

MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

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* as contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).

MONITORING REPORT

Version: **05-06** Date: **27/15/0610/2012**

Yunnan Hongta Cement Waste Heat Recovery Power Generation Project

Reference number: **3674**

The 1st monitoring period: **08/10/2010-17/10/2011**

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

The main purpose of the Yunnan Hongta Cement Waste Heat Recovery Power Generation Project (hereafter refers to 'the Project') is to develop a power generation system through recovery and utilization of waste heat from one existing 3000t/d clinker production line. After deducting a small part of electricity utilized by the waste heat recovery system, the electricity generated by the Project will be used onsite for the cement production which will substitute those from the China Southern Power Grid (CSPG) in the absence of the Project. The Project will reduce electricity requirements from CSPG which is mainly formed by fossil fuel. This project decreases CO₂ emission by cutting down fossil fuel consumption.

The Project is designed to install one set of suspension preheater (SP boiler), one set of air quenching cooler (AQC boiler) and one set of turbine generator. The total installed capacity of the Project is 6MW.

The construction contract of the Project was signed on 22/08/2008 and the real construction of the Project started on 08/09/2008, during July and August 2009, the Project involves into commissioning, and finally put into operation on 17/09/2009.

Total emission reductions achieved in this monitoring period is 28,611 tCO₂e (from 08/10/2010 to 17/10/2011).

A.2. Project Participants

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	Yunnan Hongta Dianxi Cement Co., Ltd.	No
United Kingdom	British Gas Trading Limited	No

A.3. Location of the project activity:

The proposed project is located in Shangdeng Industrial area, Dali Economic Development Zone, Dali Prefecture, Yunnan Province, P.R. China. The geographical coordinates are east longitude 100°20'32''~E100°20'45'' and north latitude N25°40'55''~N25°41'11''. Detailed physical location follows as Fig1.

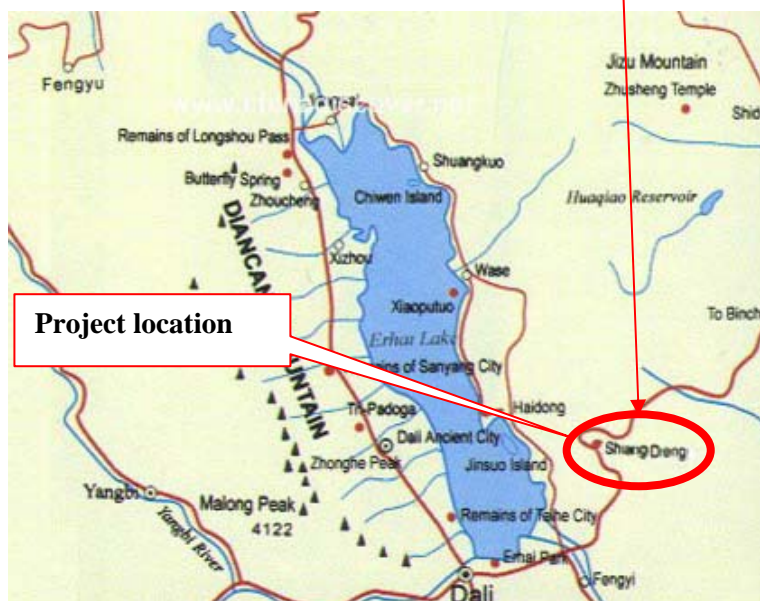
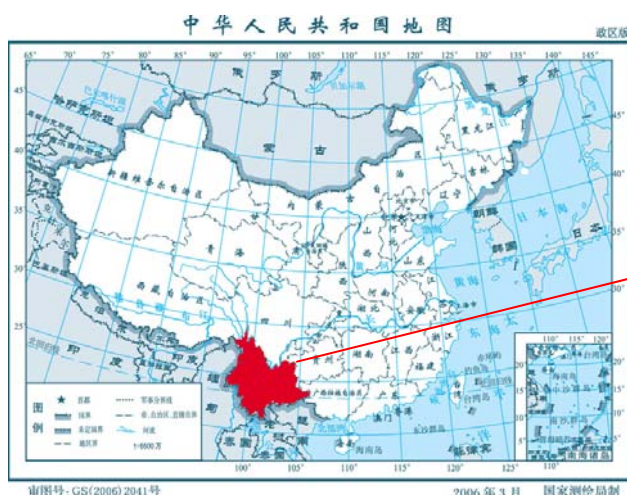


Fig1. Location of the project

A.4. Technical description of the project

The Project will utilize waste heat at existing facilities as an energy source for generation of electricity. The Project adopts low-temperature waste heat recovery for power generation technology. The WHR system used in this Project activity consists of two heat recovery boilers (also called heat recovery steam generators, or HRSG) and a single power generator (also called a turbine). The WHR system re-routes the wasted heat to the two HRSGs: one on the suspension preheater and one on the air quenching cooler. Steam from the SP and AQC boilers is combined to power a turbine which produces electricity. All the equipments employed are domestically manufactured. So there is no technology transferred involved in the Project. The key technical parameters detailed in the following table.

