

**MONITORING REPORT FORM (F-CDM-MR)**
Version 02.0**MONITORING REPORT**

Title of the project activity	CGN Inner Mongolia Duerbote Wind Farm Project
Reference number of the project activity	2406
Version number of the monitoring report	01
Completion date of the monitoring report	14/05/2012
Registration date of the project activity	24/05/2009
Monitoring period number and duration of this monitoring period	The 3rd monitoring period(01/07/2011-20/04/2012)
Project participant(s)	CGN Wind Power Co., Ltd. Carbon Resource Management Ltd. Carbon Resource Management S.A.
Host Party(ies)	China
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope 1: Energy industries; ACM0002(Version 07)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	97,280 tonnes of CO₂e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	76,705 tonnes of CO₂e

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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The purpose of **CGN Inner Mongolia Duerbote Wind Farm Project** is to utilize a wind power facility to generate zero greenhouse gas (GHG) emissions electricity for the North China Power Grid (hereafter referred to as “NCPG”). The Project Developer has obtained permission to sell electricity to the Inner Mongolia Power Grid which is an integral part of NCPG that dominated by fossil-fuel fired power plants.

The project is generating renewable electricity utilizing wind power and sell the generated output to NCPG on the basis of a power purchase agreement (PPA). Based on the conditions of the project site, the project activity has installed 33 wind turbines, each with a capacity of 1,500kW. The total installed capacity of the project activity is 49.5MW. The ex-ante expected net electricity generation of the project activity is approximately 114,110 MWh per year, with a load factor of 26.32%.

The Project started construction on 08/05/2008 and the first two turbine sets put into operation on 20/08/2009 and the last one on 23/09/2009. During the monitoring period, all turbines have come into operation and supplied electricity to the grid.

Based on the calculation in section E of this report, emission reductions of the Project during this monitoring period (01/07/2011-20/04/2012) are 76,705tCO₂e.

A.2. Location of project activity

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(a) Host country	People's Republic of China
(b) Region/State/Province	Inner Mongolia Autonomous Region
(c) City/Town/Community	Wulanchabu City, Wulanhua Town
(d) Physical/ Geographical allocation.	Latitude 41°31'North Longitude 111°34' East

A.3. Parties and project participant(s)

Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Party A (host): P.R.China	Private entity A: CGN Wind Power Co., Ltd.	No
Party B: United Kingdom of Great Britain and Northern Ireland	Private entity B: Carbon Resource Management Ltd.	No
Party C: Switzerland	Private entity C: Carbon Resource Management S.A.	No

A.4. Reference of applied methodology

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1. The approved baseline and monitoring methodology ACM0002 (version 07) -“Consolidated methodology for grid-connected electricity generation from renewable sources’ and the approved monitoring methodology ACM0002 (version 07);

More information about the methodology can be obtained at:

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

A.5. Crediting period of project activity

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The first crediting period has been changed from 24/05/2009 – 23/05/2016 to 20/08/2009 - 19/08/2016, and is listed on the project page. The crediting period is renewable.

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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The project activity was started construction on 08/05/2008. The first two turbines were commissioned on 20/08/2009 and the last one on 23/09/2009. Technology and equipments adopted in the Project are consistent with the registered PDD.

During this monitoring period (01/07/2011-20/04/2012), the wind farm has a good running, smooth data transfer and grid connection, and no special events happened. All the equipments and metering systems worked normally. There was no significant malfunction or any emergency overhaul times, downtimes of equipment, exchange of equipment reported during this monitoring period from 01/07/2011 to 20/04/2012.

In conclusion, no events or situations which may impact the applicability of the methodology occurred during this monitoring period.

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

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Not applicable.

B.2.2. Corrections

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Not applicable.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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Not applicable.

B.2.4. Changes to project design of registered project activity

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Not applicable.

B.2.5. Changes to start date of crediting period

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The first crediting period has been changed from 24/05/2009 – 23/05/2016 to 20/08/2009 - 19/08/2016, and is listed on the project page. The crediting period is renewable.

B.2.6. Types of changes specific to afforestation or reforestation project activity

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Not applicable.

SECTION C. Description of monitoring system

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This section details the steps taken to monitor the GHG emissions reductions on a regular basis from the CGN Inner Mongolia Duerbote Wind farm Project.

The Monitoring set up for this project has been developed to ensure that from the start, the project was well organised in terms of the collection and archiving of complete and reliable data.

