



**MONITORING REPORT**  
**Version 01, finished on 22/06/2010**  
**Power Generation (20MW) by Utilizing Coke Oven Gas of China Coal and Coke Jiuxin Limited**  
**in Lingshi, Shanxi, P.R.China**  
**Reference Number: 1390**  
**The Third Monitoring Period: 25/08/2009 – 24/06/2010**

**SECTION A. General description of the project activity**

**A.1. Brief description of the project activity: >>**

>>

The purpose of the project activity is to utilize the excess COG of China Coal and Coke Jiuxin Limited for power generation. The electricity generated by this project will replace the equivalent quantity of electricity from the North China Power Grid which is coal dominated. Therefore, the project activity helps positively in reducing global warming by avoiding the generation of CO<sub>2</sub> which would have been generated if equivalent quantity of electricity would have been taken from the grid.

The project activity utilizes the excess COG through the Internal Combustion Engine & Generator systems for power generation. 40 (35 in use and 5 stand-by) sets of Internal Combustion Engine & Generator systems were installed. The generation system includes: the internal combustion engine, the generator, the air filter, the silencer, the auxiliary system, the pressure regulation device and the control panels.

This power generation project started constructing in February, 2005, and started commissioning in Nov. 2005. After about six-month commissioning, this power generation project was put into full operation in January, 2006. The continued operation periods of this project activity will be 18 years according to FSR. During this monitoring period, all the facilities and equipments were in place and well-functioning.

Total emission reductions achieved in this monitoring period is 63057tCO<sub>2</sub>e.

**A.2. Project Participants**

>>

Parties involved are the People's Republic of China (Host Country) and Sweden (Other Parties). The project participants are China Coal and Coke Jiuxin Limited (project owner) and Carbon Asset Management Sweden AB.

**A.3. Location of the project activity:**

>>

The project is located in Lingshi county of Jinzhong city which is in the middle area of Shanxi province of the People's Republic of China, and its geographical coordinates are east longitude 111°38'49" and north latitude 36°48'52".

**A.4. Technical description of the project**

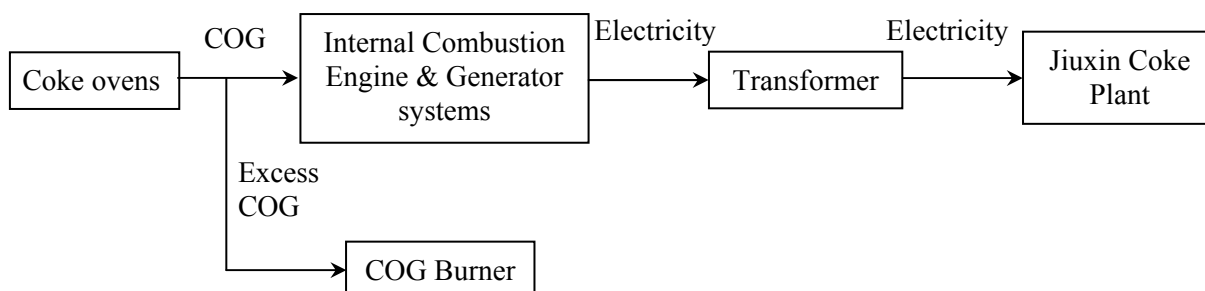
>>

The project activity consists of 40 (35 in use and 5 stand-by) sets of Internal Combustion Engine & Generator systems (Model: 500GF-3RJ, Rated power: 500kW) manufactured by Shengli Power Machinery Works of Shengli Petroleum. And the technical specifications of the key units are as follows:

Internal combustion engine:  
Type: 4 stroke, plug ignition  
Model: T12V190ZLD

Electric generator:  
Type: automatic, brushless  
Model: 1FC6 406-4  
Rated power: 500kw  
Rated speed: 1500r/min  
Frequency: 50Hz  
Power factor: 0.8(lagging)  
Voltage: 400v

The project activity utilizes the excess coke oven gas of China Coal and Coke Jiuxin Limited through the 40 (35 in use and 5 stand-by) sets of Internal Combustion Engine & Generator systems for power generation, and its technical process is shown in the following diagram:



**A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:**

>>

1. Consolidated baseline and monitoring methodology for waste gas and/or heat and/or pressure for power generation, ACM0004/Version02;
2. Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002/Version06;
3. Tool for the demonstration and assessment of additionality /Version03.