Table A-1 General information about technical parameter

Device Name	Quantity	Technical Parameter
Steam Turbine	1	Model: BN6.0—2.29/0.20 Rated Power: 6MW Rated Rotation Speed: 3,000r/min Rated Inlet Steam Pressure: 2.29MPa Rated Inlet Steam Temperature: 370℃ Rated Second Inlet Steam Pressure: 0.20MPa Rated Second Inlet Steam Temperature: 150℃ Exhaust Pressure: 0.007Mpa

		Designed life time: > 30 years Manufacturer: Qingdao Jieneng Steam turbine Group Co., Ltd.
Generator	1	Model: QF ₁ -6-2 Rated Power: 6MW Rated rotation speed: 3,000r/m Designed life time: > 30 years Manufacturer: Sichuan Dongfeng Electric Factory Co., Ltd
AQC boiler	1	Model: QC148/380-15.5(2.5)-2.3(0.3)/(160) Inlet Gas Flow: 148,000m ³ /h Inlet Gas Temperature: 380°C Rated Steam Flow: 15.5/2.5t/h Rated Steam Pressure: 2.3/0.3MPa Feed Water Temperature: 100/30°C Designed life time: >20 years Manufacturer: Sichuan Chuanrun Dynamical Equipment Co., Ltd
SP boiler	1	Model: QC241/365-22(5.4)-2.3(0.2)/235(160) Inlet Gas Flow: 241,000m ³ /h Inlet Gas Temperature: 365°C Rated Steam Flow: 22/5.4t/h Rated Steam Pressure: 2.3/0.2MPa Rated Steam Temperature: 235/160°C Feed Water Temperature: 100/30°C Designed life time: >20 years Manufacturer: Sichuan Chuanrun Dynamical Equipment Co., Ltd
ASH boiler	1	Model: QC50/526-38-2.3/380 Inlet Gas Flow: 50,000m ³ /h Inlet Gas Temperature: 526°C Rated Steam Flow: 38t/h Rated Stem Pressure: 2.3MPa Rated Steam Temperature: 380°C Inlet Steam Temperature: 220°C Designed life time: > 20 years Manufacturer: Sichuan Chuanrun Dynamical Equipment Co., Ltd

