

HEBEI YUXIAN SECOND PHASE 49.5 MW WIND POWER PROJECT



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

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Table of Contents

1	Project Details	3
1.1	Summary Description of Project.....	3
1.2	Sectoral Scope and Project Type	3
1.3	Project Proponent.....	3
1.4	Other Entities Involved in the Project	4
1.5	Project Start Date.....	4
1.6	Project Crediting Period.....	4
1.7	Project Location.....	4
1.8	Title and Reference of Methodology	5
2	Implementation Status	5
2.1	Implementation Status of the Project Activity	5
2.2	Deviations from the Monitoring Plan.....	6
2.3	Grouped Project.....	6
3	Data and Parameters	6
3.1	Data and Parameters Available at Validation	6
3.2	Data and Parameters Monitored	8
3.3	Description of the Monitoring Plan.....	11
4	Quantification of GHG Emission Reductions and Removals	15
4.1	Baseline Emissions	15
4.2	Project Emissions.....	19
4.3	Leakage.....	19
4.4	Summary of GHG Emission Reductions and Removals.....	19
5	Additional Information	20

1 PROJECT DETAILS

1.1 Summary Description of Project

Hebei Yuxian Second Phase 49.5MW Wind Power Project (hereinafter referred to as the proposed 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 will install 33 sets of wind turbine (10 sets of FD70B type wind turbines and 23sets of FD77B type), manufactured by Dongfang Steam Turbine Co., Ltd., each of which has a rated installed capacity of 1,500 kW, providing a total installed capacity of 49.5 MW. The annual output of the project is estimated to be 112,170 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 began to construct on August 2008 and was put into commercial operation on 01/09/2009 (i.e. the project start date). This VCS monitoring period covered the time from 01/09/2009 to 31/05/2011, during which 192359 tCO₂ GHG ERs were achieved.

1.2 Sectoral Scope and Project Type

Renewable energy

1.3 Project Proponent

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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)
P.R.China (host)	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.	No

1.4 Other Entities Involved in the Project

N/A

1.5 Project Start Date

01/09/2009

1.6 Project Crediting Period

The VCS crediting period is from 01/09/2009 to 31/05/2011, and total VCS crediting period is 3 years.

1.7 Project Location

The project site is located in the southwest of Yuxian County, Zhangjiakou City of Hebei Province. The site is in Xiushuipeng Village approximately 18 km from Xiagongcun Town. The geographical coordinates of the project are 114°32'2.12"E, 39°35'0.71"N which are sourced from the approved FSR. Figure 1 shows the location of the project.



