

YUXIAN BAIYANTUO

49.3 MW

WIND POWER PROJECT



Document Prepared By Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.

Project Title	Yuxian Baiyantuo 49.3 MW Wind Power Project
Version	02
Date of Issue	15-Nov.-2011
Project ID	UNFCCC Ref.4817
Monitoring Period	16-Dec.-2010 to 31-May-2011
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1 PROJECT DETAILS

1.1 Summary Description of Project

Yuxian Baiyantuo 49.3 MW Wind Power Project (hereinafter referred to as the project) is developed by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. It is located at the southwest of Yuxian County, Hebei Province, P.R.China. The project install 58 sets of wind turbine, each of which has a rated installed capacity of 850 kW, providing a total installed capacity of 49.3 MW. The annual output of the project is estimated to be 104,713.2 MWh.

As a renewable wind power project, the project can generate greenhouse gas (GHG) emission reductions (hereinafter referred to as ERs) by displacing power from the NCPG (North China Power Grid) which is of high-growth and dominated by fossil-fuel fired power plants.

It was put into commercial operation on 16/12/2010(i.e. the project start date). This VCS verification period covered the time from 16/12/2010 to 31/05/2011, during which GHG ERs amount to 59,120 tCO₂e were achieved.

1.2 Sectorial Scope and Project Type

The project is a new grid-connected renewable wind power plant and not a grouped project as per definition of Grouped Project.

1.3 Project Proponent

Project Proponent: Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.

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1.4 Other Entities Involved in the Project

N/A

1.5 Project Start Date

16/12/2010

1.6 Project Crediting Period

The VCS crediting period is from 16/12/2010 - 31/05/2011

1.7 Project Location

The Project is located in Yu County, Zhangjiakou City, Hebei Province, P.R.China. The center of the Project has geographical coordinates with east longitude of $114^{\circ}33'06''$ and north latitude of $39^{\circ}40'32''$. The area of the wind farm is about 21 km^2 . Figure 1 shows the location of Hebei Province, Figure 2 shows the location of Zhangjiakou City. Figure 3 shows the location of the Project.

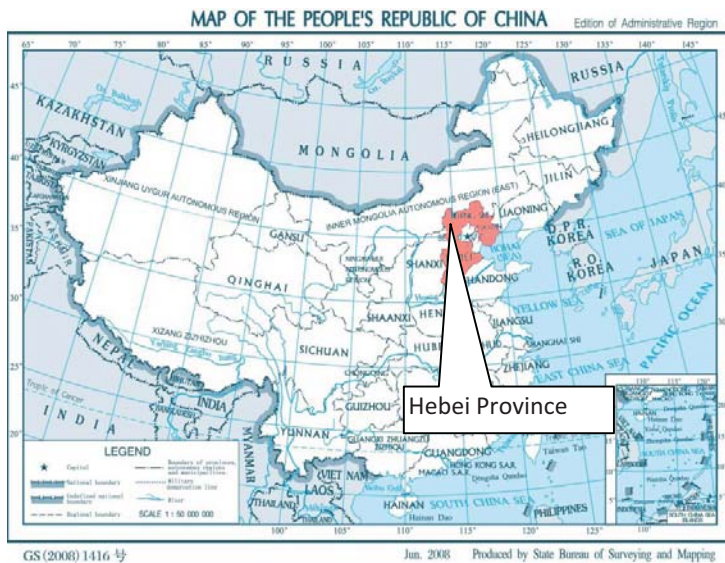


Figure 1. Location of Hebei Province



Figure 2. Location of Zhangjiakou City



Figure 3. Location of the Project

1.8 Title and Reference of Methodology

The project applies the approved consolidated baseline and monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 12.1.0).

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The project was implemented in consistency with the registered CDM-PDD. The project has been put into commercial operation since 16/12/2010. During this VCS verification period, the project was in normal and smooth operation as per the registered PDD without any emergencies or special events, which might impact the applicability of the methodology.

