b>OK</b>                      | PROJECT DESIGN DOCUMENT FORM (CDM PDD) – Version 03.1.is used for the PDD of the project.                                                                                                                             |

Table 2. Requirements Checklist

| Checklist Question                                                                                                                                | Ref.                          | MoV | Comments                                                                                                                                                                                                                                                                                                                                                                                                       | Draft Concl       | Final Concl |
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| <b>A.1. Title of the project activity:</b>                                                                                                        |                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                |                   |             |
| <b>A.1.-1 Is the number of the version updated?</b>                                                                                               |                               |     | Yes.                                                                                                                                                                                                                                                                                                                                                                                                           | OK                |             |
| <b>A.2. Contribution to sustainable development:</b><br><i>The project's contribution to sustainable development is assessed.</i>                 |                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                |                   |             |
| A.2.-1 Is the project in line with relevant regulation and plans in the host country?                                                             | PDD<br>A.2.<br>A.4.3.<br>B.5. | DR  | The project will be implemented in accordance with the environmental regulation of the local government as well as with the laws and regulations of State Electricity Regulatory Commission (SERC) and National Development and Reform Commission (NDRC) in the host country.<br>The relevant regulations and plans of the host country shall be provided and they shall be briefed at the on-site assessment. | <del>CLAR-5</del> | OK          |
| A.2.-2 Is the project in line with host-country specific CDM requirements?                                                                        | PDD<br>A.2                    | DR  | The country specific requirement on CDM project activity shall be described.                                                                                                                                                                                                                                                                                                                                   | <del>CLAR-6</del> | OK          |
| A.2.-3 Is the project in line with sustainable development policies of the host country?                                                          | PDD<br>A.2                    | DR  | Yes, the project will be in line with sustainable development policies of the host country                                                                                                                                                                                                                                                                                                                     | OK                | OK          |
| A.2.-4 Will the project create other environmental or social benefits other than GHG emission reductions?                                         | PDD<br>A.2                    | DR  | Yes, the project will create environmental and social benefits by mitigating air pollution problem, reducing fuel consumption and creating work opportunity.                                                                                                                                                                                                                                                   | OK                | OK          |
| <b>A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page)</b> |                               |     |                                                                                                                                                                                                                                                                                                                                                                                                                |                   |             |
| <b>A.4.1.4.-1</b> Is English used in map?<br>Is the physical location of project activity indicated with longitude and latitude?<br>Is map clear? | PDD<br>A.4.1.                 | DR  | As for the maps concerned with the project site, English shall be used for the place name, the exact location shall be indicated with the longitude and latitude and they shall be clear.                                                                                                                                                                                                                      | <del>CLAR-7</del> | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                                                                  | Ref.                 | MoV | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Draft Concl       | Final Concl |
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| <b>A.4.3. Technology to be employed by the project activity:</b><br><i>Project technology focused on the project engineering, choice of technology and competence /maintenance needs are assessed. Validator shall ensure that environmentally safe and sound technology and know-how are used.</i> |                      |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |             |
| A.4.3.-1 Are the current good practices reflected in the project engineering /design?                                                                                                                                                                                                               | PDD A.4.3.           | DR  | <p>The major specification of the main equipment of the project including the steam condition of the power plant (evaporation (kg/h), pressure (MPa), temperature (°C)), generator rating (kVA), substation (kVA), Grid (voltage (kV) and frequency (Hz)), plant efficiency (%) and consumption of blast furnace gas and converter gas (Nm<sup>3</sup>/h) shall be described.</p> <p>The table of heating value (kcal/NM<sup>3</sup>) and analysis (%) of the blast furnace and converter gas shall be attached to Annex 3.</p> <p>The requested information is required for the consideration.</p> | <del>CLAR-8</del> | OK          |
| A.4.3.-2 Does the project use state of the art technology or will the technology result in a significantly better performance than any commonly used technologies in the host country?                                                                                                              | PDD A.4.3            | DR  | Same comment as that for item A.4.3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <del>Ditto</del>  | OK          |
| A.4.3.-3 Is the project technology likely to be substituted by other or more efficient technologies within the project period?                                                                                                                                                                      | PDD A.4.3            | DR  | Same comment as that for item A.4.3.-1 of the protocol.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <del>Ditto</del>  | OK          |
| A.4.3.-4 Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?                                                                                                                                                        | PDD A.4.3.<br>B.7.2. | DR  | <p>As the technology adopted for the project is commonly adopted over the world though it is first in the province, domestic technology (not imported) and well proven, it will not require extraordinary initial training and maintenance efforts.</p> <p>Nevertheless the organisation chart for the operation of the plant including management, operation, maintenance and training shall be necessary. The plan of the organization shall be provided.</p>                                                                                                                                     | OK                | OK          |
| A.4.3.-5 Does the project make provisions for meeting training and maintenance needs?                                                                                                                                                                                                               | PDD A.4.3.<br>B.7.2. | DR  | The organisational chart of the power plant operation on which the name of the personnel in charge of management, plant operation, maintenance / calibration, training and monitoring / measurement / reporting, and QA/QC                                                                                                                                                                                                                                                                                                                                                                          | <del>CLAR-9</del> | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                        | Ref.                              | MoV | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Draft Concl        | Final Concl |
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|                                                                                                                                                                                                                                                           |                                   |     | for CDM activity are indicated together with their missions and responsibilities shall be attached.<br>Briefing of the detailed procedure shall be made at the on-site assessment.                                                                                                                                                                                                                                                                                               |                    |             |
| <b>A.4.4. Estimated amount of emission reductions over the chosen crediting period:</b>                                                                                                                                                                   |                                   |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |             |
| A.4.4.-1 Is the crediting period consistent with that shown in item B.6.4.and C.2.1.1.?                                                                                                                                                                   | PDD<br>A.4.4.<br>B.6.4.<br>C.2.1. | DR  | The starting date and ending date of the crediting period of the description and the table in item A.4.4.and those in the table in item B.6.4.of the PDD shall be consistent. The ending date shall be 31 August 2014.<br>The emission reductions in the Year of 2007 and 2014 of both tables shall be corrected to 90,015 tCO <sub>2</sub> e and 180,030 tCO <sub>2</sub> e respectively.<br>The emission reduction in the Year 2013 shall be added to the table in item B.6.4. | <del>CLAR-10</del> | OK          |