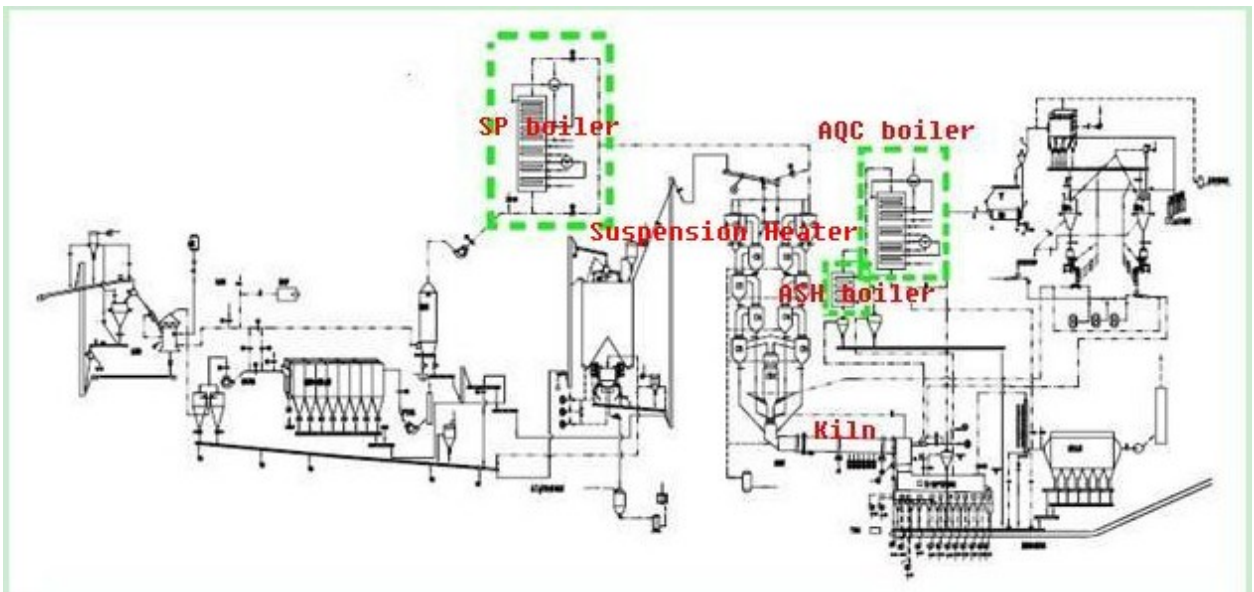


Fig2. The technical process diagram of the Project

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

Based on the information provided in Appendix C of the Simplified Modalities and Procedures for Small-Scale CDM project activities, the approved baseline methodology applied to the proposed project as follows:

AMS-III.Q (Version 02) - “Waste Energy Recovery (gas/ heat/pressure) Projects”.

Methodology AMS-III.Q also refers to:

1. Appendix B of the UNFCCC’s published simplified modalities and procedures for small-scale activities
2. The approved “Tool to calculate the emission factor for an electricity system” (Version 02).

More information about the methodology can be obtained at:

<http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

A.6. Registration date of the project activity:

The project is registered as a CDM project on 08/10/2010.

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

Start date of crediting period: 08/10/2010

Crediting period: 08/10/2010-07/10/2020

Choice of crediting period: 10-year fixed

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

The Monitoring Report was completed by:

Hangzhou Carbon Trade Environment Engineering Co., Ltd.

Room 1525 of Buynow Keji Mansion, Jiaogong Rd, West Lake District, Hangzhou City, Zhejiang Province, China.

Doris Lin

Tel: +86 0571 5683 4629

Fax: +86 0571 5683 4630

Email: dorislin0917@126.com

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

The proposed project was put into operation on 17/09/2009 and it only consists of one site and the implementation is not phased.

During this monitoring period (08/10/2010-17/10/2011), the turbine generator, SP boiler and AQC boiler of the Project were under maintenance and overhaul for about 11 days in July 2011, the detail records are list below:

The maintenance and overhaul records in July 2011

Maintenance and Overhaul Records	Time
Turbine generator and cooling tower	09/07/2011, 10/07/2011, 12/07/2011, 14/07/2011, 15/07/2011, 18/07/2011
Pipeline	19/07/2011
SP boiler	09/07/2011, 13/07/2011, 15/07/2011, 20/07/2011
AQC boiler	11/07/2011-13/07/2011, 15/07/2011, 17/07/2011, 20/07/2011

On 9:00 a.m. 29/10/2010, all the 5 meters installed at the project site are zero cleared according to the request by Dali Power Supply Bureau.

Besides these events, the Project was strictly operated in compliance with the description in registered PDD. Monitoring of the required parameters, data recording and collection were in line with the registered PDD.

In addition, no events or situations, which may impact the applicability of the methodology, have occurred during the current monitoring period.

B.2. Revision of the monitoring plan

~~No-The request for revision~~Corrections to the registered PDD and the Permanent changes from the registered monitoring plan which is change of location of meter as per the power wiring diagram were ~~was~~ applied ~~for~~ during this monitoring period.

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

No request for deviation was applied for during this monitoring period.

B.4. Notification or request of approval of changes

No notification or request of approval was applied for during this monitoring period.

SECTION C. Description of the monitoring system

C1. Monitoring system

The monitoring system is established according to the monitoring plan in the registered PDD. The electrical connection diagram of the Project is in the following.