2.2 Deviations from the Monitoring Plan

N/A

2.3 Grouped Project

N/A

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	$EF_{grid,CM,y}$
Data unit:	tCO ₂ e/MWh
Description:	Baseline emission factor of the NCPG
Source of data:	Registered CDM PDD
Value applied:	0.950225
Purpose of the data:	Used for calculation of baseline emission
Any comment:	This parameter is ex-ante determined in the registered CDM-PDD and fixed in the first crediting period.

3.2 Data and Parameters Monitored

Data Unit / Parameter:	$EG_{facility,y}$
Data unit:	MWh
Description:	Quantity of net electricity generation supplied by the

	Project to the grid in year y			
Source of data:	on-site meter.			
Description of measurement methods and procedures to be applied:	Continuously measured by one bi-directional meter installed on the 35 kV transmission line at the Project Site and monthly recorded.			
Frequency of monitoring/recording:	continuously measured and monthly recorded.			
Value monitored:	62,217.430			
Monitoring equipment:		Type	Accuracy class	Serial Number
	$EG_{facility,y}$	Electricity meter	0.2s	94316769
QA/QC procedures to be applied:	Electricity sales receipt(s) is used for crosscheck. If any difference between the monitored data and the data on electricity sales receipt(s), the conservative values had used to estimate emission reductions.			
	Meter	Calibration date	Calibration frequency	Calibration institutions and number of certificate
	The monitoring meter	29/01/2010 29/01/2011	annually	The calibration was conducted by HeBei power research institute calibration and by China National Accreditation Service for Conformity Assessment certificate NO.CNASL2424
Calculation method:	$EG_{facility,y}$ is calculated as Electricity supplied to Grid minus Electricity imported from the Grid.			
Any comment:	-			

3.3 Description of the Monitoring Plan

1. Monitored Data

The ex-ante determined baseline emission factor was adopted. The quantity of net electricity generation supplied by the Project ($EG_{facility,y}$) was monitored according to the monitoring plan specified in the registered CDM-PDD.

2. Monitoring System Organization Chart

The monitoring system Organization Chart is shown in Figure 4 and implemented by the Project Owner.

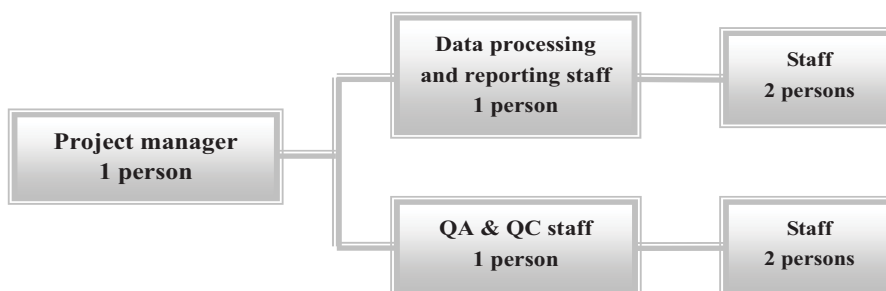


Figure 4. Monitoring system Organization Chart of the project

The Project Manager is responsible for implementation and supervision of the monitoring activity and liaison in this CDM project. The data processing and reporting personnel are responsible for managing, processing and submitting data. The QA & QC personnel are responsible for calibration of meter and supervision of the whole process quality.