| A.4.4.-2 Is estimated amount of emission reduction consistent with that shown in item B.6.4. ?                                                                                                                                                            | PDD<br>A.4.4.<br>B.6.4.           | DR  | Same comment as that for item A.4.4.-1 of the protocol.                                                                                                                                                                                                                                                                                                                                                                                                                          | <del>Ditto</del>   | OK          |
| <b>A.4.5. Public funding of the project activity:</b>                                                                                                                                                                                                     |                                   |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |             |
| A.4.5.-1 Is the funding not diversification of Official Development Assistance?                                                                                                                                                                           | PDD<br>A.4.5.                     | DR  | No. The funding for the project is not diversion of ODA.                                                                                                                                                                                                                                                                                                                                                                                                                         | OK                 | OK          |
| <b>SECTION B. Application of a baseline and monitoring methodology</b><br><i>The assessment of the project baseline whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i> |                                   |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |             |
| <b>B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:</b><br><i>It is assessed whether the project is applied with appropriate baseline methodology.</i>                                       |                                   |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |             |
| B.1.-1 Is the baseline methodology approved previously by the CDM EB?                                                                                                                                                                                     | PDD<br>B.1.                       | DR  | Yes. The project applies the approved methodologies "Consolidated baseline methodology for waste gas and/or heat and/or pressure for power                                                                                                                                                                                                                                                                                                                                       | OK                 | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                                                                                                               | Ref.                | MoV | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Draft Concl | Final Concl |
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|                                                                                                                                                                                                                                                                                                                                                  | B.2.                |     | generation” ACM0004 ver. 02 and “Consolidated monitoring methodology for waste gas and/or heat and/or pressure for power generation” ACM0004 ver. 02 in conjunction with “Consolidated baseline methodology for grid – connected electricity generation from renewable sources” ACM0002 ver. 06 and the guidance made by CDM EB for the calculation of the emission factors with the proper justification of the selection to the proposed project.                                                                                                          |             |             |
| B.1.-2 Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?                                                                                                                                                                                                                         | PDD<br>B.1.<br>B.2. | DR  | Yes. Same comment as on item B.1.-1 of the protocol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | OK          | OK          |
| B.1.-3 Are the title and version of the approved Methodology applied to the project activity indicated?                                                                                                                                                                                                                                          | PDD<br>B.1.<br>B.2. | DR  | Yes. The title and version of the approved methodologies applied to the project are indicated clearly as described in item B.1.-1 of the PDD.                                                                                                                                                                                                                                                                                                                                                                                                                | OK          | OK          |
| B.1.-4 Are any methodologies or tools to which the approved Methodologies refer and their version indicated?                                                                                                                                                                                                                                     | PDD<br>B.1.         | DR  | Yes. The approved “Consolidated baseline methodology for grid – connected electricity generation from renewable sources” ACM0002 ver. 06 and “Tool for the demonstration and assessment of additionality” ver. 03 are referred by the approved methodologies “Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation” ACM0004 ver. 02 and “consolidated monitoring methodology for waste gas and/or heat and/or pressure for power generation” ACM0004 ver. 02 and their version are indicated in the PDD clearly. | OK          | OK          |
| <b>B.2. Justification of the choice of the methodology and why it is applicable to the project activity:</b><br><i>The choice of baseline shall be assessed with the focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.</i> |                     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |             |             |
| B.2.-1 Is the choice of methodology justified transparently by showing that the proposed project activity meets each of the applicability conditions of the methodology                                                                                                                                                                          | PDD<br>B.2.         | DR  | Yes. The choice of the methodologies ACM0004 ver 02 is properly justified in section B.2.of the PDD showing that the conditions of the project activity meet those stated in the approved methodology.                                                                                                                                                                                                                                                                                                                                                       | OK          | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                           | Ref.                      | MoV            | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Draft Concl       | Final Concl |
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| B.2.-2 Is the document has been used explained? Are the references to the document provided?                                                                 | PDD<br>B.2.<br>Annex<br>3 | DR             | (1) The calculation tables of Operating Margin (OM) and Build Margin (BM) of NWPG of the preceding years shall be attached to Annex 3 of the PDD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <del>CLAR-4</del> | OK          |
| B.2.-3 Is the description of the sources and gases for calculating project emissions and baseline emissions appropriate?                                     | PDD<br>B.3                | DR             | Yes. The sources and gases for calculating project emissions and baseline emissions which are described in section B.3.of the PDD are appropriate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | OK                | OK          |
| <b>3. Description of the sources and gases included in the project boundary:</b>                                                                             |                           |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |             |
| B.3.-1 Is the project boundary (spatial) clearly defined?                                                                                                    | PDD<br>B.3.               | DR             | The project boundary and the quantities of the equipment on the diagram in item B.3. shall be consistent with the description as follows,<br>(1) Auxiliary equipment of the power plants to which auxiliary electricity is supplied shall be indicated within the boundary.<br>(2) 2 trains of boilers and steam turbine generators for phase 1 & phase 2 shall be indicated.<br>(3) Gas tank shall be converter gas tank<br>(4) Both of the waste gas pipe lines (blast furnace gas and converter oven gas) shall be connected to the boilers properly.<br>(5) Auxiliary electricity supply line to the auxiliary equipment shall be indicated.<br>(6) Electricity meters shall be installed at the outlet of the both phase 1 and phase 2 steam turbine generators for the measurement of $EG_{GEN}$ and on the line to the auxiliary equipment for the measurement of $EG_{AUX}$ . | <del>CAR-3</del>  | OK          |
| B.3.-2 Is the description of the sources and gases for calculating project emissions and baseline emissions appropriate?                                     | PDD<br>B.3                | DR,            | The sources and gases for calculating project emissions and baseline emissions are described in item B.3.of the PDD are appropriate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | OK                | OK          |
| B.3.-3 Is the project system boundary (components which compose the power plants of the proposed project activity to mitigate GHG emission) clearly defined? | PDD<br>B.3.               | DR,<br>On-site | No, same comment as on B.3.-1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <del>CAR-3</del>  | OK          |
| B.3-4 Are the baseline boundaries clearly defined                                                                                                            | PDD                       | DR             | No, same comment as on B.3.-1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <del>CAR-3</del>  | OK          |



## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ref.          | MoV | Comments                                                                                                                                                                                                                                                                                                                                      | Draft Concl       | Final Concl |
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| and do they sufficiently cover sources and sinks for baseline emissions?                                                                                                                                                                                                                                                                                                                                                                                                                                                       | B.3.          |     |                                                                                                                                                                                                                                                                                                                                               |                   |             |
| B.3.-5 Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?                                                                                                                                                                                                                                                                                                                                                                                                               | PDD B.3       | DR  | Yes, all relevant greenhouse gases and source categories are evaluated in section B.3.of the PDD.                                                                                                                                                                                                                                             | OK                | OK          |
| <b>B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:</b>                                                                                                                                                                                                                                                                                                                                                                                                        |               |     |                                                                                                                                                                                                                                                                                                                                               |                   |             |
| B.4.-1 Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?                                                                                                                                                                                                                                                                                                                                                                  | PDD B.4. B.5. | DR  | Yes. The baseline scenario of the project is selected from five plausible alternatives* sufficiently taking the relevant national and /or sectoral policies, macro-economic trends and political aspirations into accounts.<br>*As the alternative scenario (f) in the ACM0004 version 02 is the same as (b), it is included in scenario (b). | OK                | OK          |
| B.4.-2 Is the baseline determination compatible with the available data?                                                                                                                                                                                                                                                                                                                                                                                                                                                       | PDD B.4. B.5. | DR  | (1) The evidence for the benchmark FIRR on total investment in the steel industry of China of 12 %                                                                                                                                                                                                                                            | <del>CAR-4</del>  | OK          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | B.6.          |     | (2)The calculation tables of Operating Margin (OM) and Build Margin (BM) of NWPG of the preceding years shall be attached to Annex 3 of the PDD.                                                                                                                                                                                              | <del>CLAR-4</del> | OK          |
| B.4.-3 Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?                                                                                                                                                                                                                                                                                                                                                                                                          | PDD B.4. B.5. | DR  | Same comment as on item B.4.-2 (1) of the protocol                                                                                                                                                                                                                                                                                            | <del>CAR-4</del>  | OK          |
| B.4.-4 Is it demonstrated / justified that the project activity itself is not a likely baseline scenario (e.g. through (a) a flow-chart or series of questions that lead to a narrowing of potential baseline options, (b) a qualitative or quantitative assessment of different potential options and an indication of why the non-project option is more likely, (c) a qualitative or quantitative assessment of one or more barriers facing the proposed project activity or (d) an indication that the project type is not | PDD B.4. B.5. | DR, | Same comment as on item B.4.-2 (1) of the protocol                                                                                                                                                                                                                                                                                            | <del>CAR-4</del>  | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                   | Ref.     | MoV | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Draft Concl        | Final Concl |
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| common practice in the proposed area of implementation, and not required by a Party's legislation/regulations)?                                                                                                                      |          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |             |
| <b>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):</b> |          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |             |
| <b>B.5. Step 1. Identification of alternatives to the project activity consistent with current laws and regulations.</b>                                                                                                             |          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |             |
| <b>B.5.-1 Are the applicable laws and regulations of host country are described and applied?</b>                                                                                                                                     | PDD B.5. | DR  | The project will be implemented in accordance with the environmental regulation of the local government as well as with the laws and regulations of State Electricity Regulatory Commission (SERC) and National Development and Reform Commission (NDRC) in the host country.<br><br>The English version of the cover page of the relevant regulations and plans of the host country shall be provided and they shall be briefed at the on-site assessment. | <del>CLAR-5</del>  | OK          |
| <b>B.5. Step 2. Investment analysis.</b>                                                                                                                                                                                             |          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |             |
| <b>B.5.-2 Is investment analysis conducted?</b>                                                                                                                                                                                      | PDD B.5. | DR  | The spread sheet of FIRR calculation of the cases without CDM (baseline scenario) and with CDM (the project activity) shall be attached to Annex 3 of the PDD.<br><br>The investment analysis shall be briefed at the on-site assessment and a copy of the report shall be provided.                                                                                                                                                                        | <del>CAR-5</del>   | OK          |
| <b>B.5.-3 Are the conditions and data for financial analysis clear?</b>                                                                                                                                                              | PDD B.5. | DR  | Same comment as on item B.5.-2                                                                                                                                                                                                                                                                                                                                                                                                                              | <del>CAR-5</del>   | OK          |
| <b>B.5. Step 3. Barrier analysis.</b>                                                                                                                                                                                                |          |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |             |
| <b>B.5.-4 Starting date of the proposed activity</b>                                                                                                                                                                                 | PDD B.5. | DR  | As the starting date of the project activity is before the date of validation, evidence which shows that the incentive from the CDM was seriously considered in the decision to proceed with the project activity shall be provided.                                                                                                                                                                                                                        | <del>CLAR-11</del> | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ref.                                       | MoV     | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Draft Concl       | Final Concl |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|
| <b>B.6. Emission reduction:</b><br><i>It is assessed whether all GHG emissions by sources are addressed and the sensitivities and uncertainties of the data are addressed to arrive at conservative estimates of projected emission reductions.</i>                                                                                                                                                                                                   |                                            |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |             |
| <b>B.6.1. Explanation of methodological choices:</b>                                                                                                                                                                                                                                                                                                                                                                                                  |                                            |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |             |
| <b>B.6.1. Step 1 Baseline Emissions</b><br><i>The predicted baseline GHG emissions calculation is assessed whether it focuses on transparency and completeness.</i>                                                                                                                                                                                                                                                                                   |                                            |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |             |
| B.6.1.-1 Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?                                                                                                                                                                                                                                                                                                       | PDD<br>B.6.1.<br>B.6.2.<br>B.7.1.          | DR      | Yes. The most relevant and likely operational characteristics and baseline indicators publicly available are chosen as reference for baseline emissions. In the baseline, the emission sources are the power plants connected to the NWPG which mostly burn fossil fuels and the flaring of the surplus waste coal gases which are used as the fuel in the project. Therefore the emission factors of the NWPG publicly available are used for ex-ante emission calculation. | OK                | OK          |
| B.6.1.-2 Emission reductions<br>Is all relevant methodology choices explained and justified?<br>- including explanation and justification of scenario or case applied to the project activity<br>- including explanation and justification of option chosen for the project activity<br>- including explanation and justification of default value chosen for the project activity<br>Is the equation calculating emission reductions clearly stated? | PDD<br>B.3.<br>B.6.1.<br>B.6.2.<br>Annex 3 | DR<br>I | (1)The calculation tables of Operating Margin (OM) and Build Margin (BM) of NWPG of the preceding years shall be attached to Annex 3 of the PDD.<br><br>(2)The calculation process of ex-ante emission reduction shall be shown by substituting the corresponding figures for the variables in the formulae step by step for transparency of the calculation.                                                                                                                | <del>CLAR-4</del> | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                          | Ref.                     | MoV | Comments                                                                                                                                                                                                                                                                                                                                                      | Draft Concl       | Final Concl |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|
