

GUOHUA WULATE ZHONGQI PHASE I 49.5 MW WIND FARM PROJECT

Document Prepared By Guohua CWP (Bayannaer) Wind Power Co., Ltd

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1 PROJECT DETAILS

1.1 Summary Description of Project

Guohua Wulate Zhongqi Phase I 49.5 MW Wind farm Project (hereinafter referred to as “the Project”) is located in Urad Zhongqi, Bayan Nur League, Inner Mongolia Autonomous Region, P.R. China. The total installed capacity of the Project is 49.5 MW with 33sets of turbines and a unit capacity of 1,500kW.

The objective of the Project is to utilize the wind power for generating electricity which is sold into the North China Power Grid (NCPG). The estimated on-grid electricity supply to the NCPG is 124,300MWh per year.

The starting date of the construction was 10/06/2008. The first turbine started operation on 30/07/2009. All the turbines were operation on 14/08/2009.

This VCS monitoring period covered the time from 01/08/2009 to 28/02/2010. From 01/08/2009 to 31/12/2009), the emission reductions is 59,125 tCO₂e, the emission reductions from 01/01/2010 to 28/02/2010 is 19,277 tCO₂e, the total emission reductions achieved during this VCS monitoring period is 78,402tCO₂e.

1.2 Sectoral Scope and Project Type

Sectoral Scope: 1, Energy industries, it is to generate zero-emission wind power and not a grouped project.

1.3 Project Proponent

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)	Guohua CWP (Bayannaer) Wind Power Co., Ltd	No

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1.4 Other Entities Involved in the Project

N/A

1.5 Project Start Date

30/07/2009

1.6 Project Crediting Period

A CDM crediting period of 7 (seven) years (renewable twice) was selected for the Project activity. The first CDM crediting period is from 01/03/2010 to 28/02/2017.

The VCS crediting period of the Project is from 01/08/2009 to 28/02/2010. Obviously, no overlapping periods exists between the VCS crediting period and the CDM crediting period.

1.7 Project Location

The Project is located in Urad Zhongqi, the north of Bayan Nur League and the west of Inner Mongolia Autonomous Region, P. R. China. The geographical coordinates of the Project is east longitude 108°19'15"-108°23'40" and north latitude 41°54'48"-41°56'35".

1.8 Title and Reference of Methodology

The approved consolidated baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 09. <http://cdm.unfccc.int/methodologies/PAMethodologies/approved.html>.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The Project involves the installation of 33 turbines, each of which has a capacity of 1500kW and total installed capacity of 49.5MW. The starting date of operation of the Project activity was 30/07/2009. During this VCS monitoring period, the Project was in normal and smooth operation as per the registered PDD without any emergencies or special events.

2.2 Project Description Deviations

No deviation is identified in this monitoring period.

2.3 Grouped Project

N/A

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	EF _y
Data unit:	tCO ₂ /MWh

Description:	Baseline Emission Factor
Source of data:	The registered PDD
Value applied:	1.0755
Purpose of the data:	Baseline emission calculations
Any comment:	Ex-ante calculation fixed in the 1 st crediting period

3.2 Data and Parameters Monitored

Data Unit / Parameter:	EG _y
Data unit:	MWh
Description:	Net electricity supplied to the NCGP by the Project in period y
Source of data:	Calculated by $EG_{\text{export}, y} - EG_{\text{import}, y}$
Description of measurement methods and procedures to be applied:	This item is calculated based on hereinafter described parameters $EG_{\text{export}, y}$ and $EG_{\text{import}, y}$
Frequency of monitoring/recording:	Hourly measurement and monthly recording
Value monitored:	72,899.06
Monitoring equipment:	N/A
QA/QC procedures to be applied:	The meters in relation to $EG_{\text{export}, y}$ and $EG_{\text{import}, y}$ are well maintained and annually calibrated according to the relevant national electric industry standards and regulations.
Calculation method:	$EG_y = EG_{\text{export}, y} - EG_{\text{import}, y}$
Any comment:	

Data Unit / Parameter:	EG _{export,y}								
Data unit:	MWh								
Description:	The electricity exported to the NCPG by the Project in period y								
Source of data:	Directly measured								
Description of measurement methods and procedures to be applied:	The electricity exported to the grid is monitored and measured by four electricity meters installed at the on-site substation.								
Frequency of monitoring/recording:	Hourly measurement and monthly recording								
Value monitored:	73,179.17								
Monitoring equipment:	<table border="1"> <thead> <tr> <th></th> <th>Type</th> <th>Accuracy class</th> <th>Serial Number</th> </tr> </thead> <tbody> <tr> <td>M1.1</td> <td>electricity meter</td> <td>0.5S</td> <td>LY806380</td> </tr> </tbody> </table>		Type	Accuracy class	Serial Number	M1.1	electricity meter	0.5S	LY806380
	Type	Accuracy class	Serial Number						
M1.1	electricity meter	0.5S	LY806380						

