

JIANGSU DONGTAI PHASEII WIND POWER PORJECT

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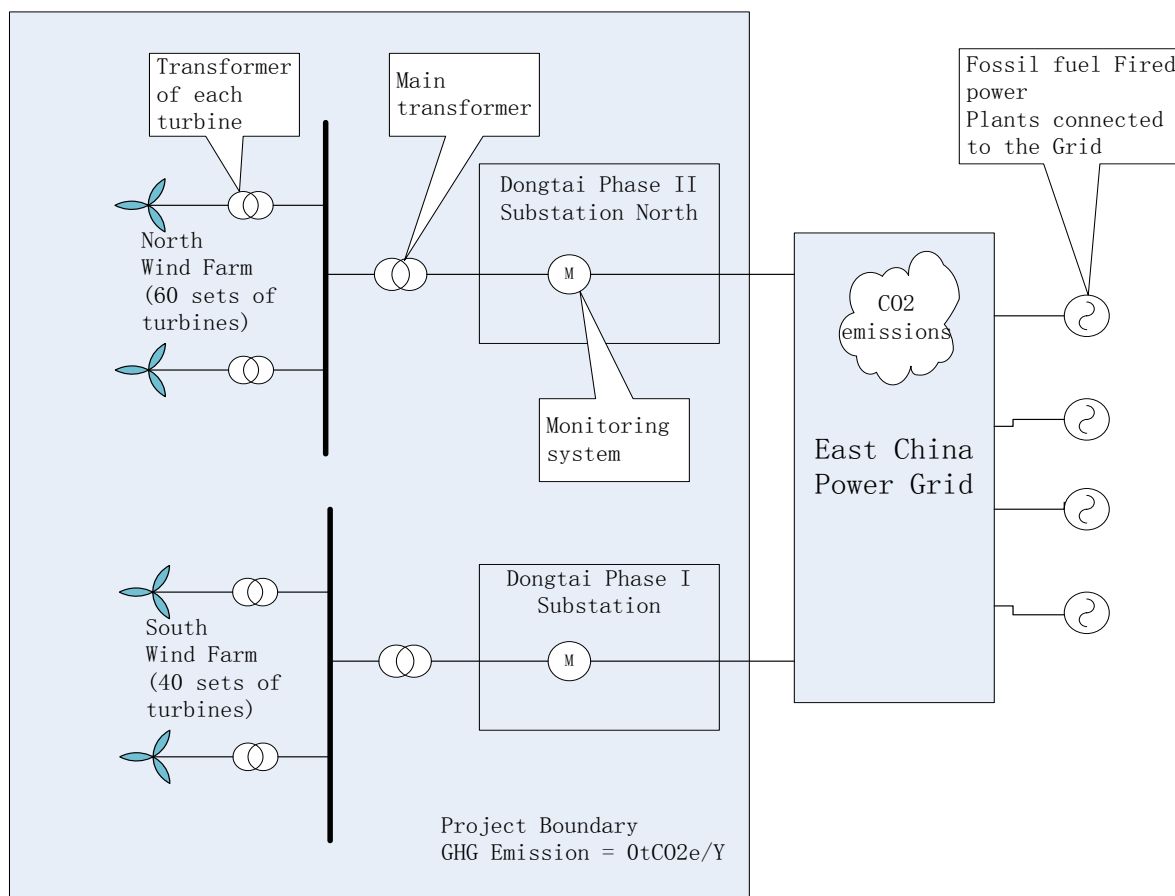
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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The main parts of the Project include wind turbine, transformer, and substation. Totally 100 sets of W2000M-93-80 turbines with a unit capacity of 2000kW were selected for the Project, providing a total installed capacity of 200MW. The Project was started construction on 26/05/2010, the first power unit started operation on 10/12/2010, and the last power unit started operation on 31/12/2012. The W2000M-93-80 turbines are manufactured by local supplier Sewind Co. Ltd. According to the turbine layout, each turbine will have a 690V-to-35kV transformer. The Project consist two wind farms the North Wind Farm and the South Wind Farm. The electricity generated by the Project from the North Wind Farm will be delivered to the Jiangsu Power Grid through the Guohua Dongtai Phase II Wind Farm North 220kV substation. The electricity generated by the South Wind Farm will be delivered to the Jiangsu Power Grid through Guohua Dongtai Phase I Wind Farm 220kV substation. The Jiangsu Power Grid is a part of the East China Power Grid. The North Wind Farm was in construction period during this monitoring period.



