

CGN INNER MONGOLIA ZHURIHE PHASE I WIND FARM PROJECT

Document Prepared By CGN Carbon Asset Management (Beijing) Co., Ltd.

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

CGN Inner Mongolia Zhurihe Phase I Wind Farm Project is generating renewable electricity utilizing wind power and sells the generated output to the North China Power Grid (NCPG). The Project involves the installation of 25 wind turbines, each with a rated power output of 2000 kW, manufactured by Beijing Beizhong Stream Turbine Generator Co., Ltd, and the total installed capacity is 50MW. The ex-ante expected net generation of the project activity is approximately 123,962MWh per year, with a load factor of 28.30%.

Project timeline:

Construction start date	01/05/2008
Commissioning start date	04/03/2009
Date of CDM registration	23/12/2009
This monitoring period	04/03/2009-22/12/2009

The total emission reductions achieved in the current monitoring period from 04/03/2009 to 22/12/2009 are 80,706 tCO₂e.

1.2 Sectoral Scope and Project Type

Category: Renewable electricity in grid connected application

Sectroal Scope 1: Energy Industry

The project is not a grouped project.

1.3 Project Proponent

Organization name	CGN Wind Power Co., Ltd.
Contact person	Shi Lei
Title	CDM office director
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1.4 Other Entities Involved in the Project

There are no other entities involved.

1.5 Project Start Date

04/03/2009 (commissioning start date)

1.6 Project Crediting Period

The project crediting period is from 04/03/2009 to 22/12/2009 and the total crediting period is 294 days.

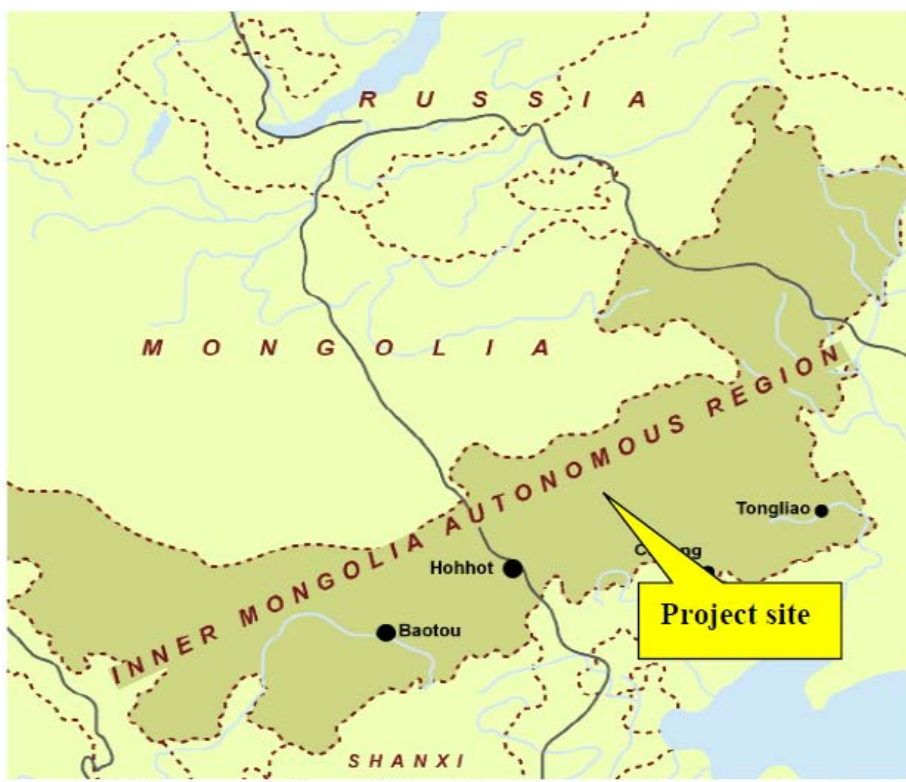
1.7 Project Location

CGN Inner Mongolia Zhurihe Phase I Wind Farm lies in the middle north part of Inner Mongolia Autonomy Region of People's Republic of China. It is located at the 42°27'40" north latitude and 112°46'30" east longitude. The average altitude of the project site is 1180 m above sea level. Figure 1 and 2 shows respectively the location of Xilinguole City in China map and the project site in the map of Inner Mongolia Autonomy Region.