| B.6.1.-3 Are data and parameters that are available at validation provided and explained?<br>Further, are clear and transparent references or additional documentation provided in Annex 3? | PDD<br>B.6.1.<br>Annex 3 | DR  | There is no change in GHG emission before and after the implementation of the project activity at the project site. GHG emission reduction occurs in NWPG grid by the reduction of the power generation of the quantity equivalent to the exported electricity from the project.                                                                              | OK                | OK          |
| B.6.1.-4 Are the GHG calculations documented in a complete and transparent manner?                                                                                                          | PDD<br>B.3<br>B.6.1.     | DR  | Same comment as on item B.6.1-3                                                                                                                                                                                                                                                                                                                               | OK                | OK          |
| B.6.1.-5 Have conservative assumptions been used when calculating baseline emissions?                                                                                                       | PDD<br>B.6.1.            | DR  | Same comment as on item B.6.1-3                                                                                                                                                                                                                                                                                                                               | OK                | OK          |
| B.6.1.-6 Are uncertainties in the GHG emission estimates properly addressed in the documentation?                                                                                           | PDD<br>B.6.1.            | DR  | Same comment as on item B.6.1-3                                                                                                                                                                                                                                                                                                                               | OK                | OK          |
| <b>B.6.1. Step 2. Project emissions</b><br><b><i>The assessment of prediction of the project GHG emissions focuses on transparency and completeness of calculations.</i></b>                |                          |     |                                                                                                                                                                                                                                                                                                                                                               |                   |             |
| B.6.1-7 Are all aspects related to direct and indirect GHG emissions considered in the project design?                                                                                      | PDD<br>B.3.<br>B.6.1.    | DR  | Yes. All aspects related to the direct and indirect GHG emissions are taken into consideration as shown under section B.3.of the PDD.                                                                                                                                                                                                                         | OK                | OK          |
| B.6.1.-8 Are the GHG calculations documented in a complete and transparent manner?                                                                                                          | PDD<br>B.6.1             | DR  | (1)The calculation tables of Operating Margin (OM) and Build Margin (BM) of NWPG of the preceding years shall be attached to Annex 3 of the PDD.<br><br>(2)The calculation process of ex-ante emission reduction shall be shown by substituting the corresponding figures for the variables in the formulae step by step for transparency of the calculation. | <del>CLAR-4</del> | OK          |
| B.6.1.-9 Have conservative assumptions been used to calculate project GHG emissions?                                                                                                        | PDD<br>B.6.3             | DR  | Yes, conservative assumptions were used to calculate project GHG emissions.                                                                                                                                                                                                                                                                                   | OK                | OK          |
| B.6.1.-10 Are uncertainties in the GHG emissions estimates properly addressed in the                                                                                                        | PDD<br>B.6.1             | DR  | Yes, uncertainties in the GHG emissions estimates are properly addressed in the documentation such as that the emission is estimated by simply                                                                                                                                                                                                                | OK                | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                    | Ref.                    | MoV | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Draft Concl       | Final Concl |
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| documentation?                                                                                                                                                        |                         |     | monitoring the electricity exported outside, that the electricity meters are operated and calibrated by NWPG in accordance with the regulations and standards, and that emission factors publicized by the DNA are adopted, all of which are effective for minimizing uncertainties.                                                                                                                                                                                                                                                   |                   |             |
| B.6.1.-11 Are potential leakage effects beyond the chosen project boundaries properly identified?                                                                     | PDD<br>B.6.1            | DR  | There is no leakage as stated in ACM0004.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | OK                | OK          |
| B.6.1.-12 Have these leakage effects been properly accounted for in calculations?                                                                                     | PDD<br>B.6.1            | DR  | Same comment as on item B.6.1.-11 of the protocol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | OK                | OK          |
| B.6.1.-13 Does the methodology for calculating leakage comply with existing good practice?                                                                            | PDD<br>B.6.1            | DR  | Same comment as on item B.6.1.-11 of the protocol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | OK                | OK          |
| B.6.1.-14 Have the project emissions been determined using the same appropriate methodology and conservative assumptions?                                             | PDD<br>B.6.1            | DR  | Yes. the project emissions reduction has been determined using the appropriate methodology and conservative assumptions<br>The project activity does not produce GHG emission, but produces electricity which is exported to NWPG, reducing the fuel consumption and the GHG emission from the NWPG grid accordingly. The emission reduction is determined by monitoring the electricity exported to NWPG and the calculation which is carried out in conforming with ACM0004 ver.02, ACM0002 ver.06 and the guideline made by CDM EB. | OK                | OK          |
| B.6.1.-15 Will the project result in fewer GHG emissions than the baseline scenario?                                                                                  | PDD<br>B.6.1.<br>B.6.2. | DR  | Yes. The project activity does not produce GHG emission, but produce electricity which is exported to NWPG grid, reducing the fuel consumption and the GHG emission from the NWPG grid accordingly.                                                                                                                                                                                                                                                                                                                                    | OK                | OK          |
| <b>B.6.2. Data and parameters that are available at validation:</b><br><i>The availability of data required for the estimation of emission reduction is assessed.</i> |                         |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |             |
| B.6.2.-1 Are the operation data of NWPG power plants available for calculating Operating Margin (OM) and Build Margin (BM)?                                           | B.6.2.                  | DR  | No, same comments as on item B.6.1.-8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <del>CLAR-4</del> | OK          |
| <b>B.6.3. Ex-ante calculation of emission reductions:</b>                                                                                                             |                         |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |             |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                                                           | Ref.       | MoV | Comments                                                                                                                                                                                                                                                                                                      | Draft Concl        | Final Concl |
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| B.6.3.-1 Is ex-ante calculation of emission reduction transparent and complete?                                                                                                                                                                                                              |            |     | No, same comments as on item B.6.1.-8                                                                                                                                                                                                                                                                         | <del>CLAR-4</del>  | OK          |
| <b>B.6.4. Summary of the ex-ante estimation of emission reductions:</b><br><i>Ex-ante baseline emission is assessed using the emission factor of NWPG and expected electricity generation.</i>                                                                                               |            |     |                                                                                                                                                                                                                                                                                                               |                    |             |
| B.6.4.-1 Are the crediting period and the emission reductions consistent with that shown in item A.4.4.?                                                                                                                                                                                     | PDD B.6.4. | DR  | No, same comments as on item A.4.4.-1.                                                                                                                                                                                                                                                                        | <del>CLAR-10</del> | OK          |
| <b>B.7. Application of the monitoring methodology and description of the monitoring plan:</b><br><i>It is assessed whether parameters to be monitored and monitoring plan are appropriate and sufficient to ensure the required monitoring necessary for calculating emission reduction.</i> |            |     |                                                                                                                                                                                                                                                                                                               |                    |             |
| <b>B.7.1. Data and parameters monitored:</b><br><i>It is checked whether the parameters to be monitored are sufficient and measurement is reliable for calculating emission reduction.</i>                                                                                                   |            |     |                                                                                                                                                                                                                                                                                                               |                    |             |
| B.7.1.-1 Are the parameters sufficient for calculating emission reductions?                                                                                                                                                                                                                  | PDD B.7.1  | DR  | The electricity generated $EG_{GEN}$ and that supplied to the power plant auxiliary $EG_{AUX}$ shall be measured for the calculation of the net electricity exported outside to Iron & Steel Works and NWPG $EG_y$ .                                                                                          | <del>CLAR-3</del>  | OK          |
| B.7.1.-2 Will it be possible to monitor the specified baseline indicators?                                                                                                                                                                                                                   | PDD B.7.1. | DR  | Yes, same comment as on item B.6.1.-14.                                                                                                                                                                                                                                                                       | OK                 | OK          |
| B.7.1.-3 Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?                                                                                                                                               | PDD B.7.1. | DR  | Yes, monitoring plan for CDM activity provides the collection and archiving of relevant data concerning environmental, social and economic impacts in general.<br>CDM activity will improve air pollution problem owing to the cleaning of the waste gas (fuel), reduce fuel consumption reducing emission of | OK                 | OK          |



## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                                                                                                                                                | Ref.       | MoV | Comments                                                                                                                                                                  | Draft Concl       | Final Concl |
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|                                                                                                                                                                                                                                                                                                                                   |            |     | pollutants and creating job opportunity.                                                                                                                                  |                   |             |
| B.7.1.-4 Is the choice of indicators for sustainable development (social, environmental, economic) reasonable? Will it be possible to monitor them?                                                                                                                                                                               | PDD B.7.1. | DR  | Yes. The choice is reasonable as commented on item B.7.1.-3 and the indicators are measurable..                                                                           | OK                | OK          |
| B.7.1.-5 Are the sustainable development indicators in line with the national priorities in the Host Country?                                                                                                                                                                                                                     | PDD B.7.1. | DR  | Yes, the sustainable development indicators are in line with the national priorities in the Host Country, especially with the national high priority area of fuel saving. | OK                | OK          |
| <b>B.7.2. Description of the monitoring plan:</b><br><i>It is checked whether monitoring plan is appropriate, whether role and responsibility for management, operation, maintenance /calibration, monitoring /operation, QC/QA and training of personnel are clear, whether operation and maintenance manuals are available.</i> |            |     |                                                                                                                                                                           |                   |             |
| B.7.2.-1 Is the authority and responsibility of project management clearly described?                                                                                                                                                                                                                                             | PDD B.7.2. | DR  | Same comment as on item B.4.3.-5 of the protocol.                                                                                                                         | <del>CLAR-9</del> | OK          |
| B.7.2.-2 Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?                                                                                                                                                                                                           | PDD B.7.2  | DR  | Same comment as on item B. 4.3.-5 of the protocol.                                                                                                                        | <del>CLAR-9</del> | OK          |
| B.7.2.-3 Are procedures identified for training of monitoring personnel?                                                                                                                                                                                                                                                          | PDD B.7.2  | DR  | Same comment as on item B. 4.3.-5 of the protocol.                                                                                                                        | <del>Ditto</del>  | OK          |
| B.7.2.-4 Are procedures identified for the cases where emergencies can cause unintended emissions?                                                                                                                                                                                                                                | PDD B.7.2  | DR  | Same comment as on item B. 4.3.-5 of the protocol.                                                                                                                        | <del>Ditto</del>  | OK          |
| B.7.2.-5 Are procedures identified for calibration of monitoring equipment?                                                                                                                                                                                                                                                       | PDD B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol.                                                                                                                        | <del>Ditto</del>  | OK          |
| B.7.2.-6 Are procedures identified for maintenance of monitoring equipment and installations?                                                                                                                                                                                                                                     | PDD B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol.                                                                                                                        | <del>Ditto</del>  | Ok          |
| B.7.2.-7 Are procedures identified for monitoring, measurements and reporting?                                                                                                                                                                                                                                                    | PDD B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol.                                                                                                                        | <del>Ditto</del>  | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                       | Ref.          | MoV | Comments                                           | Draft Concl       | Final Concl |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----|----------------------------------------------------|-------------------|-------------|
| B.7.2.-8 Are procedures identified for day-to-day records and how to process performance documentation?                                  | PDD<br>B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol. | <del>Ditto</del>  | OK          |
| B.7.2.-9 Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?                              | PDD<br>B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol. | <del>Ditto</del>  | OK          |
| B.7.2.-10 Are procedures identified for review of reported results /data?                                                                | PDD<br>B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol. | <del>Ditto</del>  | OK          |
| B.7.2.-11 Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?        | PDD<br>B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol. | <del>Ditto</del>  | OK          |
| B.7.2.-12 Are procedures identified for project performance reviews before data is submitted for verification, internally or externally? | PDD<br>B.7.2. | DR  | Same comment as on item B. 4.3.-5 of the protocol. | <del>CLAR-9</del> | OK          |
| B.7.2.-13 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?        | PDD<br>B.7.2  | DR  | Same comment as on item B. 4.3.-5 of the protocol. | <del>Ditto</del>  | OK          |
| <b>SECTION C. Duration of the project activity /crediting period</b>                                                                     |               |     |                                                    |                   |             |
| <i>It is assessed whether project period and crediting period are clearly defined.</i>                                                   |               |     |                                                    |                   |             |
| <b>C.1. Duration of the project activity:</b>                                                                                            |               |     |                                                    |                   |             |
| <b>C.1.1. Starting date of the project activity:</b>                                                                                     |               |     |                                                    |                   |             |
| C.1.1.-1 Is the starting date of project clear?                                                                                          | PDD<br>C.1.1. | DR  | Yes.                                               | OK.               | OK          |
| <b>C.1.2. Expected operational lifetime of the project activity:</b>                                                                     |               |     |                                                    |                   |             |
| C.1.2.-1 Is expected operational lifetime of the project clear?                                                                          | PDD<br>C.1.2. | DR  | Yes.                                               | OK                | OK          |