Key technical specifications of wind turbines are listed as table below.

Parameters Name	Unit	Value
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Type	/	W2000M-93-80
Rated output	KW	2,000
Number of blades	piece	3
Rotor diameter	M	93
Cut-in speed	m/s	3
Cut-out speed	m/s	25
Rated voltage of generator	V	690
Frequency	Hz	50

During this monitoring period, no overhaul and exchange of equipment occurred which may impact the applicability of the methodology.

1.2 Sectoral Scope and Project Type

Sectoral scope 1: Energy (renewable/non-renewable).

1.3 Project Proponent

Organization name	Guohua (Jiangsu) Wind Power Co., Ltd.
Contact person	Yuan Liang
Title	Project Manager
Address	No.15 Yingbin Avenue, Economic Development District, Dongtai City Jiangsu Province,China
Telephone	+86 138 5103 5344
Email	yuanliang@guohua.com.cn

1.4 Other Entities Involved in the Project

Organization name	-
Role in the project	-
Contact person	-
Title	-
Address	-
Telephone	-

Email	-
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1.5 Project Start Date

The Project started commissioning on 10/12/2010.

1.6 Project Crediting Period

The Project crediting period is from 10/12/2010 to 31-03-2012.

1.7 Project Location

The Project is sited in the Jianggang Town, Dongtai County, Yancheng City, Jiangsu Province, P.R.China. The Project has geographical coordinates with east longitude of 120°54'11" and north latitude of 32°39'35".

1.8 Title and Reference of Methodology

Methodology used for the Project is the approved ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.1.0).

This methodology adopts tools list as below:

1. "Tool for the demonstration and assessment of additionality" (version 05.2.1),
2. "Tool to calculate the emission factor for an electricity system" (version 02.2.1)

For more information regarding the methodology please refer to Website of Executive Board:

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

1.9 Other Programs

The project is not included in an emissions trading program except for that registered as CDM project, and does not take place in a jurisdiction or sector in which binding limits are established on GHG emissions.

The project does not take part in emission trading programs besides their status under CDM. However, the VCUs claimed are related to a different period (before the start of the CDM Crediting Period) and therefore there is no double counting.

Project has been registered as CDM project, the reference number is 5924, and linkage:

<http://cdm.unfccc.int/Projects/DB/BVQI1332352060.02/view>

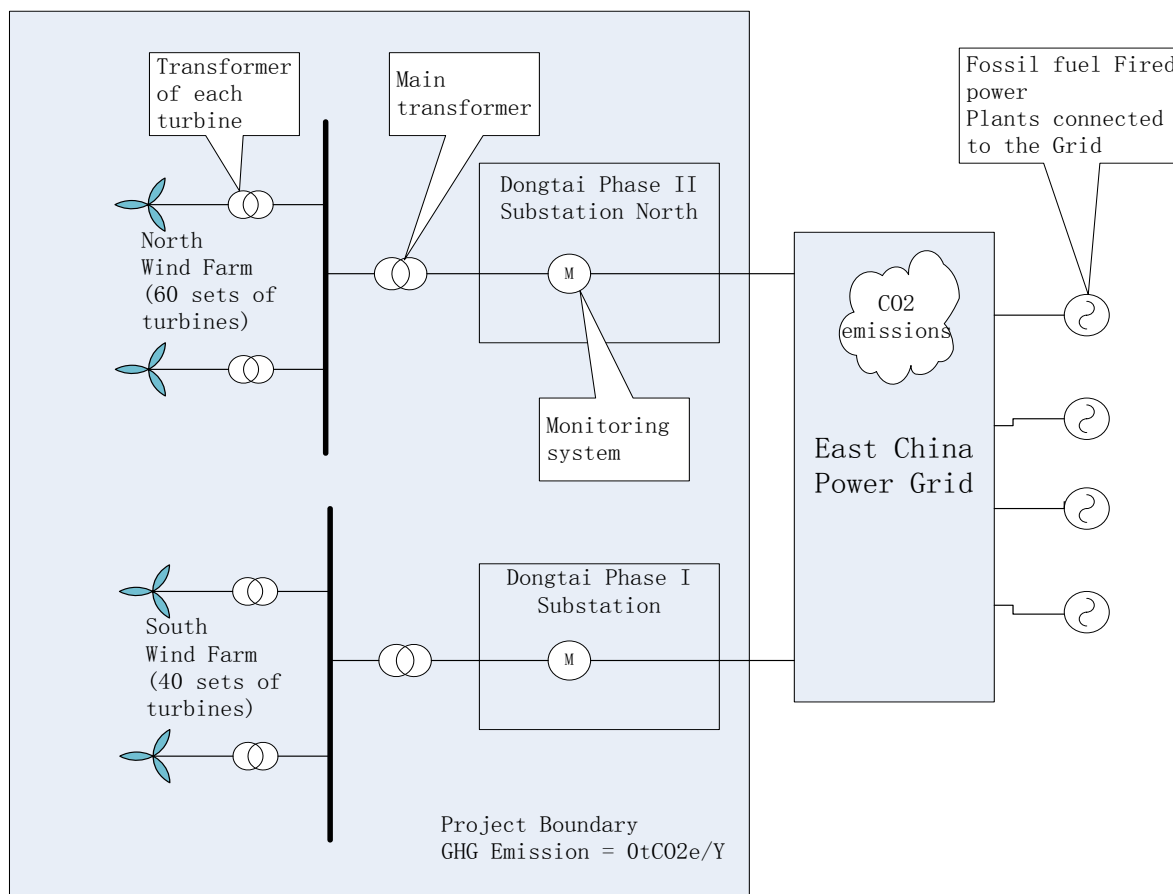
The project is located in China and is developed and operated by Guohua (Jiangsu) Wind Power Co., Ltd. The project is just purely registered as CDM project. There is no other environmental credit (for example renewable energy certificate) which has or will be produced by or obtained for the project during this monitoring period.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The main parts of the Project include wind turbine, transformer, and substation. Totally 100 sets of W2000M-93-80 turbines with a unit capacity of 2000kW were selected for the Project, providing a total installed capacity of 200MW. The Project was started construction on 26/05/2010, the first power unit started operation on 10/12/2010, and the last power unit started operation on 31/12/2012. During this monitoring period, the Project is still in construction period, only a part of south wind farm was put into use, and the meters in north wind farm were not installed. The W2000M-93-80 turbines are manufactured by local supplier Sewind Co. Ltd. According to the turbine layout, each turbine will have a 690V-to-35kV transformer. The Project consist two wind farms the North Wind Farm and the South Wind Farm. The electricity generated by the Project from the North Wind Farm will be delivered to the Jiangsu Power Grid through the Guohua Dongtai Phase II Wind Farm North 220kV substation. The electricity generated by the the South Wind Farm will be delivered to the Jiangsu Power Grid through Guohua Dongtai Phase I Wind Farm 220kV substation. The Jiangsu Power Grid is a part of the East China Power Grid. The North Wind Farm was in construction period during this monitoring period.

Figure B-1 Technical structure



Key technical specifications of wind turbines are listed as Table B-1 below.

Table B-1 Key Technical specifications of Wind turbines

Parameters Name	Unit	Value
Type	/	W2000M-93-80
Rated output	KW	2,000
Number of blades	piece	3
Rotor diameter	M	93
Cut-in speed	m/s	3
Cut-out speed	m/s	25
Rated voltage of generator	V	690
Frequency	Hz	50

During this monitoring period, no overhaul and exchange of equipment occurred which may impact the applicability of the methodology.

2.2 Deviations

2.2.1 Methodology Deviations

No methodology description deviation is identified in this monitoring period.