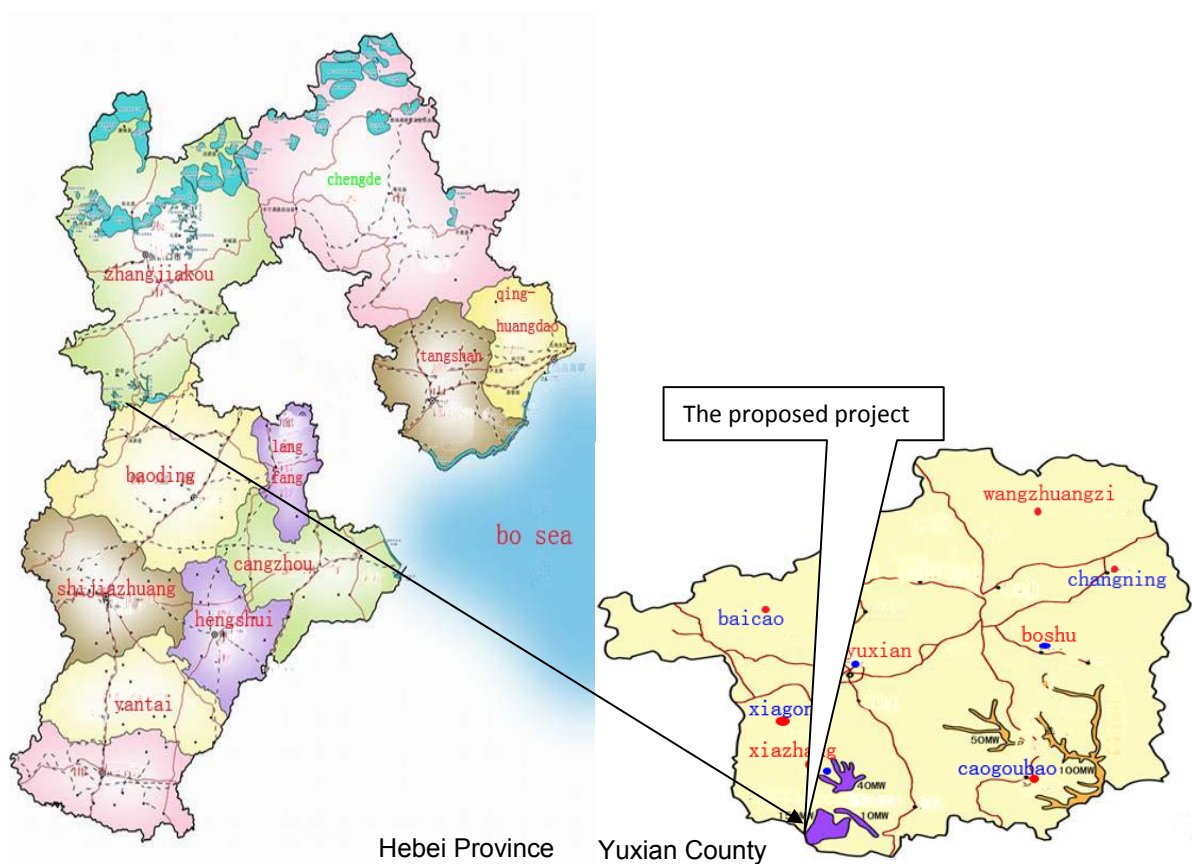


Figure 1 The location of the project

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).

The following tools are also been used:

- Tool to calculate the emission factor for an electricity system (Version 02);
- Tool for the demonstration and assessment of additionality (Version 05.2);
- Guideline on Assessment of Investment Analysis (Version 03.1)

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 01/09/2009. During this VCS monitoring period, the project

was in normal and smooth operation as per the registered PDD without any emergencies or special events, 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:	$FC_{i,m,y}$
Data unit:	Mass or volume unit
Description:	The amount of fuel i (in a mass or volume unit) consumed by relevant power sources m in year(s) y
Source of data:	China Energy Statistical Yearbook (2005-2007)
Value applied:	See Annex3 for details
Purpose of the data:	Used for calculation of operating margin
Any comment:	-

Data Unit / Parameter:	$NCV_{i,y}$
Data unit:	GJ/mass or volume unit of a fuel
Description:	The net calorific value (energy content) per mass or volume unit of a fuel i
Source of data:	China Energy Statistical Yearbook 2005-2007
Value applied:	See Annex3 for details
Purpose of the data:	Used for calculation of operating margin
Any comment:	-

Data Unit / Parameter:	$EF_{i,m,y}$
Data unit:	tCO ₂ /GJ
Description:	The CO ₂ emission factor per unit of energy of the fuel i.
Source of data:	2006 IPCC Guidelines for National Greenhouse Gas Inventories

Value applied:	See Annex 3
Purpose of the data:	Used for calculation of operating margin
Any comment:	NCV values used for the OM/BM calculation are based on IPCC default value which is at the lower limit of the uncertainty at a 95% confidence interval, so it is conservative.

Data Unit / Parameter:	$EG_{grid,j,y}$
Data unit:	MWh
Description:	Net electricity generated and delivered to the grid by province j in year y
Source of data:	China Power Yearbook 2005-2007
Value applied:	See Annex 3 for details
Purpose of the data:	Used for calculation of operating margin
Any comment:	-

Data Unit / Parameter:	$GENE_{best,coal}$
Data unit:	-
Description:	Best electricity supply efficiency for coal fired plant
Source of data:	Notification on Determining Baseline Emission Factor of China's Grid ²⁹
Value applied:	37.28%
Purpose of the data:	Used for calculation of build margin
Any comment:	-

Data Unit / Parameter:	$GENE_{best,oil,gas}$
Data unit:	-
Description:	Efficiency level of the best technology commercially available in China for gas-fired and oil-fired power generators
Source of data:	Notification on Determining Baseline Emission Factor of China's Grid
Value applied:	48.81%
Purpose of the data:	Used for calculation of build margin
Any comment:	-

Data Unit / Parameter:	$CAP_{j,y}$
Data unit:	MW
Description:	Installed capacity in each province of NCPG
Source of data:	China Electric Power Yearbook 2005-2007
Value applied:	See annex 3
Purpose of the data:	Used for calculation of build margin
Any comment:	-