Figure A1. The location of the proposed project in the map of P. R. China



Figure A2. The location of the proposed project in the map of Inner Mongolia Autonomous Region, P. R. China



1.8 Title and Reference of Methodology

The approved methodology applied in the proposed project activity is ACM0002 (version 07) – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

“Tool for the demonstration and assessment of additionality (version 05.2)” and

“Tool to calculate the emission factor for an electricity system (version 01.1.0)” is also applied in the proposed project.

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

1.9 Other Programs

The project has been registered as a CDM project on 23/12/2009 with Ref No.1577, for which a renewable crediting period of 3*7 years will be used under the CDM GHG Program. Therefore, CO₂ emission reductions generated by the project during the CDM crediting period will be verified as unique CERs, but not VCUs to avoid double counting. As to the project under VCS standard (Version. 3.4), only emission reduction achieved from 04/03/2009 to 22/12/2009 will be considered as VCUs.

The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program for the period from 04/03/2009 to 22/12/2009.

The project has been registered as CDM project and the registration number is 1577, the CDM crediting period is from 23/12/2009 to 22/12/2016.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The Project involves the installation of 25 wind turbines (type: BZD80-2000), each with a rated power output of 2000 kW, manufactured by Beijing Beizhong Stream Turbine Generator Co., Ltd, and the total installed capacity is 50MW. The project activity was started construction on 01/05/2008. The first turbine was commissioned on 04/03/2009 and well operated during this monitoring period.

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.

2.2 Deviations

2.2.1 Methodology Deviations

There is no methodology deviations applied during this monitoring period.

2.2.2 Project Description Deviations

As the installed capacity is a little inconsistent with the registered PDD, and the changes don't impact the operation and additionality of the project activity, so the notification version 1.5 dated 12/03/2012 has been submitted and approved by EB on 19/06/2012.

2.3 Grouped Project

The project is not a grouped project.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2/MWh
Description	Combined margin emission factor for grid connected power generation in year y
Source of data	Registered CDM PDD with Ref No.1577
Value applied:	1.0458
Justification of choice of	Refer to the registered CDM PDD with Ref No.1577

data or description of measurement methods and procedures applied	
Purpose of the data	<i>Calculation of baseline emissions</i>
Comments	<i>The data is calculated ex-ante according to the applied tool.</i>

3.2 Data and Parameters Monitored

Data / Parameter	EG _y
Data unit	MWh
Description	Quantity of net electricity generation supplied to the grid by the Project in year y.
Source of data	Electricity meter readings from the meters at the project site
Description of measurement methods and procedures to be applied	Continuously measurement and monthly recording
Frequency of monitoring/recording	Calculated based on the measurement results of TEG _y and CEG _y
Value monitored:	76,513.89MWh
Monitoring equipment	See the description of the monitoring equipments in Table 1.
QA/QC procedures to be applied	The net electricity supplied to the grid by the Project is also monitored and recorded at the central control room. The project operator is responsible for recording such data. Receipts for electricity sales are kept for further verification.
Purpose of the data	Baseline Emission calculation
Calculation method	Quantity of net electricity generation supplied to the grid by the Project is measured as electricity supplied to the grid by the Project (TEG _y) minus imports (CEG _y).
Comments	-

Table 1 Information of monitoring equipments

Meters	Serial No.	Accuracy	Calibration date	Calibration frequency	Validity
Main meter	95232541	0.2S	26/02/2009	Annually	Yes
Backup meter	95232545	0.2S	27/02/2009	Annually	Yes

M1	96716256	0.5S	13/02/2009	Annually	Yes
M2	96716255	0.5S	13/02/2009	Annually	Yes
M3	96716257	0.5S	13/02/2009	Annually	Yes
M4	94316656	0.5S	13/02/2009	Annually	Yes

