

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 01 Date 10/03/2011
Zhangbei Manjing Windfarm Project
Unfccc reference number: 0233
The 6th monitoring period number (01/05/2010 – 28/02/2011)

SECTION A. General description of the project activity

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

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The objective of the Zhangbei Manjing Windfarm Project is to generate renewable electricity using wind power resources and to sell the generated output to the North China Power Grid (NCPG) on the basis of a power purchase agreement (PPA). The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants that is supplied to NCPG. The project activity involves the installation and operation of 30 wind turbines with unit capacity of 1500kw. The total installed capacity is 45 MW.

Construction start date	28 July 2004
Commission start date	30 December 2005
Date of CDM registration	23 Mar 2006
First renewable crediting period	01 Jan 2006 - 31 Dec 2012
Monitoring period	
(Volume 1)	01 Jan 2006 - 31 Aug 2006
(Volume 2)	01 Sep 2006 - 31 Aug 2007
(Volume 3)	01 Sep 2007 - 30 Jun 2008
(Volume 4)	01 Jul 2008 - 31 May 2009
(Volume 5)	01 Jun 2009 - 30 April 2010
(Volume 6)	
Start of this monitoring period	01 May 2010
End of this monitoring period	28 Feb 2011

The total emission reductions achieved in the current monitoring period are 65,597tCO₂e.

A.2. Project Participants

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Name of Party involved	Private and/or public entity(ies) project participants (as applicable)	Party involved wishes to be considered as project participant (Yes/No)
P.R. China (host)	Beijing Guotou Energy Conservation Company(BJGT)	No
United Kingdom of Great Britain and Northern Ireland	First Carbon Fund Ltd	No
Switzerland	Vitol S.A.	No

A.3. Location of the project activity:

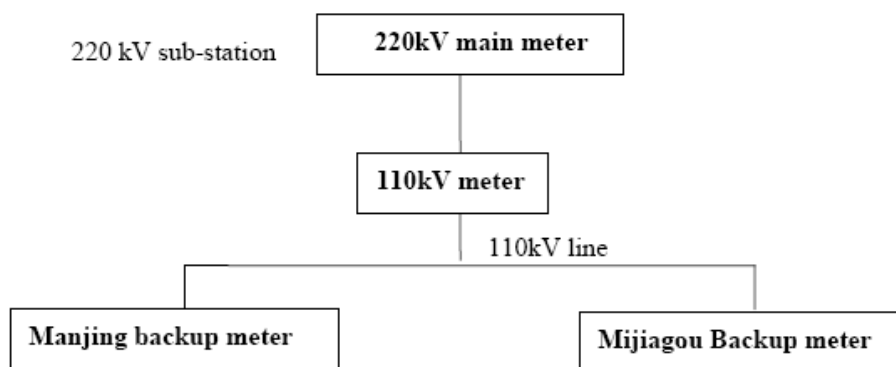
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Host country	People's Republic of China
Province	Hebei
City	Zhangjiakou
County	Zhangbei
GPS coordinates	Longitude 114° 32'

A.4. Technical description of the project

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The 1500kW wind turbines was GE 1.5sle. The electricity supplied to NCPG by the Zhangbei Manjing Windfarm currently shares one electric flow meter (the main meter) at 220kV level with Zhangbei Mijiagou windfarm as the following figure shows, so the meter at 220KV level measures the total electricity the two windfarms delivered to the NCPG.

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

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The approved methodology applied to this project is the approved baseline methodology: AM0005 (Version 1, Valid from 13 Apr 04 to 01 Mar 06) "baseline methodology (barrier analysis, baseline scenario development and baseline emission rate, using combined margin) for small grid-connected zero-emissions renewable electricity generation". These documents are available from <http://cdm.unfccc.int/methodologies/DB/94GWIOIE6NL20BA94KY9ILMRUP48BN/view.html>

A.6. Registration date of the project activity:

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23/03/2006

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

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Crediting period	First renewable crediting period
Starting date of crediting period	01/01/2006
End date of crediting period	31/12/2012

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

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Contact information of the person(s)/entity(ies) responsible for completing the monitoring report form (CDM-MR):

- The persons preparing the documentation were:
 - Mr. Yuan Qunyi, yqy@carbonresource.com, Tel: +86 10 8447 5246/8
 - Mr. Zhu Hailei, zhl@carbonresource.com, Tel: +86 10 8447 5246/8
 - Mr. John Green, jg@carbonresource.com, Tel: +41 22 328 0851

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

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The project activity was started construction on 28/07/2004. The full operation commission date started from 30/12/2005.

