SHANDONG TAIPINGSHAN 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

Shandong Taipingshan Wind Farm Project (hereinafter referred to as the proposed project) is to utilize wind resources for electricity generation through the construction of a wind farm with a total capacity of 49.3MW and an 110kV substation in Weifang City, Shandong Province, P. R. China. The electricity generated from the project will be sold to North China Power Grid (NCPG). The proposed project will achieve obvious greenhouse gas (GHG) emission reductions through the displacement of electricity delivered by North China Power Grid which is a fossil-fuel dominated grid. The proposed project is invested and developed by Anqiu Taipingshan Wind Power Co., Ltd..

The proposed project is located in Weifang City, Shandong Province, P. R. China. The proposed project involves the installation of 58 wind turbines with capacity of 850 kW each, which amount to a total installed capacity of 49.3MW.The proposed project is constructed and operated by Anqiu Taipingshan Wind Power Co., Ltd.. The estimated annual net electricity generation supplied to the grid is 91,030.5 MWh and the annual full-load operation time amount to 1,846 h per year. The estimated emission reduction is 84,740 tCO_2e annually.

The project started construction on 11/08/2009. The first batch of generating units started commercial operation on 27/04/2010.

The total emission reductions achieved in this monitoring period (27/04/2010-23/04/2012) were 180,005 tCO_2e.

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	Anqiu Taipingshan Wind Power Co., Ltd.
Contact person	Shi Lei
Title	CDM office director
Address	Area 12 of Advanced Business Park, No. 188 west of South 4th Ring Road, No.2 Building, Beijing, The People's Republic of China
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1.4 Other Entities Involved in the Project

There are no other entities involved.

1.5 Project Start Date

27/04/2010(commissioning start date)

1.6 Project Crediting Period

The project crediting period is from 27/04/2010 to 23/04/2012 and the total crediting period is 728 days.

1.7 Project Location

The proposed project is in Weifang City, Shandong Province, P. R. China. The project has geographical coordinates with east longitude from 118°42'46"E to 118°50'27"E and north latitude from 36°10'20"N to 36°13'30"N. The figure A1 and A2 shows the geographical location of the proposed project.

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

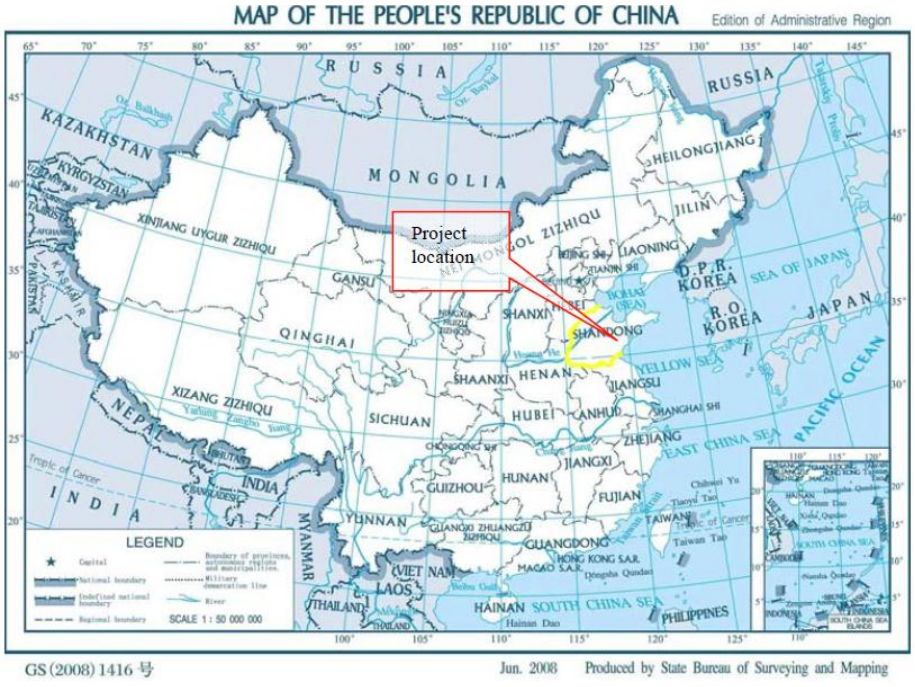


Figure A2. The proposed project on the map of Shandong Province and Wendeng County