	M1.2	electricity meter	0.5S	LY807098
	M1.3	electricity meter	0.5S	LY807108
	M2	electricity meter	0.2S	94743524
QA/QC procedures to be applied:	The meters are well maintained and annually calibrated according to the relevant national electric industry standards and regulations. Data measured by meters are double checked by electricity sales receipts.			
Calculation method:	N/A			
Any comment:				

Data Unit / Parameter:	EG _{import,y}			
Data unit:	MWh			
Description:	The electricity imported by the Project from NCPG in period y			
Source of data:	Directly measured			
Description of measurement methods and procedures to be applied:	The electricity imported from the grid is monitored and measured by four electricity meters installed at the on-site substation.			
Frequency of monitoring/recording:	Hourly measurement and monthly recording			
Value monitored:	280.11			
Monitoring equipment:		Type	Accuracy class	Serial Number
	M1.1	electricity meter	0.5S	LY806380
	M1.2	electricity meter	0.5S	LY807098
	M1.3	electricity meter	0.5S	LY807108
	M2	electricity meter	0.2S	94743524
QA/QC procedures to be applied:	The meters are well maintained and annually calibrated according to the relevant national electric industry standards and regulations. Data measured by meters are double checked by electricity sales receipts.			
Calculation method:	N/A			
Any comment:				

3.3 Description of the Monitoring Plan

The Project adopts the approved consolidated monitoring methodology ACM0002 (Version09) "Consolidated baseline methodology for grid-connected electricity generation from renewable

sources” to determine the emission reductions due to the net electricity supply to NCPG by the Project.

1. The users --- who use the monitoring plan

The project owner has been using this document as guideline in monitoring of the project emission reduction performance and adhered to the guidelines set out in this monitoring plan. This plan should be modified according to actual conditions and requirements of DOE in order to ensure that the monitoring is credible, transparent and conservative.

2. Operational and management structure for monitoring

The monitoring of the emission reductions was carried out according to Figure3-1 below:

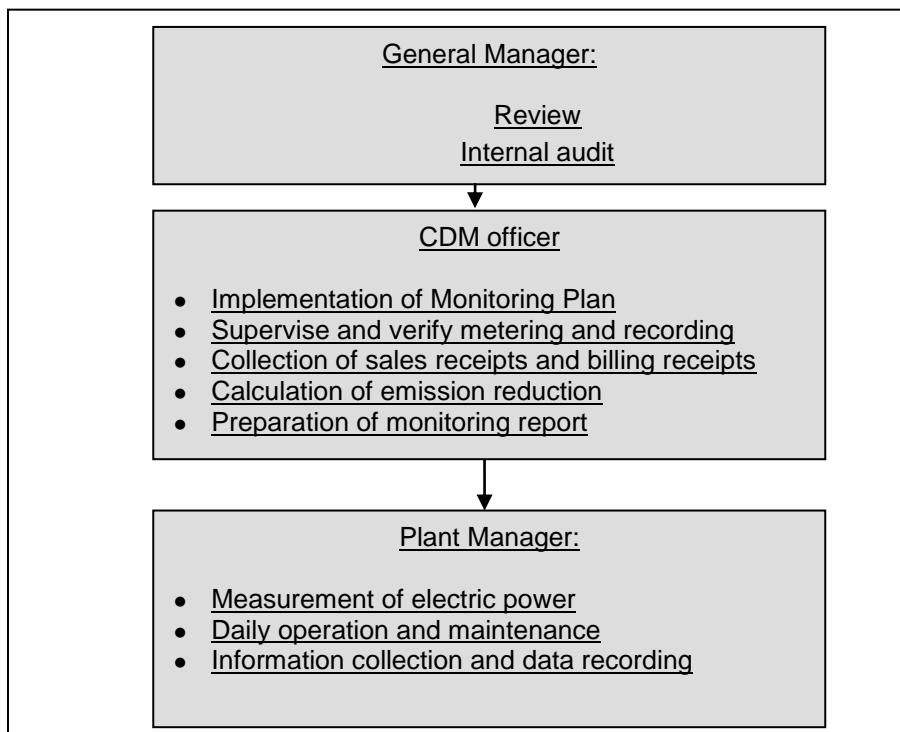


Figure3-1. The personnel structure of the Project monitoring

Plant manager of wind farm collected the information and data required by the Monitoring Plan. The collected information was documented and sent to the CDM officer monthly. The CDM officer was in charge of the implementation of the Monitoring Plan and reported to the General Manager of the company. The General Manager of the company made the confirmations on monitoring calculation data and reports.