During this monitoring period, the wind farm has a good running, smooth data transfer and grid connection, and no special events happened.

No events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

B.2. Revision of the monitoring plan

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The monitoring plan was revised, and has been approved by the CDM EB on 19/10/2007 and is listed on the project page.

The detailed description of the monitoring system is presented in the section "SECTION C. Description of the monitoring system". <http://cdm.unfccc.int/Projects/DB/DNV-CUK1136989231.92/view>

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

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There is no deviation applied to this monitoring period.

B.4. Notification or request of approval of changes

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The project activity is implemented as in the registered CDM-PDD, 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

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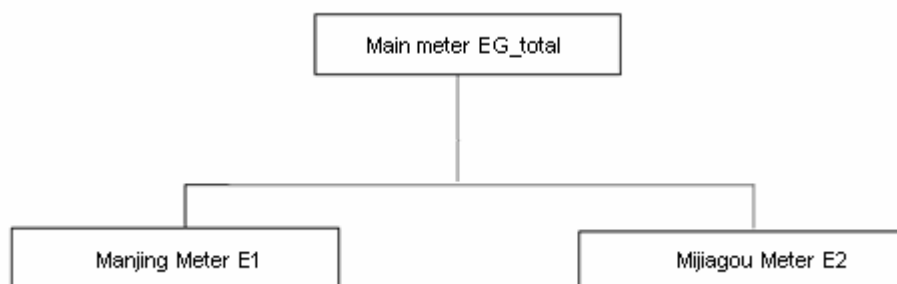
1 Data collection procedures

① Data generation and aggregation:

As described in the monitoring plan, the electricity supplied to NCPG by the project currently shares the main electricity meter at the 220kV substation level with the Zhangbei Mijiagou 49.5MW Windfarm project (CDM project number:0845), the net electricity supplied to the grid by the project (EG_1) is achieved by the following monitored parameters:

Meters	Location	Description
EG_total	220KV substation of power grid	Recording the electricity exported and imported to the power grid. Meter reading were read and recorded by the Power Grid Company and reported to project owner monthly.
E1	110KV project site substation	Recording the electricity exported to the power grid by zhangbei mangjing project. Meter reading was read and record by onsite designated staff on a weekly/monthly basis.
E2	110KV project site substation	Recording the electricity exported to the power grid by zhangbei mijiagou project. Meter reading was read and record by onsite designated staff on a weekly/monthly basis.

The monitoring points shows below:



②Data calculation:

As described in the monitoring plan, the electricity delivered by Zhangbei Manjing Windfarm (EG_1) can be calculated as:

$$EG_1 = EG_total * E1 / (E1 + E2)$$

Where:

EG_1 is the calculated net electricity supply from the project activity;

EG_total is the total net electricity supplied to the grid at the Zhangbei substation metered by the main meter;

E1 is the electricity generation metered from the Zhangbei Manjing Windfarm Project from the onsite meters;

E2 is the electricity generation metered from the Zhangbei Mijiagou 49.5MW Windfarm Project from the onsite meters

2 Organizational structure and responsibilities:

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the Beijing Guotou Energy Conservation Company (BG).

Mr. Liu Bin, Head of the Management Office of the Zhangbei Manjing Windfarm, is responsible for the monitoring and reporting of the windfarm project.

Ms. Chen Dongjuan, CDM Project Manager, is responsible for the daily monitoring and reporting.

Beijing Guotou Energy Conservation Company (BG), in co-operation with Carbon Resource Management Ltd and the North China Power Grid Company will train the staff carrying out the monitoring work.