1.8 Title and Reference of Methodology

The approved methodology applied in the proposed project activity is ACM0002 (version 12.2.0) – "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

"Tool for the demonstration and assessment of additionality (version 05.2.1)" and

"Tool to calculate the emission factor for an electricity system (version 02.2.1)" 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 24/04/2012 with Ref No.5659, for which a renewable crediting period of 3*7 years will be used under the CDM GHG Program. Therefore, CO_2 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 27/04/2010 to 23/04/2012 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 27/04/2010 to 23/04/2012.

The project has been registered as CDM project and the registration number is 5659, the CDM crediting period is form 24/04/2012 to 23/04/2019.

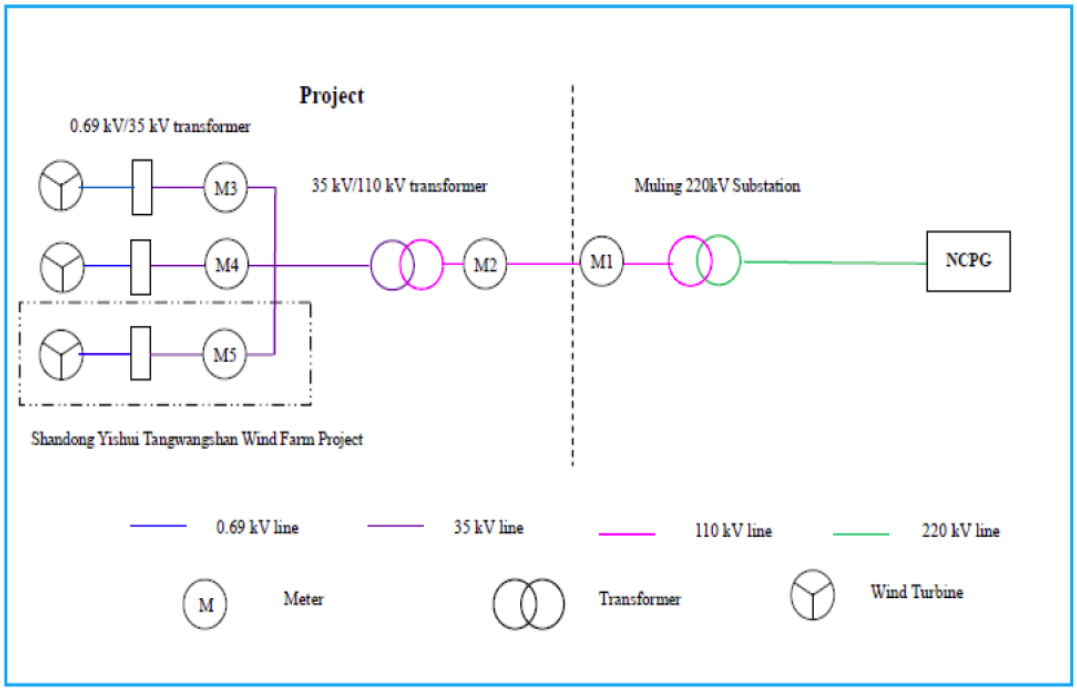
2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The project employed standard wind power generation technology. It installed 58 wind turbines with capacity of 850kW each, adding up to a total installed capacity of 49.3 MW. The main specifications of the turbine/generator are listed as below Table:

Item	Unit	Index
Rated capacity	kW	850
Number of blades		3
Rotor diameter	m	58
Cut-in speed	m/s	3.0
Rated wind speed	m/s	16
Cut-off speed	m/s	21
Height of hub	m	65
Rated voltage	V	690

The technology diagram of the Project is as follows:



2.2 Deviations

2.2.1 Methodology Deviations

There is no methodology deviations applied during this monitoring period.