2.2.2 Project Description Deviations

No project description deviation is identified in this monitoring period.

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	EFy
Data unit	tCO ₂ /MWh
Description	Emission Factor
Source of data	The registered PDD
Value applied:	0.8325

Justification of choice of data or description of measurement methods and procedures applied	It's calculated during the validation of CDM and used to calculate the Baseline emission. Please refer to the registered PDD for detail information. http://cdm.unfccc.int/filestorage/4/G/H/4GHLIVA9B8J3SPM2T7RX0YDN5UCF6K/PDD-Dongtai%20II.pdf?t=SUV8bjlpMzB0fDCt_XzPIFBpkkytqLY9VLfa
Purpose of the data	Calculation of baseline emissions
Comments	N/A

3.2 Data and Parameters Monitored

Data / Parameter	EG _{out,y}
Data unit	MWh
Description	Electricity delivered to grid in year y
Source of data	Electricity meters (M1, M1b)
Description of measurement methods and procedures to be applied	Measured directly and continuously through onsite meter.
Frequency of monitoring/recording	Continuously measurement daily reading and monthly recording.
Value monitored:	Year 2010: 630.854 Year 2011: 97,591,903 Year 2012: 36,007.673
Monitoring equipment	Please find the detail information of the meter in Table 1 to Table 4
QA/QC procedures to be applied	Data measured by meters will be cross checked by electricity sales receipt.
Purpose of the data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	EG _{in,y}
Data unit	MWh
Description	Electricity imported from grid in year y
Source of data	Electricity meters (M1, M1b)
Description of measurement methods and procedures to be applied	Measured directly and continuously through onsite meter.

applied	
Frequency of monitoring/recording	Continuously measurement daily reading and monthly recording.
Value monitored:	Year 2010: 180.418 Year 2011: 368.016 Year 2012: 122.311
Monitoring equipment	Please find the detail information of the meter in Table 1 to Table 2
QA/QC procedures to be applied	Data measured by meters will be cross checked by electricity sales receipt.
Purpose of the data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	EG_y
Data unit	MWh
Description	Net electricity delivered to the Grid by the Project activity in year y.
Source of data	Calculation from $EG_{in,y}$, $EG_{out,y}$
Description of measurement methods and procedures to be applied	$EG_y = EG_{out,y} - EG_{in,y}$
Frequency of monitoring/recording	Continuously measurement daily reading and monthly recording.
Value monitored:	Year 2010: 450.436 Year 2011: 97,223.887 Year 2012: 35,885.362
Monitoring equipment	Please find the detail information of the meter in Table 1 to Table 2
QA/QC procedures to be applied	Data measured by meters will be cross checked by electricity sales receipt.
Purpose of the data	Calculation of baseline emissions
Calculation method	N/A
Comments	N/A