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

(Copy this table for each data and parameter. To report multiple values, a table may be used)

Data / Parameter:	N/A
Data unit:	N/A
Description:	N/A
Source of data used:	N/A
Value(s) :	N/A
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	N/A
Additional comment:	N/A

D.2. Data and parameters monitored	
<i>(Copy this table for each data and parameter. To report multiple values, a table may be used)</i>	
Data / Parameter:	EF
Data unit:	tCO ₂ e/MWh
Description:	CO ₂ emissions factor of the grid
Measured /Calculated /Default:	Calculated
Source of data:	Calculated as the average of operating margin and build margin(50:50)
Value(s) of monitored parameter:	0.733
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	EF is given by $EF = wOM * EF_OMy + wBM * EF_BMy$ with respective weight factors wOM and wBM (where $wOM + wBM = 1$), and by default, are weighted equally ($wOM = wBM = 0.5$).
QA/QC procedures applied:	N/A

Data / Parameter:	EF_OM
Data unit:	tCO ₂ e/MWh
Description:	CO ₂ emissions factor of the grid (operating margin)
Measured /Calculated /Default:	Calculated
Source of data:	Calculated as TEM divided by TGEN, excluding the zero and low operating cost generating sources. Related data is from China Electric Power Yearbook (2008, 2009,2010) and China Energy Statistical Yearbook (2010)
Value(s) of monitored parameter:	0.962
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	$EF_OMy = TEMy / TGENy = [\sum_i Fi,y * COEFi] / [\sum_j GENj,y]$ Details calculation refers to attached Excel sheet.
QA/QC procedures applied:	N/A

Data / Parameter:	EF_BM
Data unit:	tCO ₂ e/MWh
Description:	CO ₂ emissions factor of the grid (build margin)

Measured /Calculated /Default:	Calculated
Source of data:	Calculated as the build margin in the last few years, which is about 20% additions and the most conservative. First the build margin is calculated for the two years nearest 20% additions (above and below), then the most conservative (lowest) is chosen. Related data is from China Electric Power Yearbook (2008, 2009,2010)
Value(s) of monitored parameter:	0.504
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	N/A
Measuring/ Reading/ Recording frequency:	N/A
Calculation method (if applicable):	EF_BMy = $\sum_i S_{i,y} * CEF_i$ Details calculation refers to attached Excel sheet.
QA/QC procedures applied:	N/A

Data / Parameter:	E1				
Data unit:	MWh				
Description:	The electricity generation metered from the Zhangbei Manjing Windfarm Project				
Measured /Calculated /Default:	Measured				
Source of data:	Meter reading record of onsite zhangbei manjing meter				
Value(s) of monitored parameter:	Detailed monthly data and calculation is presented in section E1 of the monitoring report.				
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emission calculation				
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No.	Accuracy	Calibration done on	Calibration due on	Calibration frequency
	30089907	0.5S	14/11/2009 14/10/2010	13/11/2010 13/10/2011	Annually
Measuring/ Reading/ Recording frequency:	Measuring continuously/Recording weekly				
Calculation method (if applicable):					
QA/QC procedures applied:	Electricity was measured continuously by the meter E1. Trained Staff from the Wind Farm recorded the meter readings manually on a weekly/ monthly basis (each Sunday at 0:00 and last day of the month). Reading records was saved as both hard and electrical copy. The meter readings were also transferred via a remote transmission line to the grid company. The meter was calibrated according to the national standard. The calibration is carried out annually by a qualified organization with the records being supplied to the grid company and project owner.				

Data / Parameter:	E2					
Data unit:	MWh					
Description:	The electricity generation metered from the Zhangbei mijiagou Windfarm Project					
Measured /Calculated /Default:	Measured					
Source of data:	Meter reading record of onsite zhangbei mijiagou meter					
Value(s) of monitored parameter:	Detailed monthly data and calculation is presented in section E1 of the monitoring report.					
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emission calculation					
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No.	Accuracy	Calibration done on	Calibration due on	Calibration frequency	
	0007049	0.5	14/11/2009	13/11/2010	Annually	
	D0145		14/10/2010	13/10/2011		
Measuring/ Reading/ Recording frequency:	Measuring continuously/Recording weekly					
Calculation method (if applicable):						
QA/QC procedures applied:	Electricity was measured continuously by the meter E2. Trained Staff from the Wind Farm recorded the meter readings manually on a weekly/ monthly basis (each Sunday at 0:00 and last day of the month). Reading records was saved as both hard and electrical copy. The meter readings were also transferred via a remote transmission line to the grid company. The meter was calibrated according to the national standard. The calibration is carried out annually by a qualified organization with the records being supplied to the grid company and project owner.					