2.2.2 Project Description Deviations

There is no project description deviations applied during 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	$EF_{grid,CM,y}$
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.5659
Value applied:	0.9309
Justification of choice of data or description of measurement methods and procedures applied	Refer to the registered CDM PDD with Ref No.5659
Purpose of the data	Calculation of baseline emissions
Comments	The data is calculated ex-ante according to the applied tool.

3.2 Data and Parameters Monitored

Data / 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	Calculation by $EG_{export,y}$ minus $EG_{import,y}$
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 $EG_{export,y}$ minus $EG_{import,y}$
Value monitored:	193,367.80

Monitoring equipment	Please refer to the monitoring equipment information in the table of parameters $EG_{export,y}$, $EG_{import,y}$
QA/QC procedures to be applied	The electricity generation by the proposed project will be monitored and recorded. The project operator is responsible for recording such data.
Purpose of the data	Baseline Emission calculation
Calculation method	Calculated based on the measurement results of $EG_{export,y}$ minus $EG_{import,y}$
Comments	-

Data / Parameter	$EG_{export,y}$
Data unit	MWh
Description	Electricity supplied to the grid by the Project in year *y*.
Source of data	The summation of the electricity meter readings from M3 and M4 installed on the 35kV transmission lines at the project site.
Description of measurement methods and procedures to be applied	The data will be continuously measured and monthly recorded. Data will be archived for 2 years following the end of the last crediting period.
Frequency of monitoring/recording	Continuously measurement and monthly recording
Value monitored:	194,205.56
Monitoring equipment	Electricity meter reading (M1, M3, M4 and M5) at the on-site substation.
QA/QC procedures to be applied	The meters M3 and M4 at the project site and meters M1 and M5 are calibrated once a year according to the national rules of Relative Technical Administrative Code of Electric Energy Metering. Electricity supplied to the grid is double checked against electricity sales receipts. Meter readings from meters M1 ($EG_{output,y}$) and M5 ($EG_{B,y}$) also are used for cross checking. Conservative values are adopted for ERs calculation.
Purpose of the data	Baseline Emission calculation
Calculation method	-
Comments	-

Data / Parameter	$EG_{import,y}$
Data unit	MWh
Description	Electricity imported from the grid by the project in year y.
Source of data	The summation of the electricity meter readings from M3 and M4 installed on the 35kV transmission lines at the project site.
Description of measurement methods and procedures to be applied	The data will be continuously measured and monthly recorded. Data will be archived for 2 years following the end of the last crediting period.
Frequency of monitoring/recording	Continuously measurement and monthly recording
Value monitored:	837.76
Monitoring equipment	Electricity meter reading (M1) at the on-site substation.
QA/QC procedures to be applied	The meters M3 and M4 at the project site and meters M1 and M5 are calibrated once a year according to the national rules of Relative Technical Administrative Code of Electric Energy Metering. Electricity supplied to the grid is double checked against electricity sales receipts. Meter readings from meters M1 ($EG_{output,y}$) and M5 ($EG_{B,y}$) also are used for cross checking. Conservative values are adopted for ERs calculation.
Purpose of the data	Baseline Emission calculation
Calculation method	-
Comments	-

Table 1 Information of monitoring equipments

Meters	Serial No.	Accuracy	Calibration date	Calibration frequency	Validity
M1	1305712953	0.5S	17/01/2010 15/01/2011 13/01/2012	Annually	Yes
M2	09070125900004	0.2S	17/01/2010 15/01/2011 13/01/2012	Annually	Yes

M3	09090151400332	0.5S	17/01/2010 15/01/2011 13/01/2012	Annually	Yes
M4	09090151400334	0.5S	17/01/2010 15/01/2011 13/01/2012	Annually	Yes
M5	09090151400336	0.5S	17/01/2010 15/01/2011 13/01/2012	Annually	Yes

3.3 Monitoring Plan

The 58 sets of wind turbines of the project are connected with two 35kV transmission lines. Two electricity meters (M3 and M4) are installed on the 35kV transmission lines at the project site. The M3 and M4 are used to measure the electricity supplied to the grid and electricity imported from the grid by the project, which are equal to the summation of the readings of M3 and M4. The accuracies of the two meters are no lower than 0.5s, and the calibration accuracy is once a year in line with the national rules of Relative Technical Administrative Code of Electric Energy Metering.