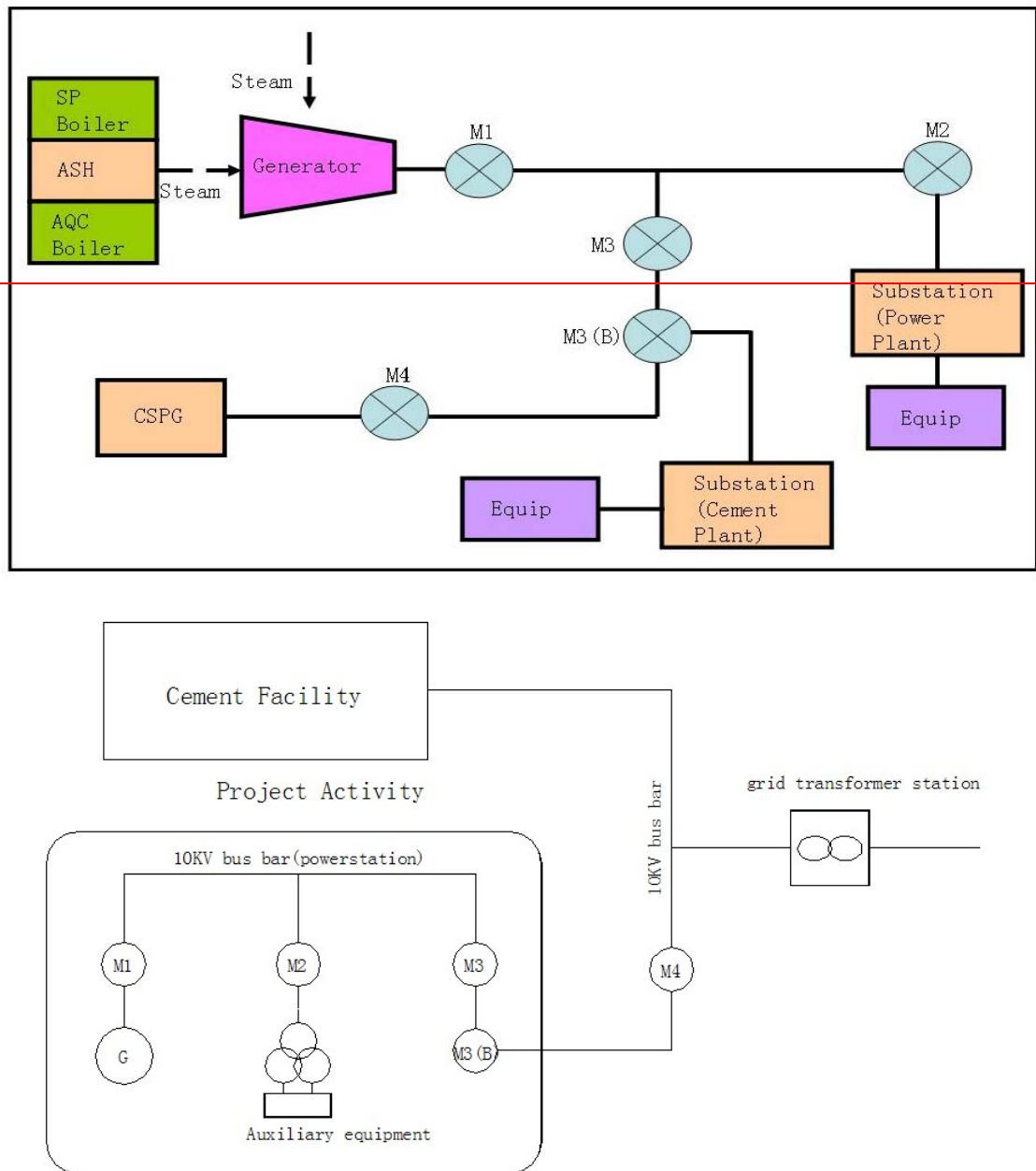


Fig2. Simplified diagram of ammeter installation

1) Data collection and data generation

As the net electricity generated by the Project will be just connected to the grid and will be used onsite for cement production except that utilized by the WHR system. Thus, the records of meter M4, monitoring the net electricity quantity generated by the Project and managed by the grid, will be used for emission reduction calculation as per the registered PDD. There are five meters installed at the project site. The accuracy of all these five meters is 0.5S. The parameters need to be monitored are:

1. Total Electricity quantity generated by the project in year y ($EG_{total,y}$), is monitored by meter M1(serial number 350313).
2. The self-consumed electricity consumed by power plant, is monitored by meter M2 (serial number 350187). The parameter is not used for emission reduction in this crediting-monitoring period and it will be used only if the meter M3, M3 (B) and M4 are in emergency situation/failure.

3. Net electricity supplied to the cement production line connected to the grid ($EG_{pj \text{ to grid},y}$) and electricity quantity supplied to the project from the grid ($EG_{grid \text{ to pj},y}$), are monitored by the main bidirectional meter M4¹ (serial number 740022) managed by the Electric Power Bureau and are crosschecked by the readings of meter M3 (serial number 350190) managed by the project owner. The readings of meter M4 are used for emission reduction calculation of the Project. The meter M3 (B) (serial number 000080) is the backup meter of M3.
4. Annual electricity generation by the Project Activity in year y ($Q_{OE,y}$), as all waste heat recovered by the project is for generating electricity, so this parameter has the same meaning with $EG_{total,y}$ and is also monitored by meter M1 (serial number 350313).

