MONITORING REPORT FORM (F-CDM-MR)
Version 02.0

MONITORING REPORT

Title of the project activity	Fujian Zhangpu Liuao 45MW Wind Power Project
Reference number of the project activity	1318
Version number of the monitoring report	05
Completion date of the monitoring report	28/08/2012
Registration date of the project activity	21/01/2008
Monitoring period number and duration of this monitoring period	The fifth monitoring period: first and last days included (28/05/2011–27/05/2012)
Project participant(s)	Datang Zhangzhou Wind Power Co., Ltd RWE Supply & Trading Netherlands B.V.(Netherlands) RWE Supply & Trading Netherlands B.V.(Switzerland)
Host Party(ies)	People's Republic of China
Sectoral scope(s) and applied methodology(ies)	Sectoral scope(s) 01 and ACM0002/ Version 06, valid from 18 May 06 to 13 Dec 07
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	84,130tCO_2e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	71,901tCO_2e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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The Fujian Zhangpu Liuao 45MW Wind Power Project is located in Liuao town, Zhangpu County, Fujian Province, P.R.C. It involves the installation of 36 turbines, each of which has a rated output of 1,250kW, providing a total capacity of 45MW. The electricity generated from the project is fed into the East China Grid.

The project helps reduce GHG emissions generated from the high-growth, coal-dominated power generation. And also, it contributes to sustainability in the region by reducing pollution, creating employment opportunities, promoting the local tourism industry and improving the livelihoods of local people. At a larger scale, the project assists China in stimulating and accelerating the commercialization of grid-connected renewable energy technologies and markets in China.

The project started on 28/12/2006.The first set of wind turbine started operation on 25/06/2007. All the 36 turbines of the project have been put into operation since January 2008 and all the wind turbines work very well during this monitoring period.

The project was registered on 21/01/2008 (PDD/Version 06, 12/11/2007), the estimated annual emission reduction in PDD is 84,130 tCO_2e. ERs of four monitoring periods have been successfully issued, the relevant details of previous monitoring periods are as follows:

Activity	**Period**	**Amount of CERs (tCO_2e)**	**Date of Issuance**
The 1st monitoring period	21/01/2008-27/05/2008	25962	22/08/2008
the 2nd monitoring period	28/05/2008-27/05/2009	70019	03/12/2009
the 3rd monitoring period	28/05/2009 - 27/05/2010	65651	20/01/2011
the 4th monitoring period	28/05/2010 - 27/05/2011	71812	27/04/2012

This is the 5th monitoring period, from 28/05/2011 to 27/05/2012(The 5th monitoring period is within the 1st crediting period). During the fifth monitoring period (28/05/2011 - 27/05/2012), the project has generated the net electricity supply of 81,705.826MWh and achieved 71,901tCO_2e emission reduction.

A.2. Location of project activity

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The project site is located in the east of Liuao peninsula, Zhangpu County in Fujian Province.P.R.C. It has the Taiwan Strait to the east, Gulei Peninsula in the southwest and Jiugang town in the north. The site is 48km from the Zhangpu county government in the northwest, 100km from Zhangzhou Municipality in the north. The exact geographical coordinates of the project are 117° 28′ 20″ ～117° 29′ 43″ E, 23° 34′ 25″ ～24° 0′ 39″ N. Figure 1 shows the location of the project.

Figure 1: Location of the project

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	Datang Zhangzhou Wind Power Co., Ltd (project owner)	No
Netherlands	RWE Supply & Trading Netherlands B.V.	No
Switzerland	RWE Supply & Trading Netherlands B.V.	No

A.4. Reference of applied methodology

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ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 06).

"Tool for demonstration and assessment of additionality" (Version 03).

A.5. Crediting period of project activity

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For the project, the renewable crediting period, i.e. 7*3 years, is adopted, the length of the crediting period is 21 years. The first crediting period of the project is from 21/01/2008 to 20/01/2015(renewable).The start date is 21/01/2008.)