Since the project is sharing the meter M1 (with M2 as backup meter) at Muling 220kV substation, meter M1 at the Muling 220kV substation measures the electricity exchange between the proposed CDM project and another project (Shandong Yishui Tangwangshan Wind Farm project, hereafter referred to Project B). Electricity exchange between Project B and the grid is measured by meter M5 installed at the project site. The accuracies of the two meters M1 and M5 are no lower than 0.5s, and the calibration accuracy is once a year in line with the national rules of Relative Technical Administrative Code of Electric Energy Metering. Meter readings from M1 and M5 are used for cross checking purpose only. Also, sales receipts for the proposed CDM project activity will be used for double checking following the requirement in the applied methodology.

For cross checking of the electricity exported by the proposed project against meter readings from M1 and M5, the following equation will be applied.

$EG_{export,y} = EG_{A,y}/(EG_{A,y} + EG_{B,y})* EG_{output,y}$

Where:

$EG_{export,y}$ = Electricity exported by the project activity to the grid in year y

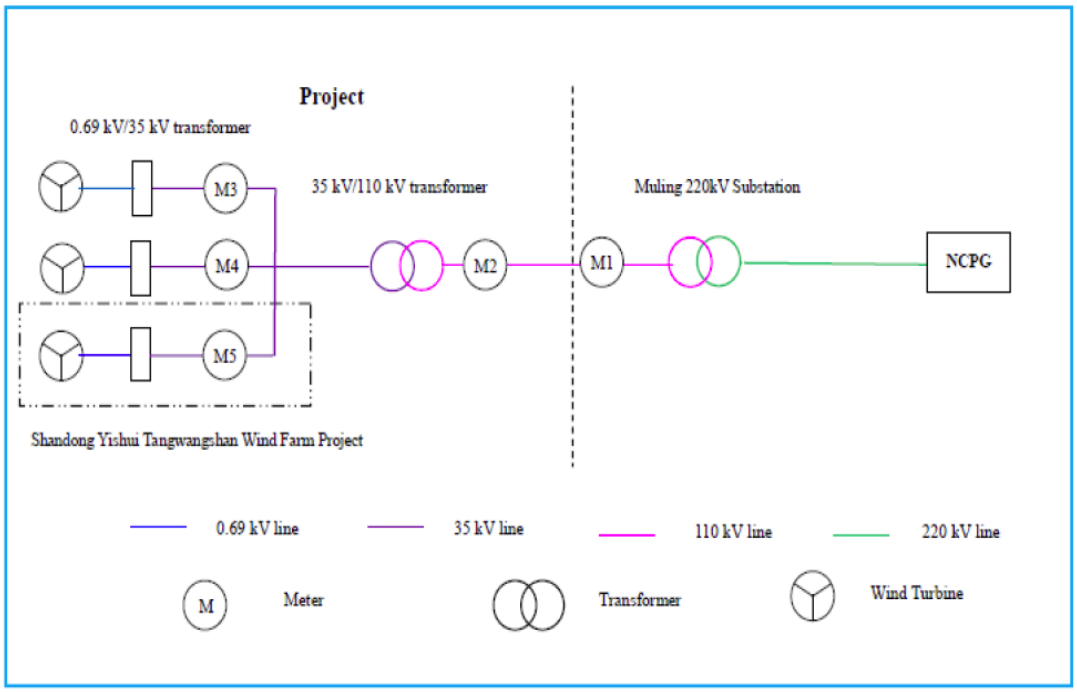
$EG_{output,y}$ = Total electricity supplied to the grid by the proposed project and Project B in the year y, which is measured by the main meter M1.

$EG_{A,y}$ = Electricity supplied to the grid by the proposed project in the year y, which is measured by the meters M3 and M4.

$EG_{B,y}$ = Electricity supplied to the grid by the Project B in the year y, which is measured by the meter M5.