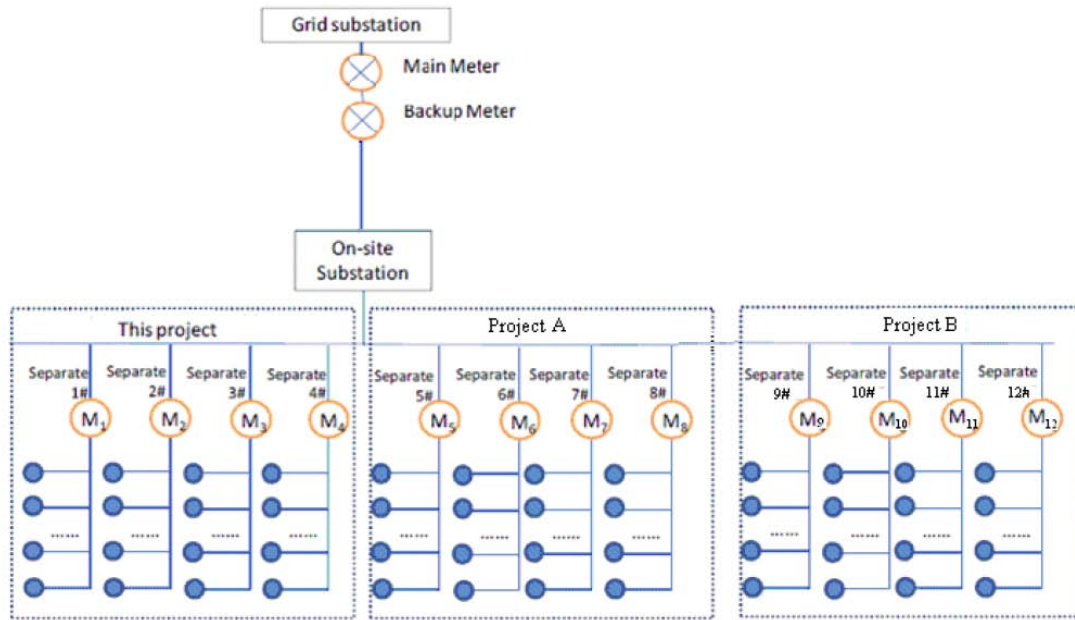
3.3 Monitoring Plan

1. Monitoring system and data collection

The net electricity supplied to the grid is continuously measured by the main meter installed at the substation. This main meter is bidirectional and has two-way metering, recording both the electricity exports to the grid (TEG_y) and imports from the grid (CEG_y); net electricity supplied to the grid by the project (EG_y) is calculated by the method given in the monitoring plan contained in the revised PDD.

Currently, the project activity shares the same transformer, substation and transmission line with other two wind farms, named CGN Inner Mongolia Zhurihe Phase II Wind Farm Project (UNFCCC ref. No. 3453, hereafter referred to as Project A, commissioned on 06/01/2010) and CGN Inner Mongolia Zhurihe Phase III Wind Farm Project (project title in its PDD is CGN Inner Mongolia Suniteyouqi Phase 3 Windfarm Project, UNFCCC Ref. 5746, hereafter referred to as Project B, commissioned on 01/05/2011). During this monitoring period, Project A and Project B had not commissioned, therefore, the net electricity supplied by the proposed project activity to the grid is monitored through the main meter installed in the substation, recording the electricity exports to the grid (TEG_y) and imports from the grid (CEG_y). Net generation (EG_y) is calculated as exports minus imports.

A diagram shows how parameters are monitored and the location of meters is presented as follows.