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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Turbines of model 64/1250 manufactured by Suzlon are used for the project. The height of the wheel hub is 65m. The turbines are arranged in a matrix shape with row spacing of 7D and column spacing of 5D. According to the turbine layout, each turbine was equipped with one transformer. The wind power

generated is delivered to the 110kV step-up substation by 35kV transmission lines, and then be transmitted to the Dongpu substation[1]. Then the electricity generated is transmitted to the East China Grid.

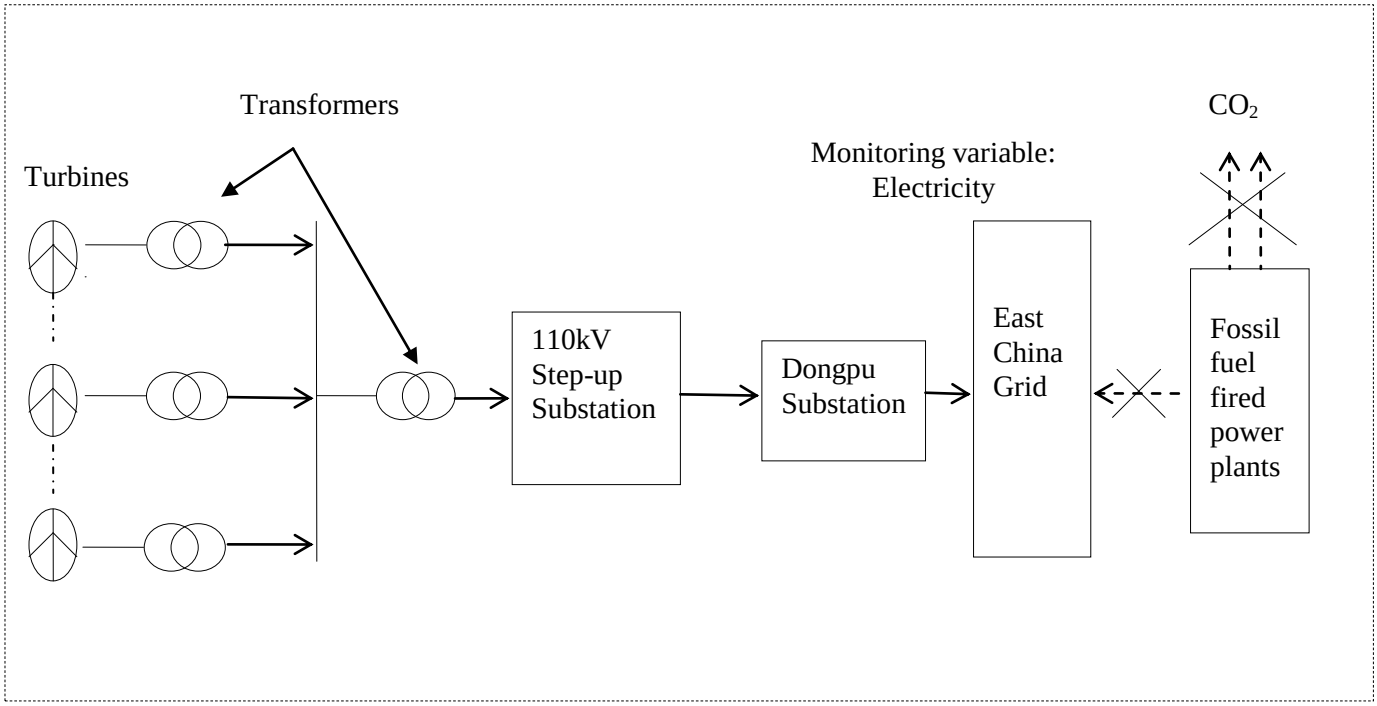

Figure 2: The flow diagram of the project

The project started on 28/12/2006. The first set of wind turbine started operation on 25/06/2007. All the 36 turbines of the project have been put into operation since January 2008[2] and all the wind turbines work very well during this monitoring period.

During the monitoring period, the project is implemented in accordance with the corrected PDD version 07 dated 01/08/2012, and no malfunction was occurred on the operation of equipments during this monitoring period. Meanwhile, there were no events or situations that occurred during the monitoring period, which may impact the applicability of the methodology.

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

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No temporary deviations have been applied during this monitoring period.