1. Monitoring of the Quantity of net electricity supplied to the grid by the project

The net electricity supplied to the grid is continuously measured by the main meter installed at the substation of the grid company. This main meter is bidirectional and has two-way metering, recording both electricity exports to the grid (Gen) and imports from the grid (Cons); net electricity supplied to the grid by the project (EG_y) is calculated as exports minus imports.

Every month the project developer obtains the monthly monitoring results based on the data presented in the electricity transaction notes (including Gen and Cons) issued by the power grid substation. The amount of net electricity generation is calculated according to the data monitored by the main meter is sufficient for the purpose of billing and emission reductions, as long as the error in the main meter is within the agreed limits. The main meter reading records used for billing is also the main meter reading records used for emission reduction calculations. The backup meter was also installed at the substation of the power grid for the electricity measurement.

Physical document such as paper-based maps, diagrams and environmental assessments are collated in a central place, together with the applied CDM monitoring plan. In order to facilitate auditors' reference of relevant literature relating to the CGN Inner Mongolia Duerbote Wind farm Project, the project material and monitoring results are indexed. All paper-based information is stored by the technology department of CGN Wind Power Co., Ltd. and the entire materials have a copy for backup.

In addition, at the project site, electricity generated from the wind turbines and the electricity submitted to the 220kv transmission lines has been monitored by relevant equipments installed on the project site, and these data has been used as references to the net electricity supplied to the grid.

The staffs undertake the monitoring tasks including watching metering equipments, collecting electricity data and completing records, checking and analyzing the data, archiving relevant records, reporting to company administrator or supervisor. The data collection procedures are as follows:

1. At 24:00 hours of the last day in each month from July 2011 to February 2012, and at 24:00 hours of 20th for March and April 2012, the grid company reads the main meter together with the project owner and records the data from the main meter and the backup meter at the grid side.
2. The project owner makes a monthly record of electricity exports to the grid (Gen) and imports from the grid (Cons).
3. The sales receipts issued by the grid based on the readings of the main meter serve as a double check reference.
4. The project owner carries out an internal audit on the meter readings and calculations, and report to DOE for verification.

The meter readings were double checked with the sales receipts, and in the procedure of the calculation of the ERs, the conservative values are selected, which means that the minimum value of the electricity exported and the maximum value of the electricity imported are chose.

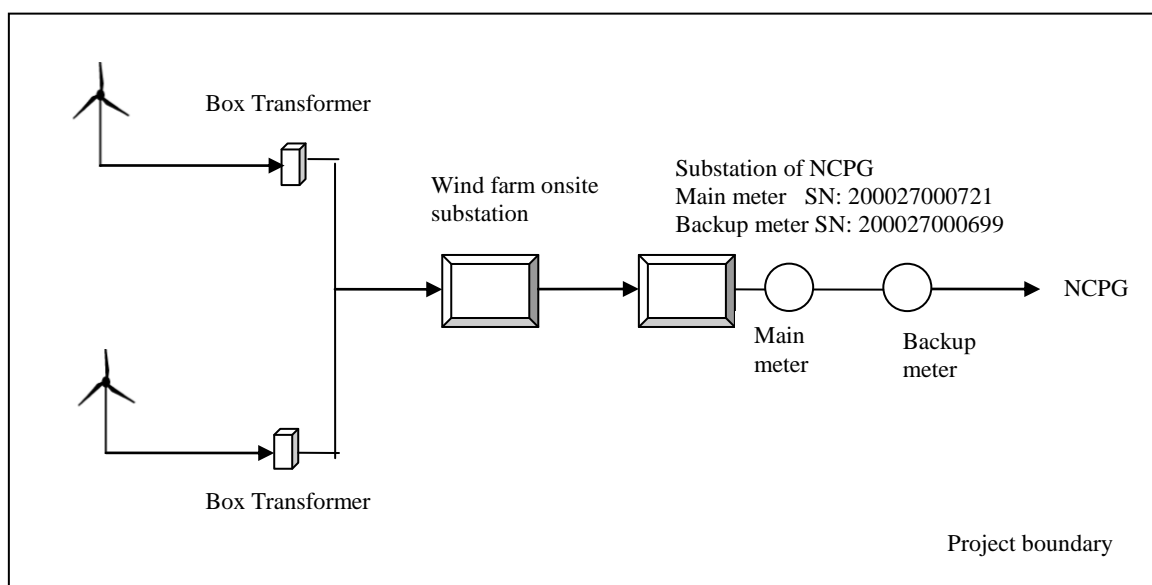
Table 1 Meter and monitored electricity

Variable	Description	Source of data
Gen	the electricity exported to the grid	Monitored by the bidirectional main meter in the substation of the power grid
Cons	the electricity imported from the grid	Monitored by the bidirectional main meter in the substation of the power grid

The net electricity supplied to the grid by the project (EG_y) can be calculated as below:

$$EG_y = \text{Gen} - \text{Cons}$$

The line diagram showing all relevant monitoring points is as following:



2. Monitoring Organisation

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the CGN Wind Power Co., Ltd.