2) Data generation

~~The meter M1 (serial number 350313) with the accuracy of 0.5S will monitor the total electricity quantity generated by the Project ($EG_{total,y}$). As all waste heat recovered by the project is for generating electricity, M1 also monitor the actual energy generated by the Project ($Q_{OE,y}$).~~

~~The meter M2 (serial number 350187) with the accuracy of 0.5S will monitor the electricity consumed by the power plant.~~

~~The meter M3 (serial number 350190) with the accuracy of 0.5S is a bidirectional electricity meter that will monitor both the electricity connected to the grid by the Project ($EG_{pj \text{ to grid},y}$) and the electricity supplied to the Project from the grid ($EG_{grid \text{ to pj},y}$). The readings of meter M3 can be used for crosscheck of the readings of meter M4.~~

~~The meter M3 (B) (serial number 000080) with the accuracy of 0.5S will monitor the electricity supplied to the cement production plant. As M3 (B) is a backup meter of meter M3 as per the registered PDD, thus the position of meter M3 (B) should be series circuit which is also in compliance with the real monitoring system but not parallel in PDD. The meter M3 (B) is just the backup meter and will be used only if the meter M3 is in fault/emergency, thus it will not influence the emission reduction of the Project.~~

~~The meter M4 (serial number 740022) with the accuracy of 0.5S is managed by the Electric Power Bureau and will also monitor both the electricity connected to the grid by the Project ($EG_{pj \text{ to grid},y}$) and the electricity supplied to the Project from the grid ($EG_{grid \text{ to pj},y}$). The readings of meter M4 is used for emission reduction calculation of the Project.~~

32) Data aggregation and recording

The power plant staffs are in charge of recording the reading of meter M1, M2, M3 and M3 (B), meanwhile, the Electric Power Bureau could recording the readings of meter M4. The data collected daily are then aggregated into monthly report, which constitutes the basis for monitoring report. The calibration of the metering instruments is conducted every year.

C2. Monitoring Organization

Prior to the started of the crediting period, the Project owner has pointed out a CDM group and developed a CDM Monitoring Plan to ensure that the daily operation of the Project is well organized in terms of collecting and archiving complete and reliable data. All staff involved in the CDM group has clear roles and responsibilities. The structure of the monitoring organization is shown below.

¹ According to the Approval of Grid Connection of the Project (Yundianji [2009] 217), the net electricity generated by the Project can be only supplied to the Yunnan Hongta Dianxi Cement plant. The project activity is only approved to be connected the Yunnan Grid. However, it is forbidden to sale electricity to the grid. Meanwhile, it is also not allowed to supply electricity to any third part or any electrical contract generated.

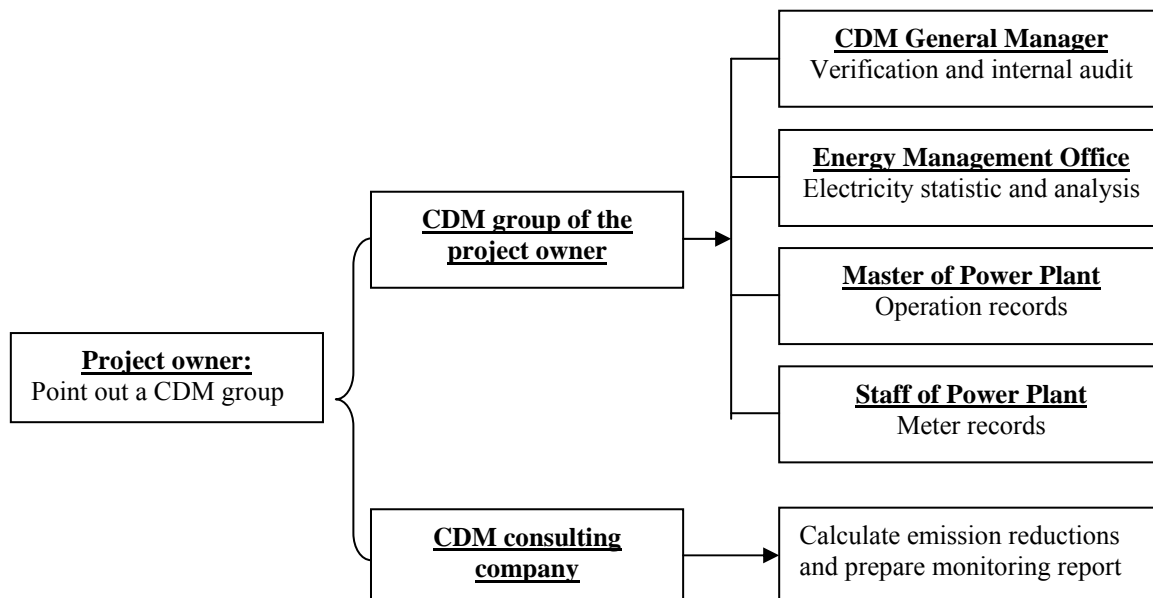


Fig3. The monitoring structure

The CDM group consists of monitoring group of the project owner and CDM consulting company. The responsibility of each part is as follows:

CDM General Manager: Verify the statistic electricity data, operational records and invoices from Energy Management Office and conduct internal audit to ensure all the data and materials are reasonable and credible.