3. Installation of Meter

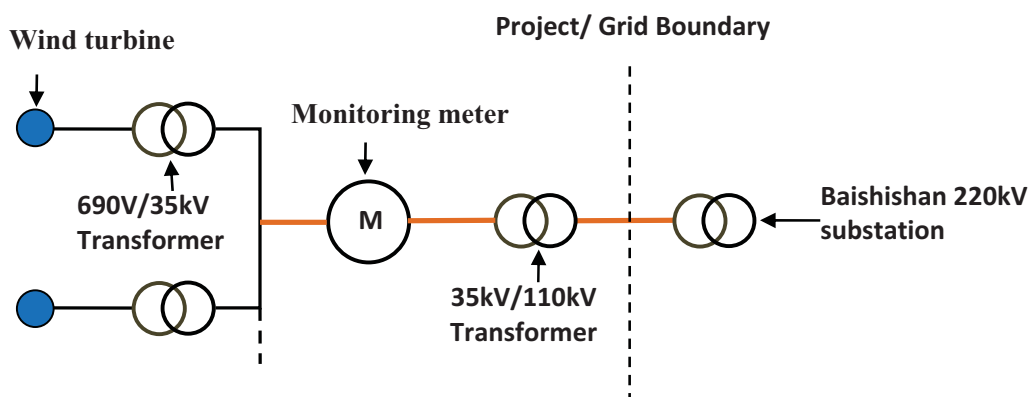


Figure 5. Electrical grid connection diagram

The quantity of net electricity generation supplied by the Project ($EG_{facility,y}$) was measured continuously by one bi-directional meter installed on the 35 kV transmission line at the Project Site and daily recorded.

If any difference between the monitored data and the data on electricity sales receipt(s), the conservative values will be used to estimate emission reductions.

Cut-off time of the meters (311B) is at 24:00 on the 24th of each month. The sales receipts from the grid company serve as a cross-check.

4. Precision and Calibration of Meter

The meter of the Project had equipped in line with *Technical Administrative Code of Electric Energy Metering* (DL/T 448-2000). The measurement precision of the meter employed by the Project had 0.2s.

Meter	Calibration date	Calibration frequency	Calibration institutions and number of certificate
The monitoring meter	29/01/2010 29/01/2011	annually	The calibration was conducted by HeBei power research institute calibration and by China National Accreditation Service for Conformity Assessment certificate No.:CNASL2424

5. Data Management System

·Particular staff had appointed by the Project Owner to take the overall responsibility for monitoring emission reductions and keeping all the data collected as part of monitoring archived electronically.

·Electronic data and documents had regularly copied and archived, and kept at least for two years after the end of the last crediting period or two years after the last issuance of CERs, whichever is later.

·Written data and documents had copied and archived, and kept for at least two years after the end of the last crediting period or two years after the last issuance of CERs, whichever is later.

The electricity delivered by the Project to the grid in year y:

The electricity delivered by the Project to the grid in year y ($EG_{\text{facility},y}$) was continuously measured by the bi-directional electricity meter installed on the transmission line of the Project.

Readings of the electricity meter at 24:00:00 were recorded every day in the Daily Reading Records by designated personnel at the wind farm of the Project. And monthly, they summarized and recorded readings of the electricity meter in Monthly Production Report of the Project. After the grid company confirmed the data, the sales receipt would be issued based on the data by the grid company. For the electricity delivered by the Project to the grid ($EG_{\text{facility},y}$), the Sales receipt were monthly issued by the grid company to the Project Owner. Sales receipts issued by the grid company were used for crosscheck. From the monitoring period, the settlement day was the 24th of each month.

6. Quality Assurance and Quality Control Procedure

Particular QC staff had appointed by the Project Owner to take the overall responsibility of calibrating monitoring equipment, managing and processing the monitored data according to QA/QC procedure provided in Section B.7.1 of PDD of the project.

In case the meter is out of order, the project without any about this situation in the monitoring period. it shall be inspected, repaired, or replaced immediately by the professional staff and quantity of net electricity generation supplied by the Project to the grid shall be jointly determined by the Project Owner

and the power grid company. A conservative and reasonable estimate of the readings shall be determined and conservative values shall be used to estimate emission reductions.

7. Preparation for Verification

Besides the recorded data and the documents for crosscheck required in Section B.7.1, other documents had prepared by the Project Owner for verification by the DOE including, but not limited to:

- PDD (registration version), including the electronic spreadsheets and supporting documents (assumptions, estimations, measurement, etc.);
- Report on maintenance and calibration of meter;
- Report on monitoring.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

According to ACM0002, the baseline emission during this verification period is calculated as

$$BE_y = EG_{facility,y} \times EF_{grid,CM,Y}$$

Where:

BE_y is the baseline emissions, tCO₂e.