**A.6. Registration date of the project activity:**

>>

February 17, 2008

**A.7. Crediting period of the project activity and related information (start date and choice of crediting period):**

>>

The crediting period of this project activity was chosen as ten years (Fixed), and its starting date was February 17, 2008.

**A.8. Name of responsible person(s)/entity(ies):**

>>



Contact information of the persons and entity responsible for completing the monitoring report form:

Dr. Lv Xin

Mr. Deng Yuefeng

China CDM Center for Coal Industry

Room 1701, The Coal Tower, 13th Region of Heping Street, Chaoyang District, Beijing 100013, P.R. China

Tel: 86-10-84264995

E-mail: cst@sjwa.cn

## **SECTION B. Implementation of the project activity**

### **B.1. Implementation status of the project activity**

>>

This power generation project had been put into full operation since January, 2006, and all the facilities and equipments, including 40 (35 in use and 5 stand-by) sets of Internal Combustion Engine & Generator systems, were in place and well-functioning, and had no change and replacement during this monitoring period.

There were no events or situations occurred during the monitoring period, which may impacted the applicability of the methodology.

### **B.2. Revision of the monitoring plan**

>>

The monitoring plan contained in the registered PDD is in lines with the approved methodology applied to this CDM project activity, and it has not been revised since this CDM project activity registered.

### **B.3. Request for deviation applied to this monitoring period**

>>

There is no deviation applied to this monitoring period.

### **B.4. Notification or request of approval of changes**

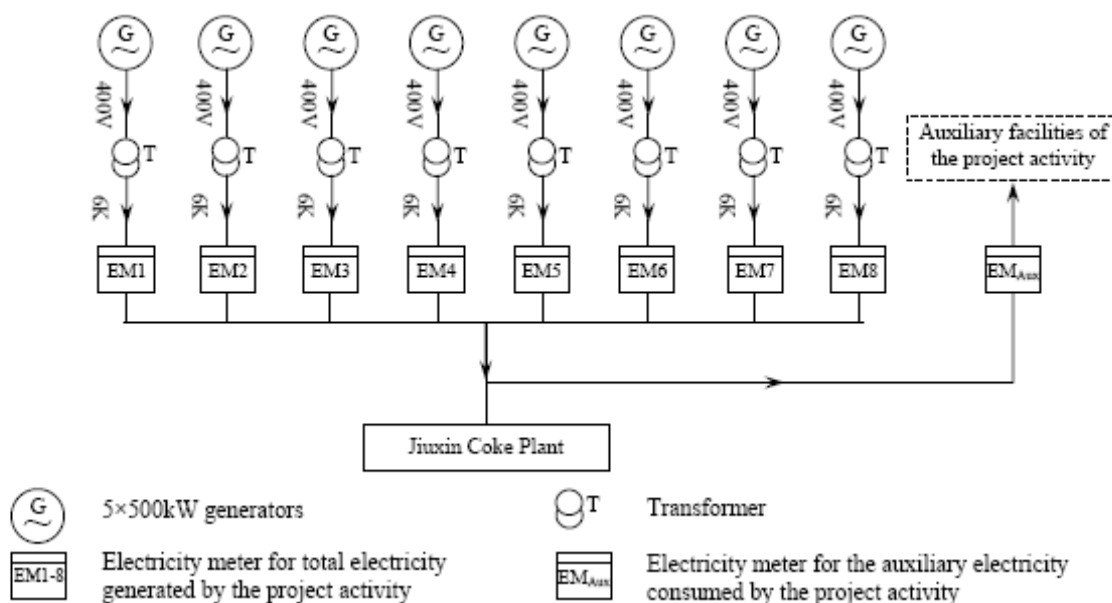
>>

There is no notification or request of approval of changes from the project activity as described in the registered CDM-PDD.