| Checklist Question                                                                                                                                                                                                                                            | Ref.                              | MoV     | Comments                                                   | Draft Concl        | Final Concl |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------|------------------------------------------------------------|--------------------|-------------|
| <b>C.2 Choice of the crediting period and related information:</b>                                                                                                                                                                                            |                                   |         |                                                            |                    |             |
| <b>C.2.1. Renewable crediting period:</b>                                                                                                                                                                                                                     |                                   |         |                                                            |                    |             |
| <b>C.2.1.1. Starting date of the first crediting period:</b>                                                                                                                                                                                                  |                                   |         |                                                            |                    |             |
| C.2.1.1.-1 Are the starting date and ending date consistent with that shown in A.4.4.and B.6.4.?                                                                                                                                                              | PDD<br>C.2.1.<br>A.4.4.<br>B.6.4. | DR      | No. They shall be consistent each other.                   | <del>CLAR-10</del> | OK          |
| <b>C.2.1.2. Length of the first crediting period:</b>                                                                                                                                                                                                         |                                   |         |                                                            |                    |             |
| C.2.1.2.-1 Is the first crediting period clear?                                                                                                                                                                                                               | PDD<br>C.2.1.                     |         | Yes. It is clear                                           | OK                 | OK          |
| <b>SECTION D. Environmental Impacts</b><br><i>Documentation on the analysis of the environmental impacts shall be assessed, and if deemed significant, conclusions and all references to support documentation of EIA shall be provided to the validator.</i> |                                   |         |                                                            |                    |             |
| <b>D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:</b>                                                                                                                                                      |                                   |         |                                                            |                    |             |
| D.1.-1 Has an analysis of the environmental impacts of the project activity been sufficiently described?                                                                                                                                                      | PDD<br>D.1.                       | DR<br>I | Same comment as on item 11of the Table –1of this protocol. | <del>CLAR-2</del>  | OK          |
| D.1.-2 Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?                                                                                                                                    | PDD<br>D.1                        | DR<br>I | Same comment as on D.1.-1 of this protocol.                | <del>Ditto</del>   | OK          |
| <b>D.2. conclusions of environmental impact assessment</b><br><i>If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all</i>                                                    |                                   |         |                                                            |                    |             |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                | Ref.                        | MoV | Comments                                                                                                                                                                       | Draft Concl       | Final Concl |
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| <i>references to support documentation of environmental impact assessment undertaken in accordance with the procedures as required by the host Party:</i>                         |                             |     |                                                                                                                                                                                |                   |             |
| D.2.-1 Will the project create any adverse environmental effects?                                                                                                                 | PDD<br>A.2.<br>D.1.<br>D.2. | DR  | No. The project shall have only favourable effect on the environment locally as stated in sections A.2.and D.1. and globally as stated in sections A.4.4.and B.6.4.of the PDD. | OK                | OK          |
| D.2.-2 Are transboundary environmental impacts considered in the analysis?                                                                                                        | PDD<br>D.2                  | DR  | Yes, they are considered. There will be no transboundary environmental impact by the project.                                                                                  | OK                | OK          |
| D.2.-3 Have identified environmental impacts been addressed in the project design?                                                                                                | PDD<br>D.2                  | DR  | Yes, there will be favourable environmental impact by the project but no negative impact on the environment.                                                                   | OK                | OK          |
| D.2-2 Does the project comply with environmental legislation in the host country?                                                                                                 | PDD<br>D.1,<br>D.2          | DR  | Yes, the EIA was conducted and the report of the result was approved by the concerned authority of the province as stated in item D.1.-1.of the protocol.                      | OK                | OK          |
| <b>SECTION E. Stakeholders' comments</b><br><i>Validator shall ensure that stakeholders' comments have been invited and that due account has been taken of comments received.</i> |                             |     |                                                                                                                                                                                |                   |             |
| <b>E.1. Brief description how comments by local stakeholders have been invited and complied:</b>                                                                                  |                             |     |                                                                                                                                                                                |                   |             |
| E.1.-1 Have relevant stakeholders been consulted?                                                                                                                                 | PDD<br>E.1.E.3              | DR  | Same comment as on item 10 f the Table –1of this protocol.                                                                                                                     | <del>CLAR-1</del> | OK          |
| E.1.-2 Have appropriate media been used to invite comments by local stakeholders?                                                                                                 | PDD<br>E.1.<br>E.2.         | DR  | Same comment as on item 10 f the Table –1of this protocol.                                                                                                                     | <del>CLAR-1</del> | OK          |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Checklist Question                                                                                                                                                                                     | Ref.                | MoV | Comments                                                                                                                                                                                                                | Draft Concl       | Final Concl |
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| E.1.-3 If a stakeholder consultation process is required by regulations /laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws? | PDD<br>E.1.<br>E.3. | DR  | Same comment as on item 10 f the Table –1of this protocol.                                                                                                                                                              | <del>CLAR-1</del> | OK          |
| <b>E.2. Summary of the comments received:</b>                                                                                                                                                          |                     |     |                                                                                                                                                                                                                         |                   |             |
| E.2.-1 Is a summary of the stakeholder comments received provided?                                                                                                                                     | PDD<br>E.2          | DR  | Yes. The stakeholders' comments are classified into 3 to 5 groups depending on the content of their answer. There is none who is opposed to the implementation of the project and requires modification of the project. | OK                | OK          |
| <b>E.3. Report on how due account was taken of any comments received:</b>                                                                                                                              |                     |     |                                                                                                                                                                                                                         |                   |             |
| E.3.-1 Has due account been taken of any stakeholder comments received?                                                                                                                                | PDD<br>E.3.         | DR  | Same comment as on item 10 f the Table –1of this protocol.                                                                                                                                                              | <del>CLAR-1</del> | OK          |