The staffs from technology and financial departments undertake the monitoring tasks including watching metering equipments, collecting electricity data and completing records, checking and analyzing the data, archiving relevant records, reporting to company administrator or supervisor.

The concerned staffs had been trained on monitoring and measurement to ensure the implementation of this monitoring plan according to the requirements.

Organizing structure of the team is shown as figure 2.

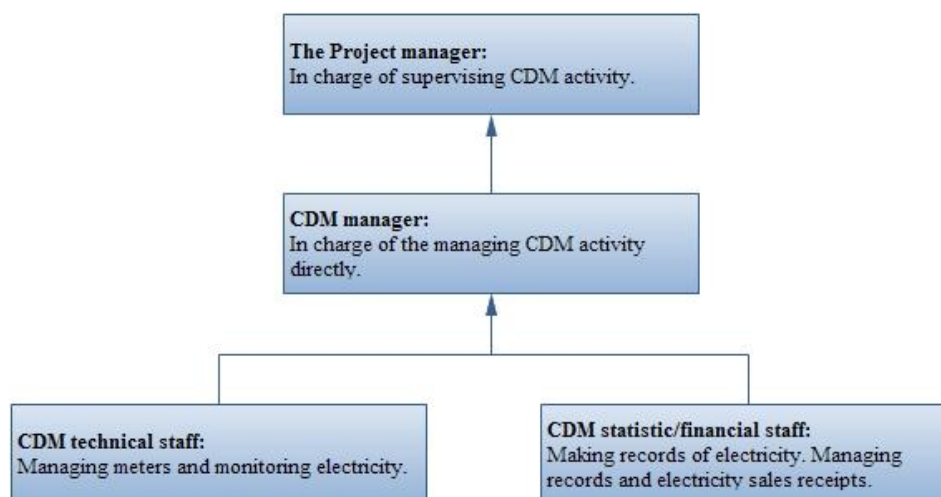


Figure 2 Structure of the team

3. Staff training

Training is conducted on-site to ensure that staffs are capable of performing their designated tasks to high standards. This includes CDM specific training to warrant that they understand the importance of complete and accurate data and records for CDM monitoring.

4. Maintenance and calibration of monitoring equipment

The electricity meter(s) measuring electricity supplied to the grid are calibrated in line with *JJG1055-1997 Technical Norm of the Calibration of AC Watt hour meters at place of installation*. This ensures that the equipment operates at the stated level of accuracy.

5. Data collection and record-keeping arrangements

All CDM relevant data are measured and collected as detailed in Section D. All data required for verification and issuance are backed-up and retained for at least two years after the end of the crediting period or the last issuance of CERs of the Project, whichever occurs later.

6. Data Quality Control and Quality Assurance

All data collected on-site are checked internally before being compiled in an electronic format, to ensure that it is complete and of appropriate quality.

7. Emergency procedures

The meters were calibrated and checked for accuracy. Calibration was carried out by the qualified entity. Meters had been jointly inspected and sealed on behalf of the parties concerned. No errors occurred during this monitoring period.

The monthly cut off time is set as 24:00 at the last day of each month from July 2011 to February 2012, and 24:00 at 20th for March and April 2012. In case any previous months reading of the main meter be inaccurate or otherwise functioned improperly, the net generation output shall be determined by:

- first, by reading backup meter, unless a test by either party reveals it is inaccurate;
- (b) if the backup system is not within acceptable limits of accuracy or operation is performed improperly the project operator and NCPG shall jointly prepare a reasonable and conservative estimate of the correct reading, and provide sufficient evidence that this estimation is reasonable and conservative; and
- (c) if the NCPG and CGN Wind Power Co., Ltd. fail to agree then the matter will be referred for arbitration according to agreed procedures.