## **SECTION C. Description of the monitoring system**

>>

The monitoring system and all relevant monitoring points are shown in the following figure:



**Figure The monitoring diagram of the project activity**

### Data Collection Procedures

The total electricity generated and the auxiliary electricity consumed by the project activity were monitored continuously by nine electricity meters installed in the Central Transformer Substation of the power generation station. One distributed control system (DCS) was installed to receive continuously the data signals from all the monitoring meters, and all the data signals received were processed and then archived in a safe database automatically. At the same time, the processed data were used to produce record reports of daily and monthly cumulative quantity of electricity automatically, too. All the data and record reports can be read and showed on the screen if needed.

All these operations are completely automatic and safe, and any accidental loss or manual modification of the recorded data can be avoided absolutely.

The readings of the nine electricity meters were also collected and recorded manually once a day, and the record reports of daily and monthly cumulative quantity of electricity in paper format were produced by the head of the power distribution workshop during the monitoring period.

### Calibration

In order to ensure the reliability of the monitoring system and the accuracy of the readings, all meters and devices had been properly calibrated and checked by qualified entity (Shanxi Jinzhong Power Supply Company Energy Metrological Center) annually according to the requirement from “Stipulated Procedures for Technical Administration of Electricity Metering Equipment (DL/T448-2000) ”.

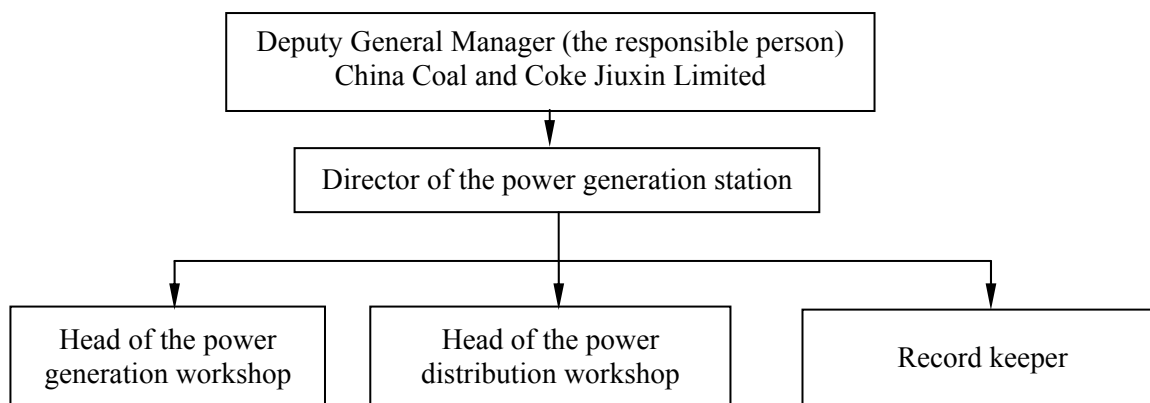


Parameter	Meter	Location	S/N	Maximum Uncertainty	Calibrated on*	Calibration expiration
EG <sub>Gen,y</sub>	621	the Central Transformer Substation of this power generation station	B906H00024	$\leq \pm 0.5\%$	a. February 17, 2009	a. February 16, 2014
	623		B906H00025	$\leq \pm 0.5\%$		
	625		B906H00012	$\leq \pm 0.5\%$		
	627		B906H00011	$\leq \pm 0.5\%$		
	620		B906H00001	$\leq \pm 0.5\%$	b. February 15, 2010	b. February 14, 2015
	622		B906H00029	$\leq \pm 0.5\%$		
	624		B906H00030	$\leq \pm 0.5\%$		
	626		B906H00010	$\leq \pm 0.5\%$		
EG <sub>Aux,y</sub>	628		00301616	$\leq \pm 0.5\%$		

\*Note: All meters were properly calibrated annually by qualified entity, and all the calibration certifications issued by the qualified entity are valid for five years.