Energy Management Office: Analyse the electricity data records and operation records from Power Plant. Collect the invoices from power grid. All the data and materials will be submitted to general manager for verification and internal audit on monthly basis.

Master of Power Plant: Supervise the daily operation of the WHR system. Record the daily operation and maintenance of Power Plant and submit to energy management office on monthly basis.

Staff of Power Plant: Record the readings of meters in the Power Plant and submit to energy management office on monthly basis.

CDM Consulting Company: Calculate emission reductions and prepare monitoring report of the project.

All the data including calibration records are kept until 2 years after the end of the total credit time of the project.

C3. Procedures in case of Emergencies

In case of emergencies, the project entity will claim emission reduction following the below processed:

- 1) In the event that a meter has lost calibration over the allowable error limit then this shall be corrected at the earliest opportunity and re-calibrated.
- 2) In the event that the meter M4 is in fault/emergency, the readings of meter M3 and M3 (B) can be used to calculate emission reductions. The fault/emergency meter should be repaired and calibrated only by national designated institutions with metering certificate.
- 3) In the event that the meter M3, M3 (B) and M4 are in fault/emergency, the difference of meter M1 and M2 will be used.

During this monitoring period, no emergency situation/failure of meters is experienced. All the data used in calculating emission reductions are from meter M4 managed by the Dali Electric Power Bureau. As a cross check, the readings of meter M3 are also provided for verification.

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

Data / Parameter:	EF_y
Data unit:	tCO ₂ /MWh
Description:	The emission factor of CSPG
Source of data used:	2008 Baseline Emission Factors of Power Grids in China published by NDRC
Value(s) :	0.8712
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for calculating the baseline emission
Additional comment:	Details as shown in the registered PDD

Data / Parameter:	$Q_{OE,BL}$
Data unit:	MWh
Description:	Output energy (electricity) that can be theoretically produced (in MWh), to be determined on the basis of maximum recoverable energy from the WECM, which would have been released (or WECM would have been flared or energy content of WECM would have been wasted) in the absence of CDM project activity.
Source of data used:	Registered PDD
Value(s) :	42,380
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for calculating the f_{cap}
Additional comment:	

Data / Parameter:	f_{wem}
Data unit:	/
Description:	Fraction of total electricity generated by the project activity using waste energy. This fraction is 1 if the energy generation is purely from use of waste energy in the project generation unit.
Source of data used:	Registered PDD and actual implementation
Value(s) :	1
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for calculating the baseline emission
Additional comment:	-

D.2. Data and parameters monitored

Data / Parameter:	$EG_{total,y}$
Data unit:	MWh
Description:	Total Electricity quantity generated by the project in year y
Measured /Calculated /Default:	Measured by the meter M1
Source of data:	Meter records Electricity meter
Value(s) of monitored parameter:	

	Starting time	Ending time	EG _{total,y} (MWh)	Meter
	08/10/2010	17/10/2011	35,559.072	M1
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for the baseline emission calculations and calculation of the f _{cap}			
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Information of electricity meter		M1	
	Type		DSSD331	
	Accuracy class		0.5S	
	Serial number		350313	
	Calibration frequency		Every year	
	Calibration date		23/06/2010-22/06/2011 23/06/2011-22/06/2012	
	Calibration organization		Measurement and Testing Institute of Dali Power Supply Bureau	
Measuring/ Reading/ Recording frequency:	Measured continuously and recorded monthly			
Calculation method (if applicable):	/			
QA/QC procedures applied:	The meter M1 has been regularly checked following the Chinese national standard “Technical Management Code for Electricity Metering” (DL/T448-2000).			