3. Metering

The electricity exported to the NCPG by the project ($EG_{\text{export}, y}$) and the electricity imported by the project from the NCPG ($EG_{\text{import}, y}$) were measured continuously by M1. The positions of the

meters are shown as Figure 3-2. The sales receipts for the electricity exported to the NCPG by the project and electricity imported by the project from the NCPG were issued based on the records of M1.

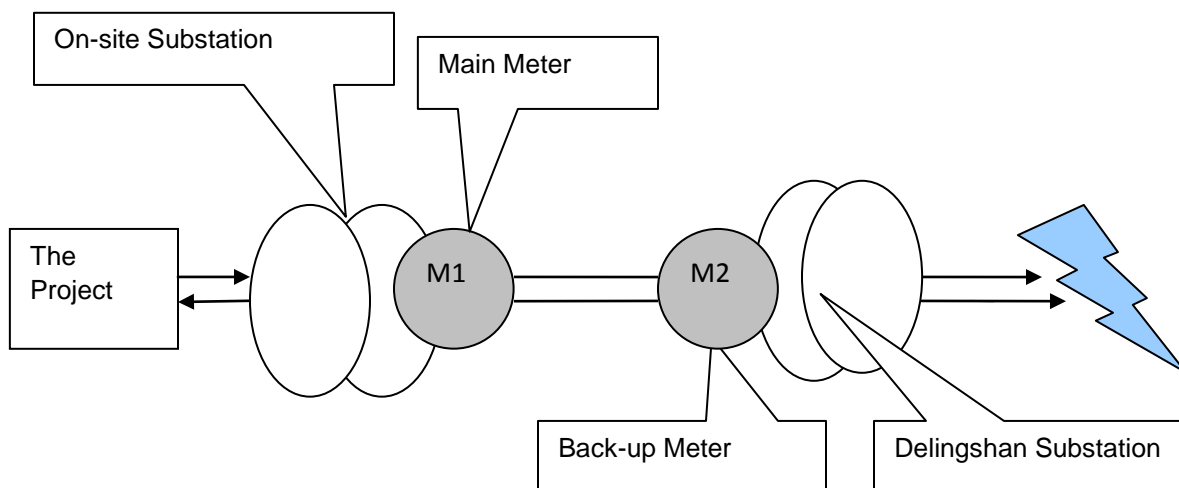


Figure 3-2: Line diagram of the Project activity

4. Calibration of Meters & Metering

M1 is owned, operated and maintained by the Project owner, and M2 is owned, operated and maintained by the Grid Company. The accuracy classes of M1 and M2 are no less than 0.5S. Calibration was carried out by qualified entity according to relevant regulations of electric industry. Detailed information on calibration is specified in the table below.

Meter name	Calibration date	Certificate No.	Calibration Validity	Calibration Entity	
M1.1	24/06/2009	Guohua Wind Farm Jianzi 2009-001	Yes	Bayannaer Power Administration Electric Energy Measurement and Verification Center	
	24/01/2010	Guohua Wind Farm Jianzi 2010-001			
M1.2	24/06/2009	Guohua Wind Farm Jianzi 2009-001	Yes		
	24/01/2010	Guohua Wind Farm Jianzi 2010-001			
M1.3	24/06/2009	Guohua Wind Farm Jianzi 2009-001	Yes		
	24/01/2010	Guohua Wind Farm Jianzi 2010-001			
M2	24/06/2009	Neng 13zi No.2009-L0228	Yes		Inner Mongolia Electric Power Science Research Institute Energy Measurement and Verification Center
	02/02/2010	Nengjiao12zi No.10-			Inner Mongolia UHV Power

		00139		Supply Bureau Energy Measurement and Verification Center
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5. Data management system

Physical document such as paper-based maps, diagrams and environmental assessments were collated in a central place, together with this monitoring plan. The project owner also kept the copies of sale receipts and prepared this monitoring report.

And all data including calibration records is kept until 2 years after the end of the total crediting period of the CDM project.