EG_{facility,y} is the net electricity supplied to the grid by the project, MWh.

EF_{grid, CM,y} is the CO₂ emission factor of the grid which is ex-ante determined in the CDM-PDD and fixed in the first crediting period, tCO₂e/MWh.

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

Table 1 Baseline emission achieved in this verification period

Period	Base line emission (t CO ₂ e)
16/12/2010-31/12/2010	4,124
01/01/2011-31/05/2011	54,996
Total	59,120

Table 2 The quantity of electricity exported to/imported from the grid by the project (MWh)

Vintage	From	To	Electricity supplied to Grid			Electricity imported from the Grid		
			Meter readings	Data on the sales receipt	Data for VCU calculation	Meter readings	Data on the sales receipt	Data for VCU calculation
			A(MWh)	B(MWh)	C=Min(A,B)(MWh)	D(MWh)	E(MWh)	F=Max(D,E)(MWh)
16/12/2010 - 31/12/2010	16/12/2010	24/12/2010	2,294.460	2,283.000*	2,283.000	0.000	0.000*	0.000
	25/12/2010	31/12/2010	2,063.460	2,057.373*	2,057.373	0.000	0.000*	0.000
	Subtotal		—		4,340.373	—		0.000
01/01/2011 - 31/05/2011	01/01/2011	24/01/2011	11,605.860	11,571.627*	11,571.627	13.440	13.542*	13.542
	25/01/2011	24/02/2011	8,572.200	8,499.000	8,499.000	20.580	20.757	20.757
	25/02/2011	24/03/2011	14,085.120	13,981.000	13,981.000	5.040	5.077	5.077
	25/03/2011	24/04/2011	10,577.700	10,496.000	10,496.000	13.860	13.967	13.967
	25/04/2011	24/05/2011	11,387.460	11,301.000	11,301.000	5.880	5.924	5.924
	25/05/2011	31/05/2011	2,108.400	2,089.392*	2,089.392	1.680	1.695*	1.695
	Subtotal		—		57,938.019	—		60.962
	Total		—		62,278.392	—		60.962

Remark: *These values source from certificate issued by the grid according to the daily monitoring data.

Table 3 The quantity of net electricity supplied to the grid ($EG_{\text{facility},y}$, MWh)

Period	Electricity supplied to Grid	Electricity imported from the Grid	Net Electricity supplied to Grid($EG_{\text{facility},y}$)
	G	H	I=G-H
16/12/2010-31/12/2010	4,340.373	0	4,340.373
01/01/2011-31/05/2011	57,938.019	60.962	57,877.057
Total	62,278.392	60.962	62,217.430

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 is no need to be considered, i.e. $L_y = 0$

4.4 Summary of GHG Emission Reductions and Removals

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

$$ER_y = BE_y - PE_y$$

The calculated results are listed in table 4.

Table 4 Emission reductions achieved in the verification period.

Period	BE _y (tCO ₂ e)	PE _y (tCO ₂ e)	LE _y (tCO ₂ e)	Emission reductions (tCO ₂ e)
16/12/2010-31/12/2010	4,124	0	0	4,124
01/01/2011-31/05/2011	54,996	0	0	54,996
Total	59,120	0	0	59,120

As per ex-ante calculation of the registered CDM-PDD, the average of annual emission reductions is 99,501 t CO₂e. The estimated ERs during this period are 45,525 tCO₂e, whereas the actual emission reduction accomplished by the project during this verification period is 59,120 t CO₂e. Comparing with the estimated ERs, the actual ERs increased by 29.86% temporarily. The reason for the difference is due to wind energy fluctuation, while the estimated ERs were based on average wind data from FSR. According to the feasibility study report, Every year from January to May is period of the most wind speed. Its data of measured wind tower of Feasibility Study Report in the following figure 6:

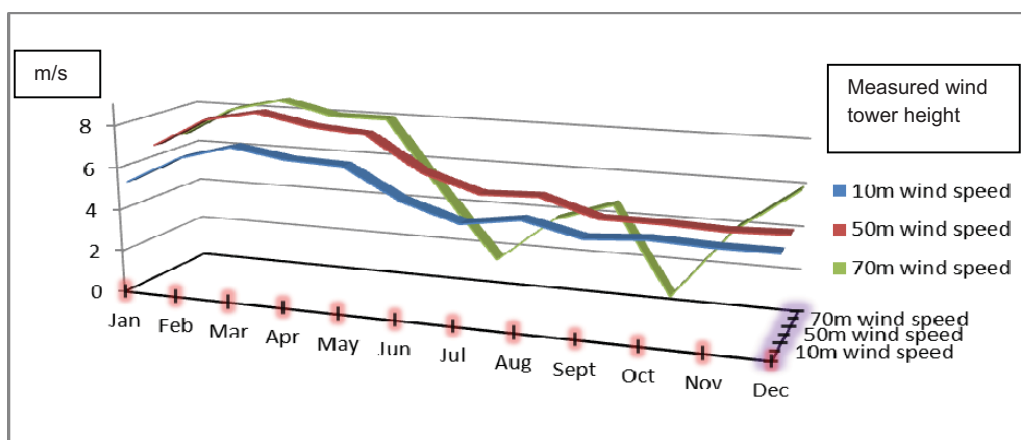


Figure6.Wind speed diagram

Obviously Figure6 shows First half is period of the most wind speed. By October 2011, actual value has less than estimated value of PDD in the table 5. In order to get more conservative data, the calculation is Electricity supplied to Grid multiply by EF_y. The estimated ERs during from 16/12/2010 to 24/10/2011 are 85,326 tCO₂e; the emission reduction accomplished by the project during from 16/12/2010 to 24/10/2011 is 79,501 tCO₂e. Comparing with the estimated ERs, the actual ERs reduced by 6.83% temporarily.

Table 5 Comparison between the estimated ERs and the actual ones achieved

period	Emission Reductions	Estimated value in registered PDD(tCO ₂ e)		The comparison of the actual Emission Reductions in the monitoring period with the estimate in registered PDD
		The annual value per year	The value of VCU's achieved in the same time length	
16/12/2010-31/05/2011	59,120	99,501	45,525	29.86%
16/12/2010-24/10/2011	79,501 ¹		85,326	-6.83%

5 ADDITIONAL INFORMATION

N/A

¹ In order to get more conservative data, The calculation is Electricity supplied to Grid multiply by EF_y.

ATTACHMENT

YUXIAN BAIYANTUO 49.3 MW WIND POWER PROJECT



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Further clarifications on requirements AS PER VCS Standard version 3.0

The project has been already registered under CDM, another GHG program approved by VCS. As per VCS relevant requirements specified in VCS standard version 3.0 for projects validated under the CDM, sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 1.13 are further clarified and or elaborated as follow:

1.2 Sectorial Scope and Project Type

The project is a new grid-connected renewable wind power plant and not a grouped project as per definition of Grouped Project.

1.3 Project Proponent

Guang Du, Team Leader

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1.5 Project Start Date

As given definition of the project start date, the start date of this project is 16/12/2010.

1.6 Project Crediting Period

The project is registered as a CDM project on 01/06/2011. The project chooses a 7 year CDM crediting period which can be renewed at twice. The first CDM crediting period is from 01/06/2011 to 31/05/2018. More details on CDM crediting period please refer to the relevant section of the CDM-PDD.

As per relevant requirements raised by VCS for project registered under the CDM, the VCS crediting period of the project is from 16/12/2010 to 31/05/2011. Obviously, there are no overlapping periods between the VCS crediting period and the CDM crediting period.