Data / Parameter:	EG _{pi to grid,y}															
Data unit:	MWh															
Description:	Net electricity supplied to the cement production line connected to the grid Net electricity quantity generated by the project															
Measured /Calculated /Default:	Measured by the meter M3, M4															
Source of data:	Meter records Electricity meter															
Value(s) of monitored parameter:	<table><tr><td>Starting time</td><td>Ending time</td><td>EG_{pi to grid,y} (MWh)</td><td>Meter</td></tr><tr><td>08/10/2010</td><td>17/10/2011</td><td>33,020.496</td><td>M3</td></tr><tr><td>08/10/2010</td><td>17/10/2011</td><td>32,978.330</td><td>M4</td></tr></table>				Starting time	Ending time	EG _{pi to grid,y} (MWh)	Meter	08/10/2010	17/10/2011	33,020.496	M3	08/10/2010	17/10/2011	32,978.330	M4
Starting time	Ending time	EG _{pi to grid,y} (MWh)	Meter													
08/10/2010	17/10/2011	33,020.496	M3													
08/10/2010	17/10/2011	32,978.330	M4													
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The readings of meter M3 is used for the crosscheck of the baseline emission and the readings of meter M4 is used for the baseline emission calculation.															

Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Information of electricity meter	M3	M4
	Type	DSSD331	DSSD331
	Accuracy class	0.5S	0.5S
	Serial number	350190	740022
	Calibration frequency	Every year	
	Calibration date	23/06/2010-22/06/2011 23/06/2011-22/06/2012	
	Calibration organization	Measurement and Testing Institute of Dali Power Supply Bureau	
Measuring/ Reading/ Recording frequency:	Measured continuously and recorded monthly		
Calculation method (if applicable):	/		
QA/QC procedures applied:	The meter M3 has been regularly checked following the Chinese national standard “Technical Management Code for Electricity Metering” (DL/T448-2000).		

Data / Parameter:	EG _{grid to pj .y}			
Data unit:	MWh			
Description:	Electricity quantity supplied to the project from the grid			
Measured /Calculated /Default:	Measured by the meter M3, M4			
Source of data:	Meter records Electricity meter			
Value(s) of monitored parameter:				
	Starting time	Ending time	EG _{grid to pj .y} (MWh)	Meter
	08/10/2010	17/10/2011	136.512	M3
	08/10/2010	17/10/2011	136.338	M4
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The readings of meter M3 is used for the crosscheck of the baseline emission and the readings of meter M4 is used for the baseline emission calculation.			
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Information of electricity meter		M3	M4
	Type		DSSD331	DSSD331
	Accuracy class		0.5S	0.5S
	Serial number		350190	740022
	Calibration frequency		Every year	
	Calibration date		23/06/2010-22/06/2011 23/06/2011-22/06/2012	
	Calibration organization		Measurement and Testing Institute of Dali Power Supply Bureau	
Measuring/ Reading/ Recording frequency:	Measured continuously and recorded monthly			
Calculation method (if applicable):	/			

QA/QC procedures applied:	The meter M3 has been regularly checked following the Chinese national standard “Technical Management Code for Electricity Metering” (DL/T448-2000).
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Data / Parameter:	$Q_{OE,y}$																	
Data unit:	MWh																	
Description:	Actual electricity generation by the Project Activity in year y																	
Measured /Calculated /Default:	Measured by the meter M1																	
Source of data:	Meter records Electricity meter																	
Value(s) of monitored parameter:	<table><tr><td>Starting time</td><td>Ending time</td><td>$Q_{OE,y}$ (MWh)</td><td>Meter</td></tr><tr><td>08/10/2010</td><td>17/10/2011</td><td>35,559.072</td><td>M1</td></tr></table>				Starting time	Ending time	$Q_{OE,y}$ (MWh)	Meter	08/10/2010	17/10/2011	35,559.072	M1						
Starting time	Ending time	$Q_{OE,y}$ (MWh)	Meter															
08/10/2010	17/10/2011	35,559.072	M1															
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Used for the f_{cap}																	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	<table><tr><td>Information of electricity meter</td><td>M1</td></tr><tr><td>Type</td><td>DSSD331</td></tr><tr><td>Accuracy class</td><td>0.5S</td></tr><tr><td>Serial number</td><td>350313</td></tr><tr><td>Calibration frequency</td><td>Every year</td></tr><tr><td>Calibration date</td><td>23/06/2010-22/06/2011 23/06/2011-22/06/2012</td></tr><tr><td>Calibration organization</td><td>Measurement and Testing Institute of Dali Power Supply Bureau</td></tr></table>				Information of electricity meter	M1	Type	DSSD331	Accuracy class	0.5S	Serial number	350313	Calibration frequency	Every year	Calibration date	23/06/2010-22/06/2011 23/06/2011-22/06/2012	Calibration organization	Measurement and Testing Institute of Dali Power Supply Bureau
Information of electricity meter	M1																	
Type	DSSD331																	
Accuracy class	0.5S																	
Serial number	350313																	
Calibration frequency	Every year																	
Calibration date	23/06/2010-22/06/2011 23/06/2011-22/06/2012																	
Calibration organization	Measurement and Testing Institute of Dali Power Supply Bureau																	
Measuring/ Reading/ Recording frequency:	Measured continuously and recorded monthly																	
Calculation method (if applicable):	/																	
QA/QC procedures applied:	The meter M1 has been regularly checked following the Chinese national standard “Technical Management Code for Electricity Metering” (DL/T448-2000).																	