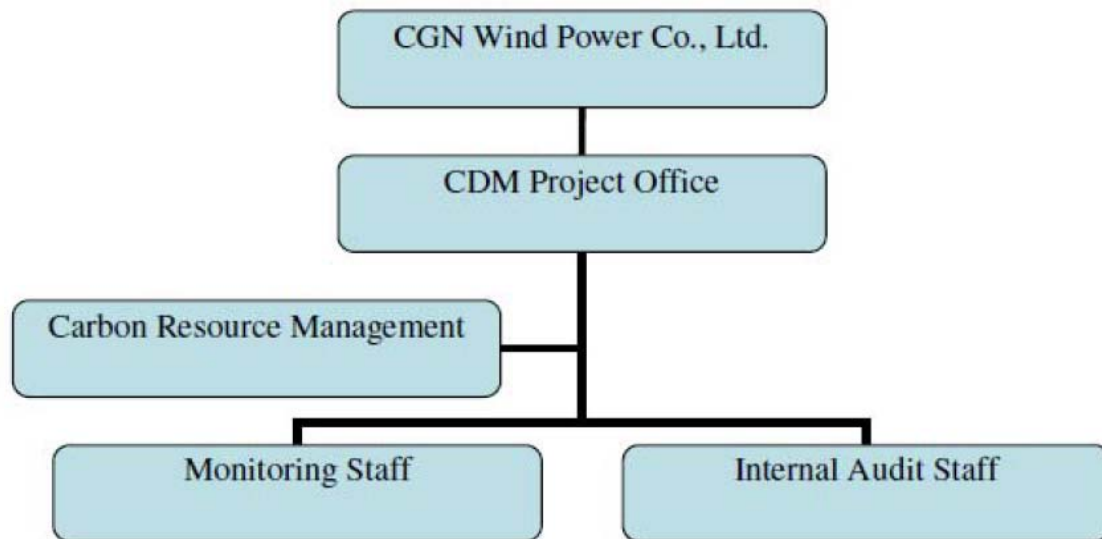
2. Information Flow

- ✧ The cut-off time is 24:00 of the last day of every month;
- ✧ The readings of the main meter and the separate meters are monitored continuously and recorded monthly;
- ✧ Each month, the grid company issues Electricity Transaction Notes (ETNs) to the developer upon the confirmed data;
- ✧ The electricity data of the separate meters is cross checked with the ETNs issued by the grid company;
- ✧ The wind farm carries out an internal audit on and reports the readings to the DOE before the verification is requested.

3. Organizational structure and responsibilities

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the CGN Wind Power Co., Ltd. Carbon Resource Management Ltd had advised the project developer on how to perform the monitoring work. 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.

The organization of the monitoring implementers is illustrated in the table below:



4. Emergency procedures

The meters were calibrated and checked annually 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.

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) Firstly, 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 an reasonable and conservative estimate of the correct reading, and provide sufficient evidence that this estimation is reasonable and conservative.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Baseline Emissions are calculated by multiplying the ex-ante Baseline Emission factor by annual power generation.

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

Where:

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

EG_y = Quantity of net electricity generation supplied to the grid by the Project in year y.
(MWh)

$EF_{grid,CM,y}$ = Combined margin emission factor for grid connected power generation in year y (tCO₂/MWh).

Period	TEG _y			CEG _y		
	MRR	ETN	Value	MRR	ETN	Value
04/03/2009-31/03/2009	2,803.65	2,803.65	2,803.65	8.14	8.14	8.14
01/04/2009-30/04/2009	5,147.09	5,147.09	5,147.09	2.20	2.20	2.20
01/05/2009-31/05/2009	7,392.62	7,392.62	7,392.62	1.10	1.10	1.10
01/06/2009-30/06/2009	8,596.14	8,596.14	8,596.14	10.70	10.70	10.70
01/07/2009-31/07/2009	7,282.19	7,282.19	7,282.19	23.70	23.70	23.70
01/08/2009-31/08/2009	6,614.80	6,614.80	6,614.80	31.50	31.50	31.50
01/09/2009-30/09/2009	6,938.79	6,938.79	6,938.79	18.00	18.00	18.00
01/10/2009-31/10/2009	10,746.00	10,746.00	10,746.00	79.60	79.60	79.60
01/11/2009-30/11/2009	11379.91	11379.91	11,379.91	15.70	15.70	15.70
01/12/2009-22/12/2009	9849.44	9849.44	9,849.44	46.10	46.10	46.10
Total			76750.63			236.74

$$EG_y = TEG_y - CEG_y = 76,750.63 - 236.74 = 76,513.89 \text{ MWh}$$

$$BE_y = EG_y \times EF_{grid,CM,y} = 76,513.89 \times 1.0548 = 80,706 \text{ tCO}_2.$$

4.2 Project Emissions

According to ACM0002 (Version 07), no project emissions were to be counted by the Project.

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

4.3 Leakage

According to the baseline methodology ACM0002 (version 07), the leakage of the Project is not considered.

4.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 1 (04/03/2009-22/12/2009)	80,706	0	-	80,706
Total	80,706	0		80,706

The annual average emission reductions estimated in the registered CDM-PDD is 130,755 tCO₂, so the estimated amount of emission reductions for the corresponding 294 days (the duration of this monitoring period) are $294/365 \times 130,755 = 105,320$ tCO₂, which is higher than the actual value of 80,706 tCO₂.