3.3 Monitoring Plan

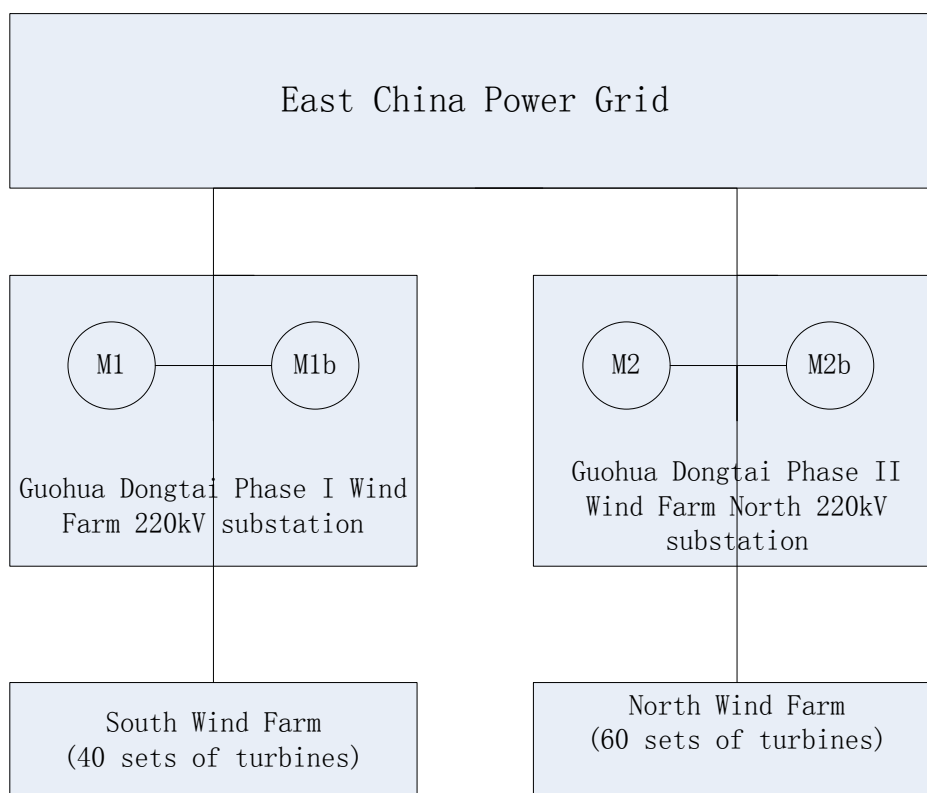
3.3.1 Monitoring of the Electricity Supplied to the East China Power Grid by the Project

Baseline emission factor the project is determined ex ante. Therefore the electricity delivered by the project to the East China Power Grid is defined as the key data to be monitored. The monitoring plan is drafted to focus on monitoring the electricity delivered by the project to the East China Power Grid.

The Project consist two wind farms, 60 sets of turbines will be installed in north wind farm and the other 40 sets of turbines will be installed in south wind farm. Two pairs bidirectional electricity meters are installed for the measurement of net electricity delivered to grid. One pair (meter M1 and its backup meter M1b) were installed at Guohua Dongtai Phase I Wind Farm 220kV substation to measure the electricity export to the grid and electricity import from the grid by south wind farm of the project. Another pair (meter M2 and its backup meter M2b) will be installed at Guohua Dongtai Phase II Wind Farm North 220kV substation to measure the electricity generated from the north wind farm of the project. M2 and M2b were not installed during this monitoring period. The metering equipment will be properly configured and checked according to the requirement from Technical Administrative Code of electric energy metering (DL/T448-2000). The metering equipment will be checked by the project owner and Grid Company before operation. The main meter will be owned, operated and maintained by East China Power Grid, and the backup meter will be owned, operated and maintained by the owner company. When the main meter is out of order, the readings from the backup meter will be used for reference.

All meters mentioned above has the accuracy of 0.2s and all parameters measured by these meters are continuously measurement daily read at 24:00 and monthly recorded on the last day of each month, and all the data collected are used to calculate the Project's net electricity delivered to the grid. All the records were documented and maintained by the Project owner for DOE's verification.

The location of those meters is presented in following figure:



3.3.2 Calibration of Meters & Metering

Calibration of Meters & Metering was implemented according to relevant standards and rules of the East China Grid.

An agreement was signed between the Project owner and the local grid company that defines the metering arrangements and the required quality control procedures to ensure accuracy.

Calibration was carried out by qualified third party authorized by the local grid company with the records been provided to the Project owner, and these records is maintained by the Project owner and the third party designated.

The metering instruments were calibrated annually. All the records were documented and maintained by the Project owner for DOE's verification.