### Organizational Structure

China Coal and Coke Jiuxin Limited established a CDM project management office with responsibilities for all project related activities including project management, contact with CDM EB and DOE as well as Quality Assurance and Quality Control of the related data, documents and reports. Staff of the CDM project management office includes the deputy general manager (responsible person), the director of the power generation station, the head of the power generation workshop, the head of the power distribution workshop and the person responsible for record keeping and preservation. The following figure outlines the operational and management structure that the project owner implements for the project activity and to monitor emission reductions.



### Emergency Procedures

When a device or meter is found to be malfunctioning or registering data outside the acceptable limits of accuracy, the electricity will be estimated as follows:

1. Data of the electricity meters are remotely transmitted to local electric power supply company and any malfunctions of the electricity meter will be detected immediately. The local electric power supply company will be responsible to repair or replace the malfunctioning meter within two working days.
2. The electricity during the two working days will be determined as follows: first, take the reading of the transmitted data to local electric power supply company. If this reading is obviously unreasonable, an appropriate and reasonable estimation method will be designed by local electric power supply company. Evidence will be provided to DOE for the verification to show the estimation is reasonable and conservative.

## SECTION D. Data and parameters

**D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors**

<b>Data / Parameter:</b>	EF <sub>y</sub>
Data unit:	tCO <sub>2</sub> /MWh
Description:	CO <sub>2</sub> baseline emission factor of the North China Power Grid
Source of data used:	Data published by China DNA on <a href="http://cdm.ccchina.gov.cn">http://cdm.ccchina.gov.cn</a>
Value(s) :	0.9826
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for baseline emission calculations
Additional comment:	Low uncertainty

In line with the approved methodology used and the monitoring plan contained in the registered PDD, the following parameters have to be monitored:

**D.2. Data and parameters monitored**

<b>Data / Parameter:</b>	EG <sub>Gen,y</sub>
Data unit:	MWh
Description:	Total electricity generated by the project activity during the year y
Measured /Calculated /Default:	Measured
Source of data:	Electricity meters
Value(s) of monitored parameter:	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for baseline calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	<p>Eight electricity meters were installed with serial numbers as B906H00001, B906H00010, B906H00011, B906H00012, B906H00024, B906H00025, B906H00029, B906H00030 respectively. The common information shared by all the eight electricity meters are as follows:</p> <p>Type: DSSD666  Accuracy class: 0.5S  Calibration frequency: Once a year  Date of last calibration: February 15, 2010 by Shanxi Jinzhong Power Supply Company Energy Metrological Center  Validity: from February 15, 2010 to February 14, 2015</p>
Measuring/ Reading/ Recording frequency:	The readings of the electricity meters were monitored continuously and the data were collected and recorded accordingly. The electronic record reports of daily and monthly cumulative quantity of electricity were archived in the DCS of the power generation station, and the daily and monthly record reports in a paper format were archived in the power generation station, too. All the data would be preserved during and two



	years after the crediting period.
Calculation method (if applicable):	
QA/QC procedures applied:	The electricity meters were subject to a regular maintenance and calibration by qualified entities annually in accordance with relevant national regulations and standards.