6. Monitoring Report

The CDM manager wrote this monitoring report including electricity produced and emission reduction every month and then submitted it to the general manager, who audited it internally.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

In accordance with the ACM0002 (version 09), Baseline emissions are calculated according to the following formula:

$$BE_y = EG_y \times EF_y = (EG_{\text{export}, y} - EG_{\text{import}, y}) \times EF_y$$

Where:

BE_y, Baseline emissions in year y (tCO₂e),

EG_y, The net electricity supplied to the NCPG by the Project in period y (MWh),

EG_{export, y}, The electricity exported to the NCPG by the Project in period y (MWh),

EG_{import, y}, The electricity imported by the Project from NCPG in period y (MWh),

EF_y, is the CO₂ emission factor of the grid which is ex-ante determined in the CDM-PDD and fixed in the crediting period, tCO₂e/MWh. The baseline emission factor EF_y is 1.0755 tCO₂/MWh.

The values regarding amounts of baseline emission achieved in each vintage and in the whole verification period are listed in table E-1. The monitoring data are listed in table E-2~3.

Table E-1 Baseline emission achieved in this VCS monitoring period

Monitoring Period	Vintage	Base line emission (t CO ₂ e)
01/08/2009-28/02/2010	01/08/2009-31/12/2009	59,125

	01/01/2010-28/02/2010	19,277
Total amount of baseline emission in this VCS monitoring period		78,402

Table E-2 Electricity exported and imported by the Project

Period	Electricity exported to the NCPG by the Project (MWh) (EG _{export, y})	Electricity imported by the Project from NCPG (MWh) (EG _{import, y})
01/08/2009-31/08/2009	5,991.300	19.250
01/09/2009-30/09/2009	11,975.350	23.840
01/10/2009-31/10/2009	14,298.750	28.770
01/11/2009-30/11/2009	12,682.360	30.600
01/12/2009-31/12/2009	10,184.840	55.500
Subtotal	55,132.600	157.960
01/01/2010-31/01/2010	12,135.110	60.150
01/02/2010-28/02/2010	5,911.460	62.000
Subtotal	18,046.570	122.150
Total	73,179.170	280.110

Table E-3 Net electricity supplied to NCPG (EGy, MWh)

Monitoring period	Vintage	EG _{export, y}	EG _{import, y}	Net Electricity supplied to Grid(EGy)
		J	K	L=J-K
01/08/2009-28/02/2010	01/08/2009-31/12/2009	55,132.600	157.960	54,974.640
	01/01/2010-28/02/2010	18,046.570	122.150	17,924.420
Total		73,179.170	280.110	72,899.060

4.2 Project Emissions

According to the ACM0002, the emission of wind power project activity is zero, i.e. **PE_y=0**

4.3 Leakage

According to ACM0002, the leakage of wind power project need not be considered

4.4 Summary of GHG Emission Reductions and Removals

In line with the registered CDM PDD, the ERs are calculated as:

$$ER_y = BE_y - PE_y$$

Where,

- ER_y , emission reductions in year y ,
- BE_y , baseline emissions in year y ,
- PE_y , project emissions in year y ,

The calculated results are listed in table E-5.

Table E-5 Emission reductions achieved in this VCS monitoring period.

Monitoring Period	Vintage	EF (tCO ₂ e/MWh)	BE _y (tCO ₂ e)	PE _y (tCO ₂ e)	Emission reductions (tCO ₂ e)
01/08/2009~28/02/2010	01/08/2009-31/12/2009	1.0755	59,125	0	59,125
	01/01/2010-28/02/2010	1.0755	19,277	0	19,277
Total		1.0755	78,402	0	78,402

5 ADDITIONAL INFORMATION

As per ex-ante calculation of the registered CDM-PDD, the average of annual emission reductions is 133,685t CO₂e. The estimated ERs during this period are 77,647 tCO₂e, whereas the actual emission reduction accomplished by the Project during this verification period is 78,402t CO₂e. Comparing with the estimated ERs, the actual ERs increased by 0.97% temporarily. Further details are specified in the table below.

Vintage	Estimated ER applied in the registered CDM-PDD (tCO ₂ e)	Actual ER values reached during the monitoring period (tCO ₂ e)	Comparison between the actual value and estimated value
	A	B	C=(A-B)/B
01/08/2009-31/12/2009	133,685/365*153=56,038	59,125	5.51%
01/01/2010-28/02/2010	133,685/365*59=21,609	19,277	-10.79%
Total	133,685/365*212=77,647	78,402	0.97%

The actual value of emission reductions in this verification period is a slight higher than that estimated in the PDD due to the uneven distribution of wind resources throughout a year.