Meter readings from meter M1 which measures the electricity imported by both the proposed CDM project and project B will be directly applied for cross checking of electricity imported from the grid by the proposed CDM project activity.

The simplified wiring diagram is showed as below:



Monitoring organizational structure, roles and responsibilities

The project owner will use this document as guideline in monitoring of the project emission reduction performance and will adhere to the guidelines set out in this monitoring plan to ensure that the monitoring is credible, transparent and conservative.

The responsibilities of the project staff are as follows:

General Manager: To be responsible for supervising the whole monitoring procedure.

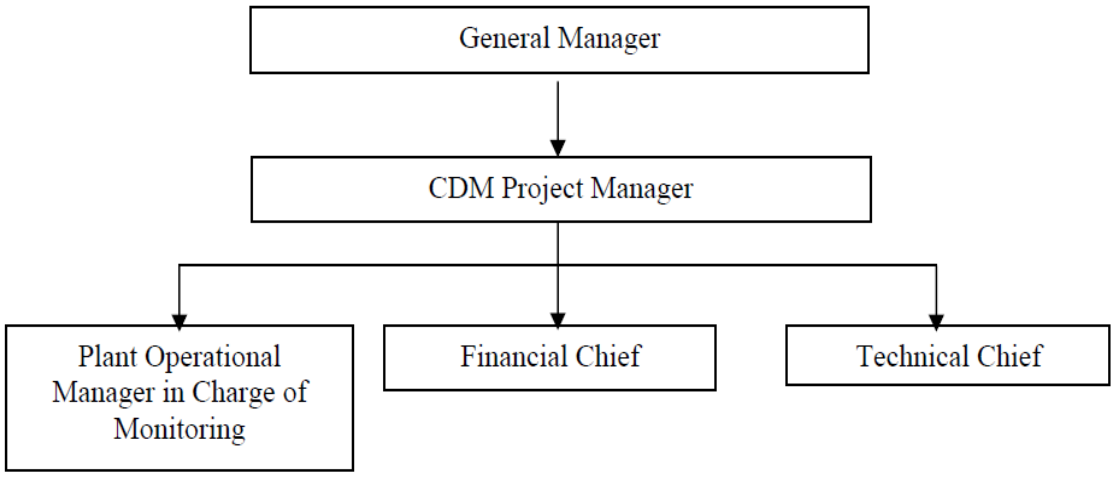
CDM Project Manager: To be responsible for data management and compiling monitoring report.

Operational and monitoring manager: To be responsible for collecting data and do internal audit.

Financial chief: To be responsible for collection of sales receipts.

Technical chief: To be responsible for preparing operational reports of the project activity, recording the daily operation of the wind farm, including operating periods, equipment defects, etc.

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



Data Management System

To keep safely the record of the data collected during monitoring, this project will set up a complete data management system. The project will perfect the whole monitoring procedure by developing the CDM manual, tracking information from the primary source to the end-data calculations in paper document format. It is the responsibility of the proposed project owner to provide additional necessary data and information for validation and verification requirements of respective DOE. Physical documentation such as paper-based maps, diagrams and environmental assessment will be collated in a central place, together with this monitoring plan. All paper-based information will be stored by the proposed project owner and kept at least one copy.

At the end of each month, the monitoring data will be filed in a spreadsheet, and the paper-based printout will be also archived as well. Furthermore, the project owner collects the sales receipts for the electricity supplied to the grid as a cross-check, and compiled the monitoring report including the monitoring data and relevant evidence at the end of each crediting year.

All the data will be kept for two years following the end of the last crediting period.

Quality Assurance and Quality Control

The workers are trained to be competent and the metering equipments are calibrated and sealed as per the industry practices at regular intervals, with the purpose to provide credible, accurate, transparent and conservative monitoring data and ensure the real, measurable, long-term GHG emission reduction from this project.

Monthly metering data of the supplied and purchased electricity by the proposed project will be approved and signed off by the Manager before it is accepted and stored. This audit will check

compliance with monitoring procedures in this monitoring plan. This internal audit will also identify potential improvements to procedures to improve monitoring and reporting in future years. The monitoring officers will also attend a training session organized by the CDM consultant. The purpose of training is to assure those staffs are competent to conduct the monitoring plan, thus to make the monitored data accurate.