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:	0.99174
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 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 plant to the grid in year y
Source of data:	Project activity site
Description of measurement methods and procedures to be applied:	This value is calculated as the difference of exported electricity and imported electricity. $EG_{facility,y} = EG_{export,y} - EG_{import,y} - EG_{backupline,y}$ $EG_{export,y}$: Annual electricity exported to the grid $EG_{import,y}$: Annual electricity imported from the grid. $EG_{backupline,y}$: Electricity delivered to the project through the backup line.
Frequency of monitoring/recording:	Monthly calculated and recorded
Value monitored:	193,962.314MW
Monitoring equipment:	N/A

QA/QC procedures to be applied:	The meters will be annually calibrated according to the relevant national electric industry standards and regulations.
Calculation method:	$EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y} - EG_{\text{backupline}}$
Any comment:	The electricity exported to and imported from the project will be crosschecked with the billing receipts.

Data Unit / Parameter:	$EG_{\text{export},y,1}$, $EG_{\text{export},y,3}$, $EG_{\text{export},y,4}$			
Data unit:	MWh			
Description:	Annual electricity exported to the grid.			
Source of data:	Directly measured.			
Description of measurement methods and procedures to be applied:	$EG_{\text{export},y,1}$: Annual electricity exported to the grid by the project and the third phase project which will be measured by the electricity meter M1(bi-directional); The bi-directional meter M2 serves as the backup for the M1. $EG_{\text{export},y,3}$: Annual electricity exported to the grid by the project which will be measured by the electricity meter M3(bi-directional); $EG_{\text{export},y,4}$: Annual electricity exported to the grid by the third phase project which will be measured by the electricity meter M4(bi-directional). These parameters will be continuously measured and monthly recorded. The relevant data will be kept during the crediting period and two years after.			
Frequency of monitoring/recording:	All these parameters were continuously measured and monthly recorded.			
Value monitored:	The values monitored were listed in table 2.			
Monitoring equipment ¹ :		Type	Accuracy class	Serial Number
	M1	ZMD402C	0.2%	94827520
	M2	ZMD402C	0.2%	94827519
	M3	ZFD402C	0.2%	94316768
	M4	ZFD402C	0.2%	94316769
QA/QC procedures to be applied:	The meters will be annually calibrated according to the relevant national electric industry standards			

	and regulations.
Calculation method:	N/A
Any comment:	-

Data Unit / Parameter:	EG _{import,y,1} , EG _{import,y,3} , EG _{import,y,4}			
Data unit:	MWh			
Description:	Annual electricity imported from the grid.			
Source of data:	Directly measured.			
Description of measurement methods and procedures to be applied:	EG_{import,y,1}: Annual electricity imported from the grid which will be measured by M1. The bi-directional meter M2 serves as the backup for the M1; EG_{import,y,3}: Annual electricity imported from the grid which will be measured by M3; EG_{import,y,4}: Annual electricity imported from the grid which will be measured by M4. These parameters will be continuously measured and monthly recorded. The relevant data will be kept during the crediting period and two years after.			
Frequency of monitoring/recording:	All these parameters were continuously measured and monthly recorded.			
Value monitored:	The values monitored were listed in table 3.			
Monitoring equipment:		Type	Accuracy class	Serial Number
	M1	ZMD402C	0.2%	94827520
	M2	ZMD402C	0.2%	94827519
	M3	ZFD402C	0.2%	94316768
	M4	ZFD402C	0.2%	94316769
QA/QC procedures to be applied:	The meters were well maintained and annually calibrated according to the relevant national electric industry standards and regulations.			
Calculation method:	N/A			
Any comment:	-			

Data Unit / Parameter:	EG _{backuptline,y}
Data unit:	MWh

Description:	Electricity delivered to the project through the backup line, which will be measured by M5 (single-directional);.			
Source of data:	Directly measured.			
Description of measurement methods and procedures to be applied:	This parameter were continuously measured and monthly recorded. The relevant data were kept during the crediting period and two years after.			
Frequency of monitoring/recording:	All these parameters were continuously measured and monthly recorded.			
Value monitored:	0.000			
Monitoring equipment:		Type	Accuracy class	Serial Number
	M5	DSSD331	0.5%	20070130030114
QA/QC procedures to be applied:	The meter was annually calibrated according to the relevant national electric industry standards and regulations.			
Calculation method:	N/A			
Any comment:	Billing receipts of electricity were serve as a cross-check.			