The detail information of calibration is listed in tables below:

Table 1 Detail information of M1

Serial Number	96347859	Mode Type	Electric meter
Accuracy class	0.2S	Calibration Frequency	At least annually
Date of Calibration	17/12/2009	Validity	17/12/2009-16/12/2010
Date of	18/11/2010	Validity	18/11/2010-

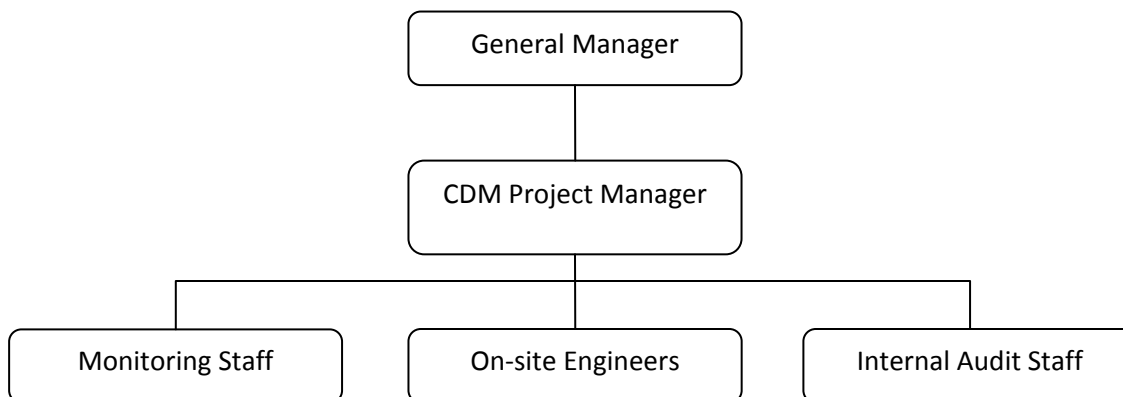
Calibration			17/11/2011
Date of Calibration	21/04/2011	Validity	21/04/2011-20/04/2012
Calibration Entity	Jiangsu Electric Power Research Institute Corporation Limited		
Accreditation of Calibration	Accredited by China National Accreditation Service for Conformity Assessment. Assessment dated 28/12/2006. Valid till 27/12/2011.		

Table 2 Detail information of M1b

Serial Number	96386908	Mode Type	Electric meter
Accuracy class	0.2S	Calibration Frequency	At least annually
Date of Calibration	17/12/2009	Validity	17/12/2009-16/12/2010
Date of Calibration	18/11/2010	Validity	18/11/2010-17/11/2011
Date of Calibration	21/04/2011	Validity	21/04/2011-20/04/2012
Calibration Entity	Jiangsu Electric Power Research Institute Corporation Limited		
Accreditation of Calibration	Accredited by China National Accreditation Service for Conformity Assessment. Assessment dated 28/12/2006. Valid till 27/12/2011.		

3.3.3 Data Management System

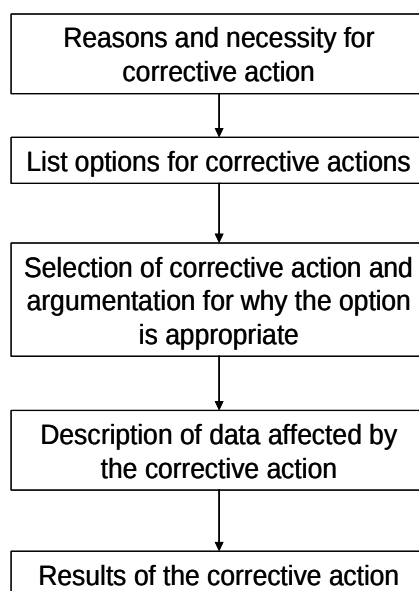
Project owner organized a special CDM workgroup to take charge of the monitoring work of the whole project. The general manager of the project entity will appoint a CDM project manager. Monitoring staff, on-site engineers and internal audit staff are responsible for the collection of the data and information required in the monitoring plan. The collected data and information will be documented and sent to the CDM manager monthly. The CDM manager will be in charge of the implementation of the monitoring plan and report to the general manager of the project owner. The general manager will make the confirmations on monitoring, calculation data and reports. The management framework is illustrated as follows:



CDM project manager is responsible for supervising and checking data and whole data record process as well as keeping receipt of sales for cross check. Record keeping is the most important exercise in relation to the monitoring process. In order to facilitate auditor's reference, monitoring results were indexed. All paper-based information were stored by the Project owner and kept at least in one copy. And all data collected were archived electronically and be kept for at least 2 years after the end of the last crediting period.

3.3.4 Corrective actions

Specific staff will log all corrective actions and will report in the monitoring report. In case corrective actions are considered necessary, these actions will be implemented according to the procedure outlined below.



3.3.5 Emergency procedures

If the main meter is inaccurate by detecting errors larger than the allowable one, or functions improperly, the grid-connected electricity generated by the Project shall be determined by the reading of its backup meter.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

In accordance with the ACM0002(version 12.1.0), Baseline emissions are calculated according to the following formula:

$$BE_y = EG_y * EF_y$$

Where:

BE_y	baseline emissions
EG_y	net electricity supplied by the Project to the grid
EF_y	baseline emission factor

The emission factor EF_y is equal to 0.8325 tCO₂/MWh. EF_y has been calculated in the Project Design Document and is fixed during the first crediting period.

The monitored data based on meter readings for the Project are as following tables:

Calculate EG_y by $EG_y = EG_{out,y} - EG_{in,y}$

Time	$EG_{out,y}$ (MWh)	$EG_{in,y}$ (MWh)	EG_y (MWh)
	A	B	C = A - B
10/12/2010-31/12/2010	630.854	180.418	450.436
Sub Total	630.854	180.418	450.436
01/01/2011-31/01/2011	5,373.641	51.348	5,322.293
01/02/2011-28/02/2011	7,397.438	31.522	7,365.916
01/03/2011-31/03/2011	9,586.157	31.891	9,554.266
01/04/2011-30/04/2011	10,701.134	25.819	10,675.315
01/05/2011-31/05/2011	10,611.744	26.347	10,585.397

01/06/2011-30/06/2011	6,458.470	26.057	6,432.413
01/07/2011-31/07/2011	5,495.318	37.673	5,457.645
01/08/2011-31/08/2011	7,087.186	27.931	7,059.255
01/09/2011-30/09/2011	8,866.810	19.668	8,847.142
01/10/2011-31/10/2011	7,210.500	30.571	7,179.929
01/11/2011-30/11/2011	9,876.055	22.361	9,853.694
01/12/2011-31/12/2011	8,927.450	36.828	8,890.622
Sub Total	97,591.903	368.016	97,223.887
01/01/2012-31/01/2012	10,840.051	14.441	10,825.610
01/02/2012-29/02/2012	12,233.998	9.293	12,224.705
01/03/2012-31/03/2012	12,933.624	98.578	12,835.046
Sub Total	36,007.673	122.311	35,885.362

The formula for calculating baseline emissions is:

$$2010: BE_{2010} = EG_{2010} * EF_{2010} = 450.436 \text{ MWh} * 0.8325 \text{ tCO}_2/\text{MWh} = 374 \text{ tCO}_2\text{e}$$

$$2011: BE_{2011} = EG_{2011} * EF_{2011} = 97,223.887 \text{ MWh} * 0.8325 \text{ tCO}_2/\text{MWh} = 80,938 \text{ tCO}_2\text{e}$$

$$2012: BE_{2012} = EG_{2012} * EF_{2012} = 35,885.362 \text{ MWh} * 0.8325 \text{ tCO}_2/\text{MWh} = 29,874 \text{ tCO}_2\text{e}$$

The baseline emissions in this monitoring period is $BE_{2010} + BE_{2011} + BE_{2012} = 111,186 \text{ tCO}_2\text{e}$.

4.2 Project Emissions

The Project is a wind power project that the project emissions should not be considered as per ACM0002 (version 12.1.0), i.e. $PE_y = 0 \text{ tCO}_2\text{e}$.

4.3 Leakage

According to ACM0002 (version 12.1.0), the leakage of the Project is considered as zero, i.e. $L_y = 0 \text{ tCO}_2\text{e}$.

4.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or	Project emissions or	Leakage emissions	Net GHG emission
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	removals (tCO ₂ e)	removals (tCO ₂ e)	(tCO ₂ e)	reductions or removals (tCO ₂ e)
2010	374	0	0	374
2011	80,938	0	0	80,938
2012	29,874	0	0	29,874
Total	111,186	0	0	111,186