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.

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

Where:

BE_y = Baseline emissions in year y (tCO_2/yr)

$EG_{Facility,y}$ = 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 (tCO_2/MWh).

$EG_{facility,y} = EG_{export,y} - EG_{import,y} = EG_{A,y}/(EG_{A,y} + EG_{B,y})* EG_{output,y} - EG_{import,y}$

Where:

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (in MWh);

$EG_{export,y}$ = Electricity exported by the project activity to the grid in year y

$EG_{output,y}$ = Total electricity supplied to the grid by the proposed project and Project B in the year y, which is measured by the main meter M1.

$EG_{A,y}$ = Electricity supplied to the grid by the proposed project in the year y, which is measured by the meters M3 and M4.

$EG_{B,y}$ = Electricity supplied to the grid by the Project B in the year y, which is measured by the meter M5.

$EG_{import,y}$ = Electricity imported by the project activity to the grid in year y

Period	$EG_{export,y}$	$EG_{import,y}$
27/04/2010-24/05/2010	2795.35	8.80
25/05/2010-24/06/2010	3091.42	22.00

25/06/2010-24/07/2010	3310.94	44.88
25/07/2010-24/08/2010	4366.73	32.56
25/08/2010-24/09/2010	5681.19	56.32
25/09/2010-24/10/2010	6275.70	40.48
25/10/2010-24/11/2010	10871.32	33.44
25/11/2010-24/12/2010	14112.04	30.80
25/12/2010-31/12/2010	2435.51	18.97
Subtotal 2010	**52940.21**	**288.25**
01/01/2011-24/01/2011	9826.72	17.99
25/01/2011-24/02/2011	7275.94	44.88
25/02/2011-24/03/2011	10718.71	32.56
25/03/2011-24/04/2011	13675.50	12.32
25/04/2011-24/05/2011	13283.34	17.60
25/05/2011-24/06/2011	10266.90	23.76
25/06/2011-24/07/2011	4955.59	51.04
25/07/2011-24/08/2011	4381.89	58.08
25/08/2011-24/09/2011	6399.48	44.00
25/09/2011-24/10/2011	5996.42	33.44
25/10/2011-24/11/2011	9083.93	31.68
25/11/2011-24/12/2011	8259.66	43.12
25/12/2011-31/12/2011	1253.29	18.97
Subtotal 2011	**105377.37**	**429.44**
01/01/2012-24/01/2012	4779.98	38.23
25/01/2012-24/02/2012	9692.45	35.20
25/02/2012-24/03/2012	7716.02	27.28
25/03/2012-23/04/2012	13699.53	19.36
Subtotal 2012	**35887.98**	**120.07**

Period	$EG_{facility,y}$ (MWh)	$EF_{grid,CM,y}$ (tCO2e/MWh)	BE_y （tCO2e）
07/02/2010 - 31/12/2010	52,651.96	0.9309	49,013
01/01/2011- 31/12/2011	104,947.93	0.9309	97,696
01/01/2012 - 23/04/2012	35,767.91	0.9309	33,296
Total	**193,367.80**		**180,005**

4.2 Project Emissions

According to ACM0002 (Version 12.2.0), no project emissions were to be counted by the Project.

Hence, PE_y=0 tCO_2e.

4.3 Leakage

According to the baseline methodology ACM0002 (version 12.2.0), the leakage of the Project is not considered.

4.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
27/04/2010 - 31/12/2010	49,013	0	-	49,013
01/01/2011- 31/12/2011	97,696	0	-	97,696
01/01/2012 - 23/04/2012	33,296	0	-	33,296
Total	**180,005**	**0**	**-**	**180,005**

The annual average emission reductions estimated in the registered CDM-PDD is 84,740 tCO_2, so the estimated amount of emission reductions for the corresponding 728 days (the duration of this monitoring period) are 728/365×84,740=169,016tCO_2, which is lower than the actual value of 180,005 tCO_2 due to the abundant wind resources during this monitoring period.