**SECTION D. Data and parameters****D.1. Data and parameters fixed ex ante or at renewal of crediting period**

Data/Parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ e/MWh
Description	Baseline Emission Factor
Source of data	Registered PDD
Value(s) applied	1.0548
Purpose of data	The data are used for Baseline emission calculations
Additional comment	The data is calculated ex-ante according to the applied methodology.

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

Data/Parameter	EG _y		
Unit	MWh		
Description	Net electricity supplied to the grid by the project in period y.		
Measured/Calculated /Default	Measured Parameter It is monitored continuously through the main meter installed at the substation of the power grid. This main meter is bidirectional and has two-way metering, recording both exports to the grid (Gen) and imports from the grid (Cons); net electricity supplied to the grid (EG _y) is calculated as exports minus imports.		
Source of data	Monthly reading records of the main meter and backup meter installed in the substation of the power grid.		
Value(s) of monitored parameter	Detailed monthly data and calculation is presented in section E1 of the monitoring report. EG _y during this monitoring period is 72,720.79MWh		
Monitoring equipment		Main meter	Backup meter
	Type	electricity meter	
	Accuracy	0.2S	
	Calibration frequency	annually	
	SN	200027000721	200027000699
	Calibration done on	26/03/2011 23/02/2012	26/03/2011 23/02/2012
	Validity period till	22/02/2013	22/02/2013
	Next Calibration due on	22/02/2013	22/02/2013
	Accreditation	Inner Mongolia Electric Power Research Institute, Meng Faji 2009 No.15021, valid from 02 /01/2009 to 01/01/2014, accredited by Bureau of Quality and Technical Supervision of Inner Mongolia Autonomous Region	
Measuring/Reading/Recording frequency	Measuring continuously/ Daily Read and Recording /Monthly Reporting		
Calculation method (if applicable)	EG _y = Gen- Cons		
QA/QC procedures	The meter reading records (including Gen and Cons) are Double checked with the receipts of sales. Back-up meter is installed at substation of the power grid company.		
Purpose of data	Baseline Emission calculation		
Additional comment	No		

D.3. Implementation of sampling plan

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Not applicable.

SECTION E. Calculation of emission reductions or GHG removals by sinks**E.1. Calculation of baseline emissions or baseline net GHG removals by sinks**

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Baseline emissions (BE_y in tCO₂e) are the product of the baseline emission factor ($EF_{grid,CM,y}$ in tCO₂e/MWh) multiplied by the net electricity delivered by the Project to the grid in period y. (EG_y in MWh):

$$BE_y = EG_y \times EF_{grid,CM,y}$$

Where

EG_y — Net electricity supplied to the grid by the project in period y. (MWh).

$EF_{grid,CM,y}$ — Baseline Emission Factor (tCO₂e /MWh) (1.0548tCO₂e /MWh, as calculated ex-ante in the registered PDD and was not updated during the crediting period).

The net electricity by the Project to the grid is listed as below:

Electricity exported to grid (Gen) (MWh)	Electricity imported from grid (Cons) (MWh)	Net electricity supplied to the grid (EG_y) (MWh)
A	B	C=A-B
73,016.99	296.20	72,720.79

As shown above, the electricity exported to the grid from the 01/07/2011 to 20/04/2012 is 73,016.99MWh.

In this monitoring period, the total electricity imported from the grid is 296.20MWh.

Net electricity supplied to the grid by the project in period y (EG_y) is:

$$EG_y = 73,016.99 \text{ MWh} - 296.20 \text{ MWh} = 72,720.79 \text{ MWh}$$

The baseline emission (BE_y) can be calculated by the formula below:

$$BE_y = EG_y \times EF_{grid,CM,y} = 72,720.79 \text{ MWh} \times 1.0548 \text{ tCO}_2\text{e/MWh} = 76,705 \text{ tCO}_2\text{e}$$

E.2. Calculation of project emissions or actual net GHG removals by sinks

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According to the applied methodology, the project emissions from the Project are not considered. The Project emissions is zero, as $PE_y = 0$ tCO₂e.

E.3. Calculation of leakage

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According to the applied methodology, as a new renewable energy project, no leakage needs to be considered in the Project, as $LE_y = 0$ tCO₂e.

**E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks**

Time Period	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (tCO ₂ e)
Total	76,705	0	0	76,705

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (tCO ₂ e)	97,280	76,705

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

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The emission reductions achieved by the project during this monitoring period are lower than the estimates in the registered PDD. It is because this monitoring period just covers less than seven months.

History of the document

Version	Date	Nature of revision
02.0	EB 66 13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance		