



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	Inner Mongolia Wuliji Wind Farm Project
Reference number of the project activity	2483
Version number of the monitoring report	01
Completion date of the monitoring report	01/02/2013
Registration date of the project activity	15/03/2010
Monitoring period number and duration of this monitoring period	Monitoring period Number: 03 Monitoring period Dates: 01/02/2012 – 20/01/2013 (first and last days included)
Project participant(s)	CGN Wind Power Co., Ltd. (as the project owner) Carbon Resource Management Ltd. (as the CER buyer) Carbon Resource Management S.A. (as the CER buyer)
Host Party(ies)	P.R.China
Sectoral scope(s) and applied methodology(ies)	Approved consolidated baseline and monitoring methodology ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources" (Version 09, Sectoral Scope 01)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	120,676tCO ₂ e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	118,368tCO ₂ e

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

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Inner Mongolia Wuliji Wind Farm Project is generating renewable electricity utilizing wind power and sells the generated output to the North China Power Grid (NCPG) on the basis of a power purchase agreement (PPA). Based on the conditions of the project site, the project activity has installed 40 wind turbines, each with a capacity of 1.25MW. The total installed capacity of the project activity is 50MW. The ex-ante expected net generation of the project activity is approximately 117,630 MWh per year, with a load factor of 26.86%.

As the NCPG is dominated by thermal power generation, the establishment of the Project leads to greenhouse gas (GHG) emission reductions. Following the baseline methodology, the emission reductions are estimated to be approximately 124,076 tonnes of CO₂ equivalent (tCO₂e) per year.

The project will assist China in stimulating and accelerating the commercialization of grid-connected wind power technologies and markets which are an important objective of the Chinese government. The project will therefore help reduce GHG emissions versus the high-growth, coal-dominated business-as usual scenario. Furthermore, the project will improve air quality and local livelihoods, promote sustainable renewable energy industry development.

The project activity was started construction on 02/09/2008. The first turbine was commissioned on 13/09/2009, and all the wind turbines have been put into operation gradually till 24/10/2009, and well operated during this monitoring period. During the 3rd monitoring period from 01/02/2012-20/01/2013, the total emission reduction is 118,368 tCO₂e.

A.2. Location of project activity

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The project activity lies in the Wulate Hou Qi, Bayannao'er City, Inner Mongolia Autonomous Region, China. The coordination of the wind farm center is as follow:

Latitude: 41°30'20" (N)

Longitude 106°38'30" (E)

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)
People's Republic of China (host)	CGN Wind Power Co., Ltd.	No
United Kingdom of Great Britain and Northern Ireland	Carbon Resource Management Ltd.	No
Switzerland	Carbon Resource Management S.A.	No

A.4. Reference of applied methodology

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Title of the approved methodology: ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 09)

Tools referenced in this methodology:

"Tool for the demonstration and assessment of additionality", version 05.2. (EB 39)

"Tool to calculate the emission factor for an electricity system", version 01.1 (EB 35)

Reference:

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

A.5. Crediting period of project activity

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After the project was registered on 15/03/2010, the first crediting period of the project was set from 15/03/2010 to 14/03/2017 (Renewable).

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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40 sets of 1250kW wind turbines (Model SEC-1250) from Sewind Co., Ltd. were selected. The total installed capacity is 50MW. The electricity is exported through the onsite substation and transmission line to the North China Power Grid (NCPG). During the monitoring period, all turbines have come into operation and supplied electricity to North China Power Grid. Please refer to Figure 1 for the technology process of the project and Table 1 for key technical characteristics of the generating equipments of the project.

The project activity was started construction on 20/09/2008. The first turbine was commissioned on 13/09/2009, and all the wind turbines have been put into operation gradually till 24/10/2009. During this monitoring period, the project keeps a normal operation situation and has a smooth data transfer and grid connection. All the equipments and metering systems worked normally. There was no significant malfunction or any emergency overhaul, downtimes of equipment, exchange of equipment during this monitoring period. In conclusion, no special event occurred which may impact the applicability of the methodology.

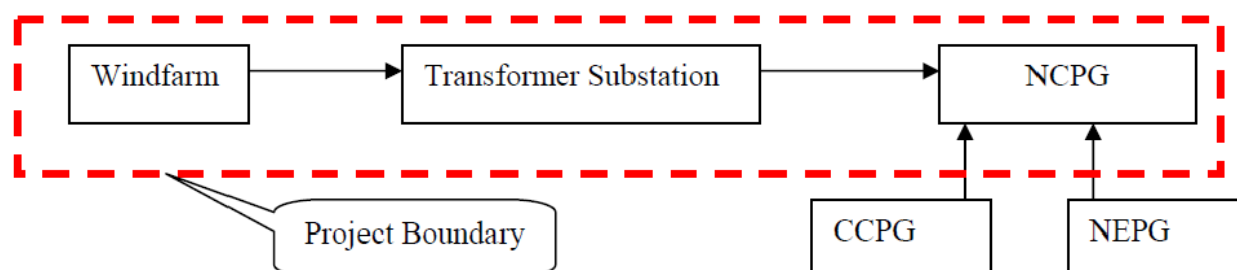


Figure 1 Technology process of the project

Table 1 Technical Characteristics of the generating equipments

Wind Turbines	
Item	Value
Type	SEC-1250
Quantity	40
Rated capacity (kW)	1250
Hub height (m)	65
Rotor diameter (m)	64
Sweep-wind area (m2)	3217
Cut-in speed (m/s)	2.8
Rated wind speed (m/s)	12.3
Cut-out speed (m/s)	23
Rated voltage of generator (V)	690

B.2. Post registration changes

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

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There is no deviation request proposed for the current monitoring period.

B.2.2. Corrections

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There is no corrections request proposed for the current monitoring period.

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

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There is no permanent change from registered monitoring plan or applied methodology request proposed for the current monitoring period.

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

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There is no change to project design of registered project activity request proposed for the current monitoring period.

B.2.5. Changes to start date of crediting period

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There is no change to start date of crediting period.

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

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NA

SECTION C. Description of monitoring system

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1. Monitoring system and data collection

The electricity exports to the grid and imports from the grid by the project activity are monitored by the main meter installed at the high voltage side of the on-site transformer and the metering data are used to calculate the net electricity supplied to the grid and then the emission reduction could be calculated. Figure 2 shows the installation of metering equipments of the Project.

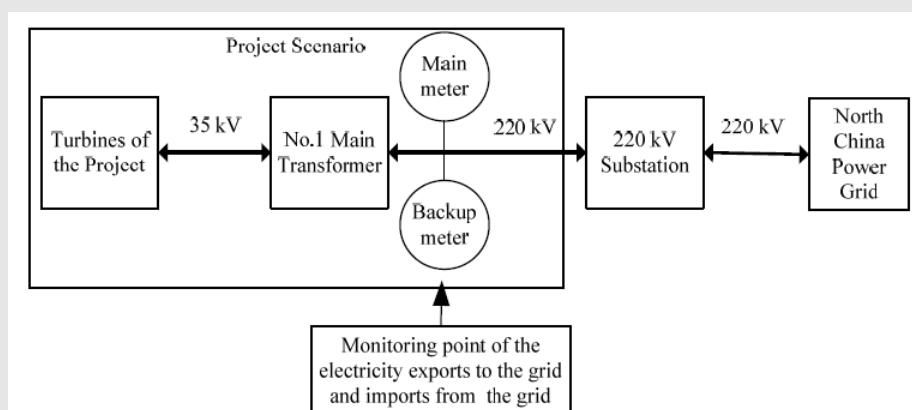


Figure 2. The installation of metering equipments of the Project

The electricity supplied to NCPG is continuously measured by the main meter installed at the high voltage side of the on-site transformer. Due to the regulation of the local Grid Company, the monthly cut-off time for electricity supplied to and imported from the grid is at 24:00 on the last day of every month till Feb. 2012, and according to the notification issued by the local Grid Company, since Mar. 2012, the monthly cut-off time of electricity supplied to and imported from the grid is changed at 24:00 on the 20th of every month. At 24:00 of the cut-off time of each month, assigned staff of the project owner and a designated person from the grid company jointly recorded the main meter and supplied the monthly readings of the main meter to the Grid Company and the grid company issued sales receipts to the wind farm. Both the export electricity and import electricity have been crosschecked with the sales receipts during this monitoring period.

2. Organizational structure and responsibilities

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with CGN Wind Power Co., Ltd.. A monitoring director has the overall responsibilities for the monitoring of the project. The staffs who were responsible for electricity meter readings and recording, and who were responsible for auditing the metered data had been trained according to the CDM requirements. During this monitoring period, the wind farm was running well.

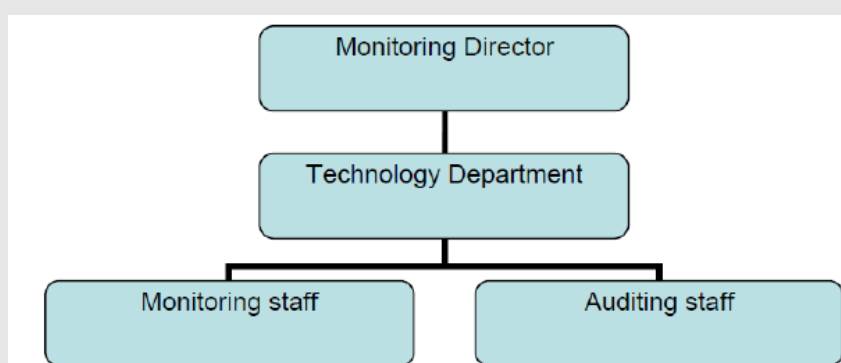


Figure 3 CDM management structure of the project

3. Quality Assurance and Quality Control Procedure

Monitoring training has been arranged for relevant staff to ensure that they have a thorough understanding of the monitoring procedures.

The meters must be sealed after calibration. The calibration records must be archived together with other monitoring records. When the main meter or backup meter have a breakdown, the party finding the breakdown should tell another party and inform the qualified calibration organization to check, calibrate, test and treat the meter so as to recover the normal monitoring state. Calibration of meters has been implemented by the qualified third parties. The accuracy of the measurement is ensured through calibration by a qualified party. All the records could be documented and maintained by the project owner for DOE's verification.

Problem occurred in monitoring and measurement process will be recorded and reported to company administrator or supervisor. Consequently, the corrective resolution will be adopted to deal with that problem and to avoid it occur again in future.

4. Data Management System

During the monitoring period, all monitoring data and records have been archived in electronic format as well as on paper. The electronic documents have been backed up on hard disc. The project developer also keeps copies of sale receipts.

All the electronic and paper documents will be archived during the crediting period plus two years.

5. Emergency procedures

The metering equipments are calibrated and checked periodically by qualified third party for accuracy. Calibration was carried by Metrology Center of Inner Mongolia Electric Power Research Institute. Meters had been jointly inspected and sealed on behalf of the parties concerned. No errors occurred during this monitoring period.

Should any previous months reading of the main meter be inaccurate by more than the allowable error, or otherwise functioned improperly, the net generation output shall be determined by:

- (a) 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.
- During the monitoring period, there is no emergency incident.

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 /MWh
Description:	Emission factor which is ex-anted according to the applied methodology.
Source of data:	The registered PDD
Value(s) applied:	1.0548
Purpose of data:	The data is used for the baseline emission calculation.
Additional comment:	

D.2. Data and parameters monitored

Data / Parameter:	EG_y
Unit:	MWh
Description:	Net electricity supplied to the grid by the project
Measured/ Calculated / Default:	Net electricity supplied to the grid by the project (EG_y) is calculated from the measured electricity exported to the grid by the proposed project minus the measured electricity imported from the grid by the proposed project. The results from the main meter are jointly recorded by a designated person from the grid company and the project owner at 24:00 of the cut-off time of each month.
Source of data:	The main meter installed at onsite substation.
Value(s) of monitored parameter:	EG_y during this monitoring period is 112,219.19 MWh.

Monitoring equipment:	<p>The main meter and backup meter installed at onsite substation. Information of Monitoring equipment as follow tables:</p> <table><tr><td>Meter</td><td>Serial No.</td><td>Type</td><td>Accuracy</td><td>Calibration frequency</td></tr><tr><td>Main Meter</td><td>95691047</td><td>ZMQ202C</td><td>0.2S</td><td>Annually</td></tr><tr><td>Backup Meter</td><td>95691048</td><td>ZMQ202C</td><td>0.2S</td><td>Annually</td></tr></table> <table><tr><td>Meter</td><td>Calibration Date</td><td>Validity</td></tr><tr><td rowspan="2">Main Meter</td><td>25/08/2011</td><td>Yes</td></tr><tr><td>26/03/2012</td><td>Yes</td></tr><tr><td rowspan="2">Backup Meter</td><td>25/08/2011</td><td>Yes</td></tr><tr><td>26/03/2012</td><td>Yes</td></tr></table> <p>Calibration was carried by Metrology Center of Inner Mongolia Electric Power Research Institute and the calibration records were supplied to the developer by the power grid. The accreditation certificate for the calibrator (No. of accreditation certificate: Meng (2009) 15021) was issued by Quality and Technical Supervision Bureau of Inner Mongolia Autonomous Region and valid for this monitoring period.</p>	Meter	Serial No.	Type	Accuracy	Calibration frequency	Main Meter	95691047	ZMQ202C	0.2S	Annually	Backup Meter	95691048	ZMQ202C	0.2S	Annually	Meter	Calibration Date	Validity	Main Meter	25/08/2011	Yes	26/03/2012	Yes	Backup Meter	25/08/2011	Yes	26/03/2012	Yes
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	26/03/2012	Yes																											
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	26/03/2012	Yes																											
Measuring/ Reading/ Recording frequency:	Measuring continuously/ Recording monthly																												
Calculation method (if applicable):	EG _v is calculated by the electricity exported to the Grid minus the electricity imported from the Grid.																												
QA/QC procedures:	<p>1. The net electricity supply to the grid is double checked by receipt of sales.</p> <p>2. The meters are calibrated once per year by a qualified organization according to the related national standards and regulations (Chinese electricity industry regulation DL/T448-2000).</p> <p>3. A back-up meter is installed at the project site substation to check the main meter. When the main meter fails to work normally, the readings of the back-up meter will be adopted.</p> <p>4. Proportion of the monitored data is 100%.</p> <p>5. The data will be kept during the crediting period and until two years after the end of the crediting period.</p>																												
Purpose of data:	Baseline emission calculation																												
Additional comment:																													

D.3. Implementation of sampling plan

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NA

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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The baseline emissions in year y is calculated as

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

Where:

BE_y = Baseline emissions in year y (tCO₂/yr).

EG_y = The net electricity supplied by the project activity to the grid in year y (MWh).

$EF_{grid,CM,y}$ = Combined margin emission coefficient calculated using the “ Tool to calculate the emission factor for an electricity system” .

The net electricity supplied to the grid by the project activity in the 3rd monitoring period:

Period	Net electricity supplied to the grid by the project (MWh)	Net electricity supplied to the grid in Sales receipts (MWh)	Value Adopted in ER Calculation (MWh)
01/02/2012-29/02/2012	7,061.36	7,061.36	7,061.36
01/03/2012-20/03/2012	5,151.08	5,151.08	5,151.08
21/03/2012-20/04/2012	13,812.83	13,812.83	13,812.83
21/04/2012-20/05/2012	11,195.25	11,195.25	11,195.25
21/05/2012-20/06/2012	8,496.03	8,496.03	8,496.03
21/06/2012-20/07/2012	5,908.57	5,908.57	5,908.57
21/07/2012-20/08/2012	8,717.79	8,717.79	8,717.79
21/08/2012-20/09/2012	7,327.38	7,327.38	7,327.38
21/09/2012-20/10/2012	7,938.23	7,938.23	7,938.23
21/10/2012-20/11/2012	12,761.86	12,761.86	12,761.86
21/11/2012-20/12/2012	10,468.12	10,468.12	10,468.12
21/12/2012-31/12/2012	7,073.87	7,073.87	7,073.87
Subtotal (01/02/2012-31/12/2012)	105,912.39	105,912.39	105,912.39
01/01/2013-20/01/2013	6,306.80	6,306.80	6,306.80
Total	112,219.19	112,219.19	112,219.19

The Baseline emission in the 3rd monitoring period (01/02/2012 to 20/01/2013) is as follows:

Period	EG_y	$EF_{grid,CM,y}$	Baseline Emission
	(MWh)	(tCO ₂ e/MWh)	(tCO ₂ e)
01/02/2012-31/12/2012	105,912.39	1.0548	111,716
01/01/2013-20/01/2013	6,306.80	1.0548	6,652
Total 01/02/2012-20/01/2013	112,219.19	1.0548	118,368

$$BE_y = EG_y \cdot EF_{grid,CM,y} = 112,219.19 \text{ MWh} \times 1.0548 \text{ tCO}_2\text{e/MWh} = 118,368 \text{ tCO}_2\text{e}.$$

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

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According to the applied methodology, as a renewable energy project, the project emissions of this project are zero.

Hence, $PE_y = 0 \text{ tCO}_2\text{e}$

E.3. Calculation of leakage

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According to applied methodology ACM0002 in the registered PDD, the leakage of the project is zero.

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

According to applied methodology ACM0002 in the registered PDD, the emission reductions(ER_y) of the Project is calculated as:

$$ER_y = BE_y - PE_y - L_y$$

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
Total	118,368	0	0	118,368

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 (t CO₂e)	120,676¹	118,368

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

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The comparison shows that the actual emission reduction is lower than the expectation in the registered PDD.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO₂e)	111,716	6,652

¹According to the registered PDD, the emission reductions of the project are estimated to be 124,076 tCO₂e per annum. This monitoring period from 01/02/2012 to 20/01/2013 has 355 days. As a result, the estimated emission reductions during the monitoring period are calculated as: 124,076 tCO₂e /365d *355d = 120,676 tCO₂e.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory		
Document Type: Form		
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Keywords: monitoring report, performance monitoring		