Table 3. Corrective Action /Clarification and Conclusion by Validator

| Items of which clarifications and corrective actions are requested                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Question No. in table 1 & table 2 | Outline of the answer from the Project participants                                                                                                                                                                                                                                                        | Conclusion by Validator                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CAR-1</b><br>The written confirmation of the contribution of the project to sustainable development by the DNA of the host country shall be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Table1.2.                         | LOA from the DNA of China (National Development and Reform Commission of China) which states the contribution of the project to sustainable development has been provided by the project participant.                                                                                                      | <b>OK</b><br>It is confirmed that LOA from the DNA of the host party (China) states clearly that the project will contribute to sustainable development of the host country.<br>Thus CAR-1 is cleared                                                                                                                                                                                             |
| <b>CAR-2</b><br>The written approval of voluntary participation by the DNA of the Parties shall be provided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Table1.4.                         | LOA from the DNA of host party (China), which confirms voluntary participation, has been provided by the project participant.<br>LOA from the minister of Ministry of Economy, Trade and Industry of Japanese government has been provided.                                                                | <b>OK</b><br>It is confirmed that LOA from the DNA of the host party, and LOA from the minister of Ministry of Economy, Trade and Industry of Japanese government has been provided<br><br>Thus CAR-2 is cleared.                                                                                                                                                                                 |
| <b>CAR-3</b><br>The project boundary and the quantities of the equipment on the diagram in item B.3. shall be consistent with the description as follows,<br>(1) Auxiliary equipment of the power plants to which auxiliary electricity is supplied shall be indicated within the boundary.<br>(2) 2 trains of boilers and steam turbine generators for phase 1 & phase 2 shall be indicated.<br>(3) Gas tank shall be converter gas tank<br>(4) Both of the waste gas pipe lines (blast furnace gas and converter oven gas) shall be connected to the boilers properly.<br>(5) Auxiliary electricity supply line to the auxiliary equipment shall be indicated. | PDD<br>B.3.                       | The project activity was explained in detail at the on-site assessment with reference to the related documents such as agreements between concerned organizations, plant equipment specification and Feasibility Study Report. The project boundary diagram has been modified properly in the revised PDD. | <b>OK</b><br>The diagram in item B.3.of the revised PDD shows the project spatial boundary clearly including NWPG to which the power plants of the project are connected electrically, the system of main equipment, electrical system including the electricity supply line to the power plant auxiliaries and electricity meters, and fuel (waste gas) supply system.<br>Thus CAR-3 is cleared. |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Items of which clarifications and corrective actions are requested                                                                                                                                                                                                                                                                                                  | Question No. in table 1 & table 2     | Outline of the answer from the Project participants                                                                                                                | Conclusion by Validator                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| (6) Electricity meters shall be installed at the outlet of the both phase 1 and phase 2 steam turbine generators for the measurement of EG <sub>GEN</sub> and on the line to the auxiliary equipment for the measurement of EG <sub>AUX</sub> .                                                                                                                     |                                       |                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>CAR-4</b><br>(1) The evidence for the benchmark FIRR on total investment in the steel industry of China of 12 % and,                                                                                                                                                                                                                                             | PDD<br>B.4.,<br>B.5.                  | (1) The evidence for the benchmark FIRR, Project Economic Assessment and Parameters version 3 (Chinese version) authored and publicized by NDCR has been provided. | <b>OK</b><br>(1) Project Economic Assessment and Parameters version 3 indicates the benchmark FIRR of 12% for iron and steel industry of the host country. Appropriateness is confirmed. Thus CAR-4 is cleared.                                                                                                                                                                                                                             |
| <b>CAR-5</b><br>(1) The spread sheet of FIRR calculation of the cases without CDM (baseline scenario) and with CDM (the project activity) shall be attached to Annex 3 of the PDD.                                                                                                                                                                                  | PDD<br>B.4.,<br>B.5.                  | (1) The spread sheet of FIRR calculation is attached to Annex 3 of the revised PDD.                                                                                | <b>OK</b><br>(1) The spread sheet of FIRR calculation attached to Annex 3 of the revised PDD shows the detail of the calculation of FIRR without and with CDM support, and it is justified clearly. Thus CAR-4 is cleared.                                                                                                                                                                                                                  |
| <b>CLAR-1</b><br>The information of the procedure for the invitation of the stakeholders' comments shall be described in more detail including the reason why questionnaire survey was adopted instead of facilitation or interview survey, how the 90 stakeholders were selected, when the survey was conducted.<br>It shall be briefed at the on-site assessment. | Table1.10.<br>10, 14,<br>E.1.<br>E.3. | "Records of Stakeholders Comment Invitation" and "Minutes of Meeting with stakeholders"/have been provided and they are reflected in the revised PDD.              | <b>OK</b><br>Detail information of the invitation of stakeholders' comments was given by the project participant on the occasion of on-site assessment. It is confirmed that it was carried out in proper manner transparently showing that most of them were supportive to the project. As for the comment on the noise from the power plant, countermeasures have already been taken by the project participants. Thus CLAR-1 is cleared. |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Items of which clarifications and corrective actions are requested                                                                                                                                                                                                                                                                                                         | Question No. in table 1 & table 2          | Outline of the answer from the Project participants                                                                                                                                                                                                                                | Conclusion by Validator                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>CLAR-2</b><br>The report of EIA carried out by Coal Science Research Institute (CSRI) and approved by Environmental Protection Bureau of Shaanxi Province (EPBSP) shall be provided and briefed at the on-site assessment. The title, reference number and the date of approval of the report shall be stated in Annex 3 of the PDD.                                    | Table1.11.<br>D.1.                         | EIA Reports with the approval letter of Environmental Protection Bureau of Shaanxi Province have been provided.<br>The issued date and reference number of the approval letter of EPBSP are stated in the revised PDD.                                                             | <b>OK</b><br>EIA reports were provided on the occasion of on-site assessment and it is confirmed that EIA has been conducted in accordance with the relevant regulations, that no adverse effect on the environment will occur and that the report has been approved by EPBSP.<br>Thus CLAR-2 is cleared.                                                                                                             |
| <b>CLAR-3</b><br>The electricity generated $EG_{gen}$ and that supplied to the power plant auxiliary $EG_{aux}$ shall be measured for the calculation of the net electricity exported outside to Iron & Steel Works and NWPG $EG_y$ .                                                                                                                                      | Table1.13.<br>B.7.1.                       | $EG_{GEN}$ and $EG_{AUX}$ are added to the table of item B.7.1 as Data/Parameter monitored of the revised PDD.<br>“Simplified single line diagram” and “specification of the electricity meters” are inserted in item B.7.2 Description of the monitoring plan of the revised PDD. | <b>OK</b><br>It is confirmed that both $EG_{GEN}$ and $EG_{AUX}$ have been installed and will be monitored to calculate the net electricity exported outside from the project and that the electricity meters are to be operated, measured and calibrated by NWPG in conformance with national laws and standards.<br>Thus CLAR-3 is cleared.                                                                         |
| <b>CLAR-4</b><br>(1)The calculation tables of Operating Margin (OM) and Build Margin (BM) of NWPG of the preceding years shall be attached to Annex 3 of the PDD.<br>(2)The calculation process of ex-ante emission reduction shall be shown by substituting the corresponding figures for the variables in the formulae step by step for transparency of the calculation. | Table1.15.<br>B.6.1.,<br>B.6.2.,<br>B.6.3. | The calculation tables of OM and BM have been attached to Annex 3 of the revised PDD. Step-by-step calculation process of ex-ante emission reduction is shown in the revised PDD.                                                                                                  | <b>OK</b><br>(1)It is confirmed that the calculation tables attached to Annex 3 of the revised PDD show clearly that OM and BM of NWPG are calculated in conformance with ACM0002 ver.06 and the guidance made by CDM EB based on the operating data of the grid publicly available.<br>(2)Step by step calculation process of ex-ante emission reduction is described in the revised PDD.<br>Thus CLAR-4 is cleared. |
| <b>CLAR-5</b><br>The project will be implemented in accordance with the environmental regulation of the local                                                                                                                                                                                                                                                              | A.2.<br>B.5...                             | “Project Approval by SDRC” was provided and explained by SDRC during on-site assessment .                                                                                                                                                                                          | <b>OK</b><br>It is confirmed that the project has been and will be implemented in conformity with the relevant laws and                                                                                                                                                                                                                                                                                               |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Items of which clarifications and corrective actions are requested                                                                                                                                                                                                                                                | Question No. in table 1 & table 2 | Outline of the answer from the Project participants                                                                                                                                                                                                          | Conclusion by Validator                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| government as well as with the laws and regulations of State Electricity Regulatory Commission (SERC) and National Development and Reform Commission (NDRC) in the host country.<br>The relevant regulations and plans of the host country shall be provided and they shall be briefed at the on-site assessment. |                                   | The project was discussed at 25 <sup>th</sup> Meeting of NDRC on Dec.19, 2006. Conference Notice of the meeting was shown to DOE at the on-site assessment and the presentation documents prepared by the project participant for the meeting were provided. | regulations of the host country as the related documents provided show the conformity of the project with the laws and regulations of the host country and the province.<br>Thus CLAR-5 is cleared.                                                                                                                                                                                                                                                        |
| <b>CLAR-6</b><br>The country specific requirement on CDM project activity shall be described.                                                                                                                                                                                                                     | A.2.                              | “China’s CDM Rules by NDRC” was provided and explained during at the on-site assessment.<br>The supplementary description on Sustainable Development is added in the revised PDD.                                                                            | <b>OK</b><br>It is confirmed that “China’s CDM Rules by NDRC” states that “the priority areas of CDM activity are energy efficiency improvement, development and utilization of new and renewable energy, as well as recovery and utilization of methane and coal bed methane”, with which the project well accords.<br>A.2. Description of the project activity of the revised PDD has been modified to include the statement.<br>Thus CLAR-6 is cleared. |
| <b>CLAR-7</b><br>As for the maps concerned with the project site, English shall be used for the place name, the exact location shall be indicated with the longitude and latitude and they shall be clear.                                                                                                        | A.4.1.                            | English name and Longitude/Latitude are indicated in the revised PDD.                                                                                                                                                                                        | <b>OK</b><br>The maps in section A.4.1.4.of the PDD are replaced with clear ones which indicate the physical location of the project site and the names of the major cities in English.<br>Thus CLAR-7 is cleared.                                                                                                                                                                                                                                         |
| <b>CLAR-8</b><br>The major specification of the main equipment of the project including the steam condition of the power plant (evaporation (kg/h), pressure (MPa), temperature (°C)), generator rating (kVA), substation (kVA), Grid (voltage (kV) and frequency (Hz)), plant efficiency (%) and                 | A.4.3.                            | Feasibility Study Report was provided, where the specification of the main equipment, gas consumption/caloric value and plant efficiency are described. The additional information was included in the revised PDD.                                          | <b>OK</b><br>The specification of the main equipment installed by the project is described in detail in the revised PDD, with which it is confirmed that the current good practice is applied to the project.<br>Feasibility Study Report provided shows the detailed data of the composition of the waste gases and others.                                                                                                                               |

## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Items of which clarifications and corrective actions are requested                                                                                                                                                                                                                                                                                                                                                                                                                                 | Question No. in table 1 & table 2 | Outline of the answer from the Project participants                                                                                                                                                                                                                                                                                                                  | Conclusion by Validator                                                                                                                                                                                                                                                                                                                                                                           |
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| consumption of blast furnace gas and converter gas (Nm <sup>3</sup> /h) shall be described.<br>The table of heating value (kcal/NM <sup>3</sup> ) and analysis (%) of the blast furnace and converter gas shall be attached to Annex 3.                                                                                                                                                                                                                                                            |                                   |                                                                                                                                                                                                                                                                                                                                                                      | Thus CLAR-8 is cleared.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CLAR-9</b><br>The organisational chart of the power plant operation on which the name of the personnel in charge of management, plant operation, maintenance / calibration, training and monitoring / measurement / reporting, and QA/QC for CDM activity are indicated together with their missions and responsibilities shall be attached.<br>Briefing of the detailed procedure shall be made at the on-site assessment.                                                                     | A.4.3.<br>B.7.2.                  | The organizational chart for the operation of the power plants and CDM activity together with the explanation concerned with the monitoring of the project activity is inserted in the revised PDD to show the authority and responsibility of the personnel deployed for each function.<br>As for the electricity meters, reference shall be made to item "CLAR-3". | <b>OK</b><br>The organization chart and the explanation of the power plant operation mainly concerned with the CDM activity included in B.7.2.of the revised PDD shows the deployment of the responsible personnel to the required functions, the name of the responsible persons of management function, establishment of check system of CDM activity for QA/QC.<br><br>Thus CLAR-9 is cleared. |
| <b>CLAR-10</b><br>The starting date and ending date of the crediting period of the description and the table in item A.4.4.and those in the table in item B.6.4.of the PDD shall be consistent. The ending date shall be 31 August 2014.<br>The emission reductions in the Year of 2007 and 2014 of both tables shall be corrected to 90,015 tCO <sub>2</sub> e and 180,030 tCO <sub>2</sub> e respectively.<br>The emission reduction in the Year 2013 shall be added to the table in item B.6.4. | A.4.4.,<br>B.6.4.<br>C.2.1.       | The crediting period, starting/ending date and emission reductions are corrected to be consistent with each other in the revised PDD.                                                                                                                                                                                                                                | <b>OK</b><br>It is confirmed that the crediting period, starting/ending date and emission reductions in the revised PDD are consistent and appropriate.<br><br>Thus CLAR-10 is cleared                                                                                                                                                                                                            |
| <b>CLAR-11</b><br>As the starting date of the project activity is                                                                                                                                                                                                                                                                                                                                                                                                                                  | B.5.                              | Feasibility study report by CSRI which shows much lower FIRR than the                                                                                                                                                                                                                                                                                                | <b>OK</b><br>It is confirmed that the project application document                                                                                                                                                                                                                                                                                                                                |



## Comprehensive utilization of waste coal gas for electricity generation project in Xinglong Cogeneration Co., Ltd Project in Shaanxi Province, China

| Items of which clarifications and corrective actions are requested                                                                                                                   | Question No. in table 1 & table 2 | Outline of the answer from the Project participants                                                                                                                                                                                                                                                                                                                        | Conclusion by Validator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| before the date of validation, evidence which shows that the incentive from the CDM was seriously considered in the decision to proceed with the project activity shall be provided. |                                   | benchmark FIRR (investment barrier) and the project approval letter by Shaanxi Development and Reform Commission which suggests the project participant to get support from CDM for the execution of the project have been provided as the evidential documents which show that the incentive from the CDM was seriously considered for the implementation of the project. | <p>submitted to Shaanxi Development and Reform Commission (SDRC) which was issued in May 2005 shows the incentive from the CDM for the execution of the project and as a subsequent of the application, the approval letter was issued in April 2006 by SDRC which suggested the project participants to get support from the CDM for the execution of the project</p> <p>Based on these documents, it is justified that the project participants considered seriously the necessity of the support from the CDM for the implementation of the project.</p> <p>Thus CLAR-11 is cleared.</p> |

Appendix B  
Certificates of Competence

Date: April 17, 2007

**Certificate of Appointment of Validation Team**

(name of project participant)

New Energy and Industrial Technology Development Organization

|                               |                                                                                                                          |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Project Title                 | Comprehensive utilization of waste coal gas for electricity generation project in Shaanxi Xinglong Cogeneration Co. Ltd. |
| Applied Methodology           | ACM0004 Ver. 02 , ACM0002-Ver.06                                                                                         |
|                               | Sectoral Scope 1                                                                                                         |
| Designated Operational Entity | Japan Consulting Institute (JCI)                                                                                         |

This is to certify the validation team of JCI as specified below for the CDM project activity above as per CDM Project Activity Registration Form, "F-CDM-REG" adopted at the 24th Meeting of CDM Executive Board.

Signature



(Name) Hidefumi Nakashima

(Title) General Manager of Kyoto  
Mechanism Promotion Department

| Validation Team | Name               | Assigned Role       |
|-----------------|--------------------|---------------------|
| Leader          | Masaki OKADA       | All relevant issues |
| Member          | Masatoshi HISATOME | CDM auditor         |
| Member          | Junji YOSHIZAWA    | CDM auditor         |
| Member          | Yoshihisa SAKAI    | Quality issues      |