<b>Data / Parameter:</b>	EG <sub>Aux,y</sub>
Data unit:	MWh
Description:	The auxiliary electricity consumed by the project activity
Measured /Calculated /Default:	Measured
Source of data:	Electricity meter
Value(s) of monitored parameter:	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for baseline calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Type: DSSD666 Accuracy class: 0.5S Serial number: 00301616 Calibration frequency: Once a year Date of last calibration: February 15, 2010 by Shanxi Jinzhong Power Supply Company Energy Metrological Center Validity: from February 15, 2010 to February 14, 2015
Measuring/ Reading/ Recording frequency:	The readings of the electricity meter were monitored continuously and the data were collected and recorded accordingly. The electronic record reports of daily and monthly cumulative quantity of electricity were archived in the DCS of the power generation station, and the daily and monthly record reports in a paper format were archived in the power generation station, too. All the data would be preserved during and two years after the crediting period.
Calculation method (if applicable):	
QA/QC procedures applied:	The electricity meter was subject to a regular maintenance and calibration by qualified entities annually in accordance with relevant national regulations and standards.

<b>Data / Parameter:</b>	EG <sub>y</sub>
Data unit:	MWh
Description:	Net quantity of electricity supplied by the project activity during the year y
Measured /Calculated /Default:	Calculated
Source of data:	
Value(s) of monitored parameter:	
Indicate what the data are	Used for baseline calculation



used for (Baseline/ Project/ Leakage emission calculations)	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	
Measuring/ Reading/ Recording frequency:	
Calculation method (if applicable):	$EG_y = EG_{Gen,y} - EG_{Aux,y}$
QA/QC procedures applied:	This data is calculated from $EG_{Gen,y}$ and $EG_{Aux,y}$ , therefore the QA/QC procedure applied to $EG_{Gen,y}$ and $EG_{Aux,y}$ also could be applied to $EG_y$ .

## SECTION E. Emission reductions calculation

### E.1. Baseline emissions calculation

>>

According to the applicable methodologies, the baseline emissions achieved by this project activity for this monitoring period are calculated as follows:

$$BE_y = EG_y \times EF_y = (EG_{Gen,y} - EG_{Aux,y}) \times EF_y$$

Where:

$EG_y$  is the net quantity of electric power supplied by the project activity during the year y in MWh;  
 $EF_y$  is CO<sub>2</sub> baseline emission factor for the grid electricity displaced due to the project activity during the year y (tCO<sub>2</sub>/MWh) ;

$EG_{Gen,y}$  is the total electricity generated by the project activity during the year y in MWh;

$EG_{Aux,y}$  is the auxiliary electricity consumed by the project activity during the year y in MWh.

In order to be consistent with the monitoring plan described in the registered PDD and relevant requirements mentioned in the MR guidelines, we choose the daily and monthly records for calculation of  $EG_y$  and its corresponding emission reduction. The DCS records will be delivered to DOE for cross-check.