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

Project	Yes
Mega-project	N/A

Years	Estimated GHG emission reductions or removals (tCO ₂ e)
16/12/2010-31/12/2010	4,362
01/01/2011-31/05/2011	41,163

Years	Estimated GHG emission reductions or removals (tCO ₂ e)
Total estimated ERs	45,525
Total number of crediting years	167 days
Average annual ERs	99,501

1.9 Project Location

The Project is located in Yu County, Zhangjiakou City, Hebei Province, P.R.China. The centre of the Project has geographical coordinates with east longitude of 114°33'06" and north latitude of 39°40'32". The area of the wind farm is about 21 km². Figure 1 shows the location of Hebei Province, Figure 2 shows the location of Zhangjiakou City.

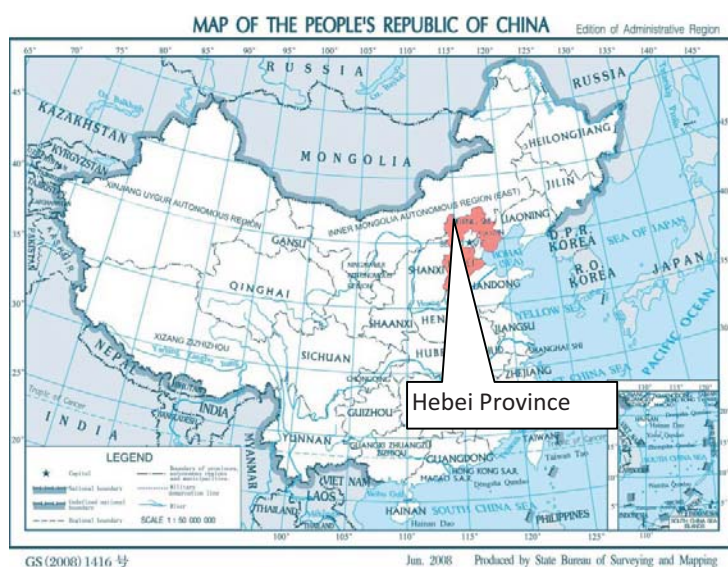


Figure 1. Location of Hebei Province



Figure 2. Location of Zhangjiakou City

1.10 Conditions Prior to Project Initiation

The project is a green-field wind power plant and no renewable power plant or other type power plant was operated prior to the implementation of the project. The purpose of the project is to generate renewable power by wind energy to replace power from North China Power Grid which is dominated by fossil-fuel fired power plant.

Definitely, the implementation of the project was not to generate GHG emissions primarily for the purpose of its subsequent removal or destruction.

1.12 Ownership and Other Programs

1.12.1 Proof of Title

Letter of Approval issued by China's DNA for the Project can serve as the proof of title of the Project Owner. As described in Letter of Approval, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. is authorized as China's participant to voluntarily participate in and carry out the Project.

The Project Owner has also obtained all relevant permits to the Project including Business License, FSR Approval and Power Purchase Agreement. Moreover, the ownership of the Project Owner was described in the registered CDM-PDD validated by BV.

1.12.2 Emissions Trading Programs and Other Binding Limits

N/A

1.12.3 Participation under Other GHG Programs

The project was registered as a CDM project on 01/06/2011 with Ref, No. 4817. Its estimated annual emission reductions are 99,501 tCO₂e. The project applied approved consolidated baseline and monitoring methodology ACM 0002 (Version 12.1.0).

Yuxian Baiyantuo 49.3 MW Wind Farm Project was invested and constructed by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. The project was put into commercial operation on 16/12/2010. As project owner, we hereby formally promise that emission reductions achieved during the period pre-CDM (i.e. from 16/12/2010 to 31/05/2011) had claimed VCUs under VCS program only.

1.12.4 Other Forms of Environmental Credit

The project neither has nor intends to generate any other form of GHG related environmental credit claimed under the VCS program, other than CO₂ emission reductions.

1.13 Additional Information Relevant to the Project

1.13.1 Eligibility Criteria

N/A

1.13.2 Leakage Management

According to ACM0002, as a wind farm project there is no need to considered leakage.

1.13.3 Commercially Sensitive Information

Commercially sensitive information has been excluded from the public version.

1.13.4 Further Information

The project is no any information relevant legislative, technical, economic, sectorial, social, environmental, geographic etc.