Data / Parameter:	EG total					
Data unit:	MWh					
Description:	The total net electricity supplied to the grid of these two projects at the Zhangbei substation metered by the main meter					
Measured /Calculated /Default:	Measured					
Source of data:	Meter reading record of main meter at Zhangbei substation.					
Value(s) of monitored parameter:	Detailed monthly data and calculation is presented in section E1 of the monitoring report.					
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emission calculation					
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No.	Accuracy	Calibration done on	Calibration due on	Calibration frequency	
	200407007	0.2S	22/03/2010	21/03/2011	Annually	
	z0062		04/02/2011	03/02/2012		
Measuring/ Reading/ Recording frequency:	Measuring continuously/Recording daily					
Calculation method (if applicable):						
QA/QC procedures applied:	Electricity was recorded continuously by grid company at 220kv substation. The data was daily recorded and monthly summarized.					

	Monthly records from grid company was issued, stamped and sent to project owner. The meter was calibrated according to the national standard. The calibration is carried out annually by a qualified organization with the records being supplied to the grid company and project owner.
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Data / Parameter:	EG_1
Data unit:	MWh
Description:	The calculated power generation from the project activity
Measured /Calculated /Default:	Calculated
Source of data:	Meter readings from E1,E2 and EG_total
Value(s) of monitored parameter:	Detailed monthly data and calculation is presented in section E1 of the monitoring report.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	n/a
Measuring/ Reading/ Recording frequency:	n/a
Calculation method (if applicable):	It was calculated from equation: $EG_1 = EG_{total} * E1 / (E1 + E2)$ More details are described in SECTION C
QA/QC procedures applied:	The data are calculated by project owner before reported to DOE. Internal auditing reduced the risk of error caused by data transfer and calculation mistakes.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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The latest EF is calculated as the following equations:

$$EF = w_{OM} * EF_{OMy} + w_{BM} * EF_{BMy}$$

$$EF_{OMy} = TEM_y / TGEN_y = [\sum_i F_{i,y} * COEF_i] / [\sum_j GEN_{j,y}]$$

$$EF_{BMy} = \sum_i S_{i,y} * CEF_i$$

The baseline emissions in year y is calculated as

$$BE_y = EG_1 * EF$$

Monitoring Period	EG_1 (MWh)	EF (tCO ₂ e/MWh)	BE_y (tCO ₂ e)
01 May 2010-28 Feb 2011	89491.259	0.733	65,597

The detailed calculation of EG_y is calculated below:

$$EG_y = EG_1 = EG_{total} * E1 / (E1 + E2)$$

Months	E1	E2	EG_Total	EG_1	ETN
01/05/2010-31/05/2010	11531.520	12576.960	23919.852	11441.296	11441.296
01/06/2010-30/06/2010	7078.720	7667.440	14607.120	7011.975	7011.975
01/07/2010-31/07/2010	5573.040	6079.040	11521.092	5510.390	5510.390
01/08/2010-31/08/2010	5328.400	5928.560	11065.560	5237.802	5237.802

01/09/2010-30/09/2010	5527.280	5627.600	11041.668	5471.183	5471.183
01/10/2010-31/10/2010	8587.920	7519.600	15932.004	8494.342	8494.342
01/11/2010-30/11/2010	12605.120	11474.320	23830.092	12474.591	12474.591
01/12/2010-31/12/2010	14231.360	11915.200	26082.540	14196.514	14196.514
01/01/2011-31/01/2011	13301.200	11653.840	24729.276	13180.866	13180.866
01/02/2011-28/02/2011	6644.880	5847.600	12168.024	6472.298	6472.298
Total				89491.259	

E.2. Project emissions calculation

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

E.3. Leakage calculation

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

E.4. Emission reductions calculation / table

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According to the applied methodology, the emission reductions in year y (ER_y) should be calculated as:

$$ER_y = BE_y - PE_y - L_y$$

Total baseline emissions: 65,597 tCO₂e

Total project emissions: 0tCO₂e

Total leakage: 0tCO₂e

Total emission reductions: 65,597 tCO₂e

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

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This section shall include a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered CDM-PDD.

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO₂e)	81,495 ¹	65,597

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

>>

The actual emission reduction achieved during the current monitoring period is lower than it was estimated in registered PDD.

¹ As the monitoring period is for 304 days, multiplying the annual emission reduction volume (97,848 tons) in the PDD by 304/365 give a volume of 81,495 tCO₂