## CDM – Executive Board

EB 54  
Report  
Annex 34  
Page 9

Period (from the first day at 0:00 to the last day at 24:00 of each period.)	Power Generation(MWh)									Self-consumption	Net Power Supply	baseline emission factor	Baseline Emissions
	Generator Group								EG <sub>Gen,y</sub> (MWh)	EG <sub>Aux,y</sub> (MWh)	EG <sub>y</sub> (MWh)	EF <sub>y</sub> (tCO <sub>2</sub> e/MWh)	BE <sub>y</sub> (tCO <sub>2</sub> e)
	A1(620)	A2(621)	A3(622)	A4(623)	A5(624)	A6(625)	A7(626)	A8(627)	B=A1+...+A8	C(628)	D=B-C	E	F=D*F
25/08/09-24/09/09	792.576	710.400	1044.000	1020.288	812.592	838.320	914.592	1015.824	7148.592	279.22	6869.376	0.9826	6749.849
25/09/09-24/10/09	771.456	730.368	953.280	901.104	900.288	791.568	1005.600	819.504	6873.168	272.74	6600.432		6485.584
25/10/09-24/11/09	771.984	763.728	948.912	606.480	995.424	767.040	992.496	944.976	6791.040	304.23	6486.811		6373.940
25/11/09-24/12/09	748.656	622.272	954.336	691.392	931.776	685.104	794.976	879.600	6308.112	199.41	6108.706		6002.414
25/12/09-24/01/10	800.832	756.000	992.064	1000.416	919.776	792.912	846.096	926.400	7034.496	309.49	6725.007		6607.992
25/01/10-24/02/10	819.168	866.880	1013.952	997.536	1026.384	819.888	1008.720	625.536	7178.064	334.79	6843.271		6724.198
25/02/10-24/03/10	689.184	824.160	859.488	852.000	887.617	624.672	894.192	557.328	6188.641	258.93	5929.710		5826.533
25/03/10-24/04/10	690.480	936.912	932.160	793.488	903.071	579.264	955.248	763.728	6554.351	277.29	6277.064		6167.844
25/04/10-24/05/10	533.760	825.504	874.272	892.032	840.864	433.440	834.576	904.944	6139.392	230.56	5908.832		5806.019
25/05/10-24/06/10	582.048	689.952	961.008	959.040	931.536	453.696	973.056	980.688	6531.024	106.55	6424.478		6312.692
Total									66746.880	2573.193	64173.687		63057.065



	Baseline Emissions (tCO <sub>2</sub> e)	Project Emissions (tCO <sub>2</sub> e)	Leakage (tCO <sub>2</sub> e)	Emission Reductions (tCO <sub>2</sub> e)
August 25 2009- September 24 2009	6749.849	0	0	6749.849
September 25 2009- October 24 2009	6485.584	0	0	6485.584
October 25 2009- November 24 2009	6373.940	0	0	6373.940
November 25 2009- December 24 2009	6002.414	0	0	6002.414
December 25 2009- January 24 2010	6607.992	0	0	6607.992
January 25 2010- February 24 2010	6724.198	0	0	6724.198
February 25 2010 - March 24 2010	5826.533	0	0	5826.533
March 25 2010 - April 24 2010	6167.844	0	0	6167.844
April 25 2010 - May 24 2010	5806.019	0	0	5806.019
May 25 2010 - June 24 2010	6312.692	0	0	6312.692
Total (August 25 2009 to June 24 2010)	63057.065	0	0	63057.065

**E.2. Project emissions calculation**

&gt;&gt;

There are no project emissions in this project activity.

**E.3. Leakage calculation**

&gt;&gt;

According to the applicable methodologies and registered CDM-PDD, no leakage is considered for this project activity.

**E.4. Emission reductions calculation / table**

&gt;&gt;

Total baseline emissions:

$$BE_y = EG_y \times EF_y = (EG_{Gen,y} - EG_{Aux,y}) \times EF_y$$

	EG <sub>Gen,y</sub>	EG <sub>Aux,y</sub>	EG <sub>y</sub>	EF <sub>y</sub>	BE <sub>y</sub>
Total (August 25, 2009 to June 24, 2010)	66746.880	2573.193	64173.687	0.9826	63057.065

Total project emissions(PE<sub>y</sub>):

The project emission is zero.

Total leakage(L<sub>y</sub>):

No leakage is considered.

Total emission reductions:

$$ER_y = BE_y - PE_y - L_y$$

	BE <sub>y</sub>	PE <sub>y</sub>	L <sub>y</sub>	ER <sub>y</sub>
Total (August 25, 2009 to June 24, 2010)	63057.065	0	0	63057.065

**E.5. Comparison of actual emission reductions with estimates in the CDM-PDD**



&gt;&gt;

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO <sub>2</sub> e)	67599 tCO <sub>2</sub> e	63057 tCO <sub>2</sub> e

As shown above, the actual emission reductions in this monitoring period are less than the annual emission reductions estimated in the registered CDM-PDD.

**E.6. Remarks on difference from estimated value in the PDD**

&gt;&gt;

The actual emission reductions hereby claimed are less than expected.