[1] Before May 4th, 2011, the wind power generated was transmitted to the Changjiaoying substation. According to the Access System Review of this project, after the Dongpu Substation (belongs to the East China Grid) established, the transmission line of the project would be connected to Dongpu Substation from Changjiaoying Substation, on May 4th , 2011, the grid company notified the project owner to execute the order to change the line connection to the Dongpu Substation, and the wind power generated was transmitted to the Dongpu substation. Meters installed (main meter and backup meter with accuracy of 0.2s) at the wind farm are used to monitor the electricity delivered to the grid, and the baseline scenario of the project is still the electricity provided by the ECPG, so the change from Changjiaoying Substation to Dongpu Substation does not impact on the project activity.

[2] Information on the actual operation of the project was from Statistics of Liuao wind farm wind turbines generation data.

B.2.2. Corrections

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According to the actual implementation, the connected substation has been changed from Changjiaoying substation to Dongpu substation on May 4th, 2011, the registered PDD has been corrected, the connection information has been added in the corrected PDD version 07 dated 01/08/2012.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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No permanent changes from the registered monitoring plan or applied methodologies have been approved during this monitoring period or submitted with this monitoring report.

B.2.4. Changes to project design of registered project activity

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No changes to the project design of the project activity have been approved during this monitoring period or submitted with this monitoring report.

B.2.5. Changes to start date of crediting period

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No changes to the start date of the crediting period have been approved during this monitoring period or submitted with this monitoring report.

B.2.6. Types of changes specific to afforestation or reforestation project activity

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Not applicable

SECTION C. Description of monitoring system

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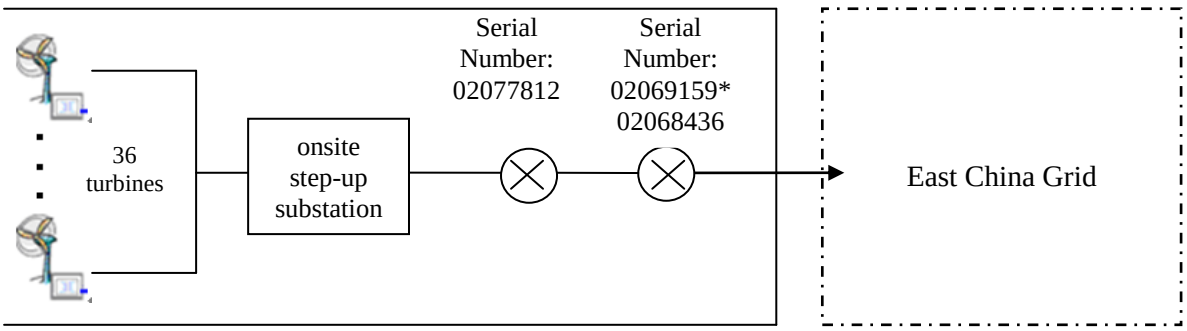
The approved monitoring methodology ACM0002 is used for developing the monitoring plan. Monitoring tasks must be implemented according to the monitoring plan in order to ensure that the real, measurable and long-term greenhouse gas (GHG) emission reduction for the project is monitored and reported.

C.1. Description of the monitoring system

A pair of meters (one main meter and one backup meter) with accuracy of 0.2s has been installed at the wind farm to monitor the electricity exported to and imported from the grid.

Location of the metering equipment is shown in figure 2 below:



* The meter (Serial No. 02069159) with the accuracy of 0.2s was replaced to a new meter with the accuracy of 0.2s (Serial No. 02068436) on 15/12/2011 according to national standard.

Figure3: Location of the metering equipment

C.2. Roles and Responsibility

A CDM group of three persons was established within the owner company to carry out the monitoring work. The Team Leader holds the overall responsibilities to the monitoring of the project, ensures that the data monitored are accurately recorded, properly archived, QA/QC procedure is timely carried out and the entire monitoring process is strictly in line with the CDM requirements and acts as a liaison with the project manager of the consultancy company on a needy basis. The organizational structure of the CDM group, roles and responsibilities of personnel for the monitoring system are illustrated in Figure 2.