3.3 Description of the Monitoring Plan

The monitoring plan is established according to the request of approved baseline and monitoring methodology ACM0002 (Version 12.1.0).

1. Monitoring subject

The following parameters were measured directly by the onsite meters while the net electricity ($EG_{\text{facility},y}$) supplied to the grid by the project will be calculated from the following parameters.

$EG_{\text{export},y,1}, EG_{\text{export},y,3}, EG_{\text{export},y,4}$ is the electricity exported to the grid;

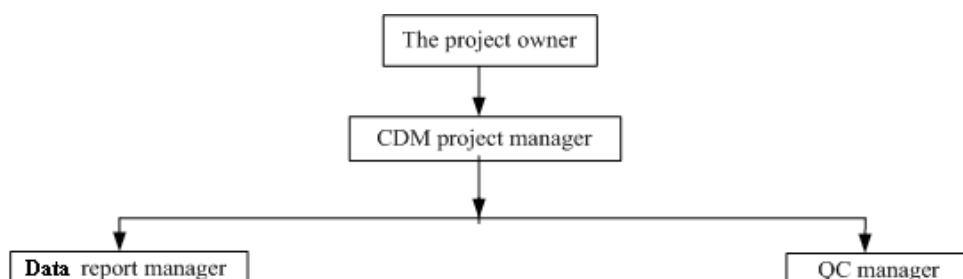
$EG_{\text{import},y,1}, EG_{\text{import},y,3}, EG_{\text{import},y,4}$ is the electricity imported from the grid;

$EG_{\text{backuptline},y}$ the electricity consumed by the project and the third phase project through the backup line.

2. Project Integrate Management

This monitoring plan was implemented by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd, the project owner, and consultants appointed by the project owner. The monitoring activity involves one project manager, who is responsible for the implementation and monitoring of the monitoring activity. There are 2 departments organized for data report and quality control. There is 1 manager responsible for data report and quality control department by 1 of each. The manager will take charge of the employment administration, as well as the operation implementation and monitoring; staffs will carry on the concrete assignment based on the guide of their manager. The monitoring system flowchart of this project is shown in following figure.

The relevant training will be implemented by the project owner and the equipment manufacturer before operation of the project.



3. Metering System

The electricity generated by the project and the third phase project will be transmitted to an on-site 35kV/110kV transformer station that increase the voltage to 110kV, and then be delivered to Laiyuan Substation by main transmission line. The simplified electrical grid connection diagram is shown in the following figure 2:

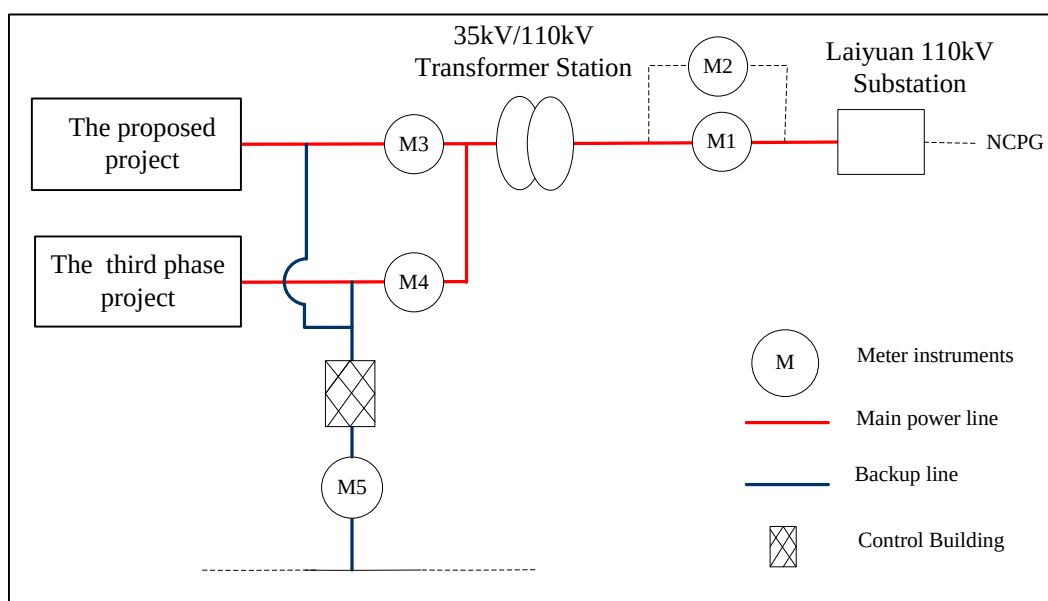


Figure 2 Simplified electrical grid connection diagram

The power line supplying electric power to the grid can also deliver power from the grid to the wind farm. The metering equipments run in two directions and will record two readings, i.e. electricity exported to the grid ($EG_{\text{export}, y}$) and electricity imported from the grid ($EG_{\text{import}, y}$). Net electricity supplied to the grid is calculated as exports minus imports.

The metering system indicated by the meter instruments at M1 in Figure 2 is the main meter, while the metering system indicated by the meter instruments at M2 in Figure 2 is the backup meter. M1 is installed at 35kV/110kV transformer higher side. M2 is installed at the same point of M1.

Both of them are operated by the grid company. The main meter and the backup one are like as two peas. The grid company and the project owner together will read all the meters monthly and record the readings respectively. Cut-off time of all meters is at 24:00 on the 24th of each month. After the meter readings of all the meters were correspondingly crosschecked through respective meter reading records saved by the grid and the project owner and both sides confirmed the meter readings, and then the sale receipts have been issued. The readings of the meters on 24:00 of the end of every year are also confirmed in separate sales receipts issued by the grid company.

Separate meters for the two projects (the meter M3 for the project and the meter M4 for the third phase project) exist at the low voltage side of the 35 kV/110 kV transformer on the project site. This means that any transmission and transformer losses and any consumption by the onsite offices are accounted for and are shared between the two projects on the basis of electricity generation. The third phase project was connected to the low voltage side of the shared 35 kV/110 kV transformer on 16 Dec 2010.

In case of emergencies and when the wind farm does not produce enough power for auxiliary power use, the project will use the power through the backup line. Power delivered to the projects through a backup power line ($EG_{\text{backup line, y}}$) is metered by instruments at M5 in Figure 2.

Net electricity supplied to the grid by the project is calculated on a monthly basis as:

$$EG_{\text{facility, y}} = EG_{\text{export, y}} - EG_{\text{import, y}} - EG_{\text{backuptime, y}}$$

Where:

$$EG_{\text{export, y}} = EG_{\text{export, y, 1}} \times EG_{\text{export, y, 3}} / (EG_{\text{export, y, 3}} + EG_{\text{export, y, 4}});$$

$$EG_{\text{import, y}} = EG_{\text{import, y, 1}} \times EG_{\text{import, y, 3}} / (EG_{\text{import, y, 3}} + EG_{\text{import, y, 4}});$$

$EG_{\text{export, y, 1}}$: are the electricity exported to the grid by the project and the third phase project measured by the meter M1; $EG_{\text{export, y, 3}}$: are the electricity exported to the grid by the project measured by the meter M3;

$EG_{\text{export, y, 4}}$: are the electricity exported to the grid by the third phase project measured by the meter M4;

$EG_{\text{import, y, 1}}$: are the electricity imported from the grid by the project and the third phase project measured by the meter M1;

$EG_{\text{import, y, 3}}$: are the electricity imported from the grid by the project measured by the meter M3;

$EG_{\text{import, y, 4}}$: are the electricity imported from the grid by the third phase project measured by the meter M4;

$EG_{\text{backuptime, y}}$: are the electricity consumed by the project and the third phase project through the backup (10kV) line measured by the meter M5;

In this monitoring report, the values of the monitoring parameter $EG_{\text{import, y, 1}}$ are used as values of the $EG_{\text{import, y}}$, i.e. $EG_{\text{import, y}} = EG_{\text{import, y, 1}}$. Refer to the table 4 below. Since the calculation method required by the monitoring period means that the $EG_{\text{import, y, 1}}$ are no lower than the $EG_{\text{import, y}}$, this calculation method $EG_{\text{import, y}} = EG_{\text{import, y, 1}}$ used in this monitoring period is a conservative method to calculate the emission reductions. As the $EG_{\text{import, y, 1}}$ is measured by meter M1, whose accuracy is the same as the accuracy of

the meters M3 and M4 which are used to measure the $EG_{import,y,3}$ and $EG_{import,y,4}$, the accuracy for the parameter $EG_{import,y}$ is not impacted. Therefore the emission reductions calculated in this monitoring period are not overestimated.

4. Calibration

The metering equipments will be properly calibrated and checked annually according to relevant national standard, e.g. DL/T448—2000 or other national standard, to ensure its accuracy. The accuracy of the metering equipments (M1, M2, M3, and M4) are 0.2% and the accuracy of backup line meter (M5) is 0.5%. The relative recording files will be supplied to the project owner. These recording files will be preserved by the project owner and provide to DOE in Verification.

Energy meter	Calibration time table	Calibration institutions and number of certificate
M1	21/05/2009; 22/05/2010; 18/05/2011	The calibration was conducted by HeBei power research institute with certificate NO. (JI) Fa Ji [2007]D030 and (JI) FAJI (2011) D030
M2	21/05/2009; 22/05/2010; 18/05/2011	
M3	01/02/2009; 31/01/2010; 30/01/2011	
M4 ²	31/01/2010; 30/01/2011	
M5	12/08/2009; 10/08/2010	The calibration was conducted by Laiyuan Power Supply Co., Ltd. with certificate NO. (BAO) FAJI (2009) D002

5. Quality Assurance and Quality Control

The quality assurance and quality control procedures for recording, maintaining and archiving data shall be improved as part of this CDM project activity according to CDM EB rules and real practice in terms of the need for verification of the emission reductions on an annual basis according to this PDD.

6. Information collection and management

All physical documents including the readings in electronic and manual form of the Meters, billing receipts will be stored by the project owner and kept one copy in order to facilitate the verification of DOE.

The monthly records of power supplied to the grid and received from the grid, relevant accounting documents and billing receipts and the results of calibration shall be collected in a central place by the project owner. All data collected as part of monitoring will be kept at least for 2 years after the end of the last crediting period by the project owner.

7. Procedure in case of damaged metering equipment

In case metering equipment is damaged and no reliable readings can be recorded the project owner will estimate net supply by the project activity according to the following procedure:

a. In case the main meter is damaged only:

By reading the backup meter.

² The third phase project had been operated since 16/12/2010.

b. In case both the main meter and the backup one are damaged:

The project owner and the grid company will jointly calculate a conservative estimate of power supplied to the grid. A statement will be prepared indicating

The background to the damage to metering equipment

The assumptions used to estimate net supply to the grid for the days for which no record could be recorded the estimation of power supplied to the grid. The statement will be signed by both a representative of the project entity as well as a representative of the grid company.

The project entity will furthermore document all efforts taken to restore normal monitoring procedures.

8. Monitoring Report

The Project owner will annually prepare a monitoring report which will include among others a summary of metering values of power supplied to and received from the grid, copies of sales/billing receipts, a report on calibration and a calculation of emission reductions.

All the data shall be kept until two years after the end of the first crediting period.

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 crediting period, tCO₂e/MWh.

The values regarding amounts of baseline emission achieved in each vintage and in the whole verification period are detailedly listed in table 1. The monitoring data are listed in table 2~4.

Table 1 Baseline emission achieved in this verification period

Verification Period	Vintage	Base line emission (t CO ₂ e)
01/09/2009~31/05/2011	2009	36376
	2010	104804
	2011	51179
Total amount of baseline emission in this verification period		192359

Table 2 The quantity of electricity exported to the grid by the project (EG_{export,y}, MWh)

Vintage	From	To	Meter readings			The data of the project	Data on the sale receipts	Data for VCU calculation
			EG _{export,y,1}	EG _{export,y,3}	EG _{export,y,4}	EG _{export,y}	EG _{export,y}	EG _{export,y}
			A	B	C	D=A*B/(B+C)	E	F=Min(D,E)
2009	01/09/2009	24/09/2009	5,602.960	-	-	5,602.960	21717.000	21717.000
	25/09/2009	24/10/2009	6,772.480	-	-	6,772.480		
	25/10/2009	24/11/2009	9,341.560	-	-	9,341.560		
	25/11/2009	24/12/2009	11,487.000	-	-	11,487.000	11,487.000	11,487.000
	25/12/2009	31/12/2009	3,546.400	-	-	3,546.400	3,546.400	3,546.400
	<i>Subtotal</i>		-					36,750.400
2010	01/01/2010	24/01/2010	11,127.600	-	-	11,127.600	11,127.600	11,127.600
	25/01/2010	24/02/2010	11462.000	-	-	11462.000	11462.000	11462.000
	25/02/2010	24/03/2010	9020.880	-	-	9020.880	9021.000	9020.880
	25/03/2010	24/04/2010	9553.540	-	-	9553.540	9554.000	9553.540
	25/04/2010	24/05/2010	9948.140	-	-	9948.140	9948.000	9948.000
	25/05/2010	24/06/2010	4325.720	-	-	4325.720	4326.000	4325.720
	25/06/2010	24/07/2010	2838.880	-	-	2838.880	2839.000	2838.880
	25/07/2010	24/08/2010	2858.240	-	-	2858.240	2858.000	2858.000
	25/08/2010	24/09/2010	3750.030	-	-	3750.030	3750.000	3750.000
	25/09/2010	24/10/2010	4661.360	-	-	4661.360	4661.000	4661.000
	25/10/2010	24/11/2010	13438.480	-	-	13438.480	13438.000	13438.000
	25/11/2010	15/12/2010	13981.440	-	-	13981.440	19180.000	19179.928
	16/12/2010 ³	24/12/2010	7481.760	5223.960	2294.460	5198.488		
	25/12/2010	31/12/2010	5,794.800	3,634.260	2,063.460	3,696.182	3,696.000	3,696.000
	<i>Subtotal</i>		-					105,859.548
2011	01/01/2011	24/01/2011	24,475.440	13,055.700	11,605.860	12,957.169	12,945.000	12,945.000
	25/01/2011	24/02/2011	17615.840	9195.900	8572.200	9117.098	9117.000	9117.000

³ The third phase project had been connected to the low voltage side of the shared 35kV/110kV transformer since 16/12/2010. Before 16/12/2010, the quantity of the electricity supplied to the grid by the project was measured by M1.

	25/02/2011	24/03/2011	26729.120	12843.600	14085.120	12748.401	12748.000	12748.000
	25/03/2011	24/04/2011	18678.000	8245.020	10577.700	8181.627	8182.000	8181.627
	25/04/2011	24/05/2011	19644.240	8406.300	11387.460	8342.800	8343.000	8342.800
	25/05/2011	31/05/2011	4,210.800	1,840.860	2,401.980	412.539	380.499	380.499
Subtotal			-					51,714.926
Total			-					194,324.874

Table 3 The quantity of electricity imported to the project from the grid ($EG_{import,y}$, MWh)

Vintage	From	To	Meter readings	Data on the sales receipt	Data for VCU calculation
			$EG_{import,y}^4$	$EG_{import,y}$	$EG_{import,y}$
			G	H	I=Max(G,H)
2009	01/09/2009	24/09/2009	23.760	23.760	23.760
	25/09/2009	24/10/2009	17.600	17.600	17.600
	25/10/2009	24/11/2009	19.360	19.360	19.360
	25/11/2009	24/12/2009	10.560	10.560	10.560
	25/12/2009	31/12/2009	0.000	0.000	0.000
	Subtotal		-		71.280
2010	01/01/2010	24/01/2010	3.520	3.520	3.520
	25/01/2010	24/02/2010	7.920	7.920	7.920
	25/02/2010	24/03/2010	7.920	7.920	7.920
	25/03/2010	24/04/2010	8.800	8.800	8.800
	25/04/2010	24/05/2010	7.040	7.040	7.040
	25/05/2010	24/06/2010	23.760	23.760	23.760
	25/06/2010	24/07/2010	32.560	32.560	32.560
	25/07/2010	24/08/2010	22.000	22.000	22.000
	25/08/2010	24/09/2010	47.520	47.520	47.520
	25/09/2010	24/10/2010	11.440	11.440	11.440
	25/10/2010	24/11/2010	7.040	7.040	7.040
	25/11/2010	24/12/2010	2.640	2.640	2.640
	25/12/2010	31/12/2010	0.000	0.000	0.000

⁴ As described above, the values of the monitoring parameter $EG_{import,y,1}$ are used as values of the $EG_{import,y}$. It is absolutely conservative.

	Subtotal		-		182.160
2011	01/01/2011	24/01/2011	13.200	13.200	13.200
	25/01/2011	24/02/2011	22.000	22.000	22.000
	25/02/2011	24/03/2011	19.360	19.360	19.360
	25/03/2011	24/04/2011	28.160	28.160	28.160
	25/04/2011	24/05/2011	5.280	5.280	5.280
	25/05/2011	31/05/2011	21.120	21.120	21.120
	Subtotal		-		109.120
Total			-		362.560

Table 4 The quantity of electricity imported to the project from the grid (EG_{backupline, y}, MWh)

Vintage	From	To	Meter readings	Data on the sales receipt	Data for VCU calculation
			EG _{backupline, y}	EG _{backupline, y}	EG _{backupline, y}
			G	H	I=Max(G,H)
2009	25/10/2009	24/11/2009	0.000	0.000	0.000
	25/11/2009	24/12/2009	0.000	0.000	0.000
	25/12/2009	31/12/2009	0.000	0.000	0.000
	Subtotal		-		0.000
2010	01/01/2010	24/01/2010	0.000	0.000	0.000
	25/01/2010	24/02/2010	0.000	0.000	0.000
	25/02/2010	24/03/2010	0.000	0.000	0.000
	25/03/2010	24/04/2010	0.000	0.000	0.000
	25/04/2010	24/05/2010	0.000	0.000	0.000
	25/05/2010	24/06/2010	0.000	0.000	0.000
	25/06/2010	24/07/2010	0.000	0.000	0.000
	25/07/2010	24/08/2010	0.000	0.000	0.000
	25/08/2010	24/09/2010	0.000	0.000	0.000
	25/09/2010	24/10/2010	0.000	0.000	0.000
	25/10/2010	24/11/2010	0.000	0.000	0.000
	25/11/2010	24/12/2010	0.000	0.000	0.000
	25/12/2010	31/12/2010	0.000	0.000	0.000
	Subtotal		-		0.000
2011	01/01/2011	24/01/2011	0.000	0.000	0.000

	25/01/2011	24/02/2011	0.000	0.000	0.000
	25/02/2011	24/03/2011	0.000	0.000	0.000
	25/03/2011	24/04/2011	0.000	0.000	0.000
	25/04/2011	24/05/2011	0.000	0.000	0.000
	25/05/2011	31/05/2011	0.000	0.000	0.000
	Subtotal		-		0.000
	Total		-		0.000

Table 5 The quantity of net electricity supplied to the grid ($EG_{\text{facility},y}$, MWh)

Verification period	Vintage	Electricity supplied to Grid ($EG_{\text{export},y}$)	Electricity imported via 110kV line ($EG_{\text{import},y}$)	Electricity imported via 10kV line ($EG_{\text{backupline},y}$)	Net Electricity supplied to Grid ($EG_{\text{facility},y}$)
		J	K	L	M=J-K-L
01/09/2009~31/05/2011	2009	36,750.400	71.280	0.000	36679.120
	2010	105,859.548	182.160	0.000	105677.388
	2011	51,714.926	109.120	0.000	51605.806
Total		194,324.874	362.560	0.000	193,962.314

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. $Ly = 0$

4.4 Summary of GHG Emission Reductions and Removals

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

$$ER_y = BE_y - PE_y - L_y$$

The calculated results are listed in table 6.

Table 6. Emission reductions achieved in the verification period.

Verification Period	Vintage	BE _y (tCO ₂ e)	PE _y (tCO ₂ e)	Ly (tCO ₂ e)	Emission reductions (tCO ₂ e)
01/09/2009-31/05/2011	2009	36376	0	0	36376
	2010	104804	0	0	104804
	2011	51179	0	0	51179
Total		192359	0	0	192359

5 ADDITIONAL INFORMATION

As per ex-ante calculation of the registered CDM-PDD, the average of annual emission reductions is 111,243 t CO₂e. The estimated ERs during this period are 194,447 tCO₂e, whereas the actual emission reduction accomplished by the project during this verification period is 192,359 tCO₂e. The comparison of the actual Emission Decreases by 1.07% in the monitoring period with the estimate in registered PDD. The reason for the difference is due to actual wind energy fluctuation, while the estimated ERs were based on average wind data from FSR.

Tabel 7 Comparison between the estimated ERs and the actual ones achieved

Verification period	Actual value	Estimated value	Comparison between the actual value and estimated value
	A(tCO ₂ e)	B(tCO ₂ e)	C=(A-B)/B
01/09/2009-31/05/2011	192359	194,447 ⁵	-1.07%

⁵ It is calculated as $111,243/365 \times (122+365+151) = 194,447$