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

According to Baseline Methodology AMS III.Q and the registered PDD, baseline emissions generated by waste heat can be calculated as follows:

$$BE_{Elec,y} = f_{cap} * f_{wcm} * \sum_j \sum_i (EG_{i,j,y} * EF_{Elec,i,j,y})$$

Where,

$BE_{elec,y}$ = Baseline emissions due to displacement of electricity during the year y in tons of

CO₂

- $EG_{i,j,y}$ = The quantity of electricity supplied to the recipient j by generator, that in the absence of the project activity would have been sourced from i source (i can be either grid or identified source) during the year y in MWh
- $EF_{elec,i,j,y}$ = The CO₂ emission factor of CSPG in tCO₂/MWh, according to the registered PDD, this factor is 0.8712 tCO₂/MWh
- f_{wcm} = Fraction of total electricity generated by the project activity using waste energy. Due to the Project activity is purely from use of waste energy of cement production, as per the methodology AMS-III.Q, the f_{wcm} is 1.
- f_{cap} = Capping factor to exclude increased waste energy utilization in the project year y due to increased level of activity of the plant, relative to the level of activity in the base years before project start. The ratio is 1 if the waste energy generated in project year y is same or less than that generated in base years

Calculation of f_{cap}

$$f_{cap} = \frac{Q_{OE,BL}}{Q_{OE,y}}$$

Where:

$Q_{OE,BL}$ = the output/intermediate energy that can be theoretically produced (in appropriate unit), to be determined on the basis of maximum recoverable energy from the WECM, which would have been released (or WECM would have been flared or energy content of WECM would have been wasted) in the absence of CDM project activity;

$Q_{OE,y}$ = the quantity of actual output/intermediary energy during the year y (in unit of MWh)

According to the registered PDD, the $Q_{OE,BL}$ is 42,380 MWh, during this monitoring period from 08/10/2010 to 17/10/2011, there was 374 days in all, so the $Q_{OE,BL}$ is assumed as 43,425 MWh (42,380/365*374=43,425). As analyzed in section C, the $Q_{OE,y}$ is same with $EG_{total,y}$ thus is 35,559.072 MWh, so the f_{cap} is calculated as 1.22>1, therefore, this parameter can be assumed as 1.

Determination of $EG_{i,j,y}$

The net electricity quantity of meter M3 is

$$M3 = EG_{pj \text{ to grid},y} - EG_{grid \text{ to pj},y} = 33,020.496 - 136.512 = 32,883.984 \text{ MWh}$$

And, the net electricity quantity of meter M4 is

$$M4 = EG_{pj \text{ to grid},y} - EG_{grid \text{ to pj},y} = 32,978.330 - 136.338 = 32,841.992 \text{ MWh}$$

For conservative approach, 32,841.992 (MWh) which is the records of meter M4 managed by the Electric Power Bureau, is used for baseline emission calculation.

Baseline emission

$$\begin{aligned} BE_{elec,y} &= f_{cap} * f_{wcm} * EF_y * EG_y \\ &= 1 * 1 * 0.8712 * 32,841.992 \\ &= 28,611 \text{ tCO}_2\text{e} \end{aligned}$$

E.2. Project emissions calculation

According to the registered PDD, there is no combustion of auxiliary fuels, therefore the project emissions are zero ($PE_y=0$).

E.3. Leakage calculation

According to Methodology AMS-III.Q and registered PDD, the leakage emission is not considered in the project, hence $L_y=0$.

E.4. Emission reductions calculation / table

Calculation of emission reduction	Symbol	Amount	Unit	Formula
Baseline emission	BE_y	28,611	tCO ₂ e	$BE_y = EG_y * EF_y$
Project emission	PE_y	0	tCO ₂ e	/
Leakage emission	L_y	0	tCO ₂ e	/
Emission reduction	ER_y	28,611	tCO ₂ e	$ER_y = BE_y - PE_y - L_y$

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

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO ₂ e)	34,993 (34,151/365*374)	28,611

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

The estimated emission reductions in registered PDD are 34,993 tCO₂e for this monitoring period, while the actual values achieved during this monitoring period are 28,611 tCO₂e, which is 18.2% lower than the estimated one. The difference is due to the unstable operation of the cement production line and the low temperature of the waste heat at the inlet of the boilers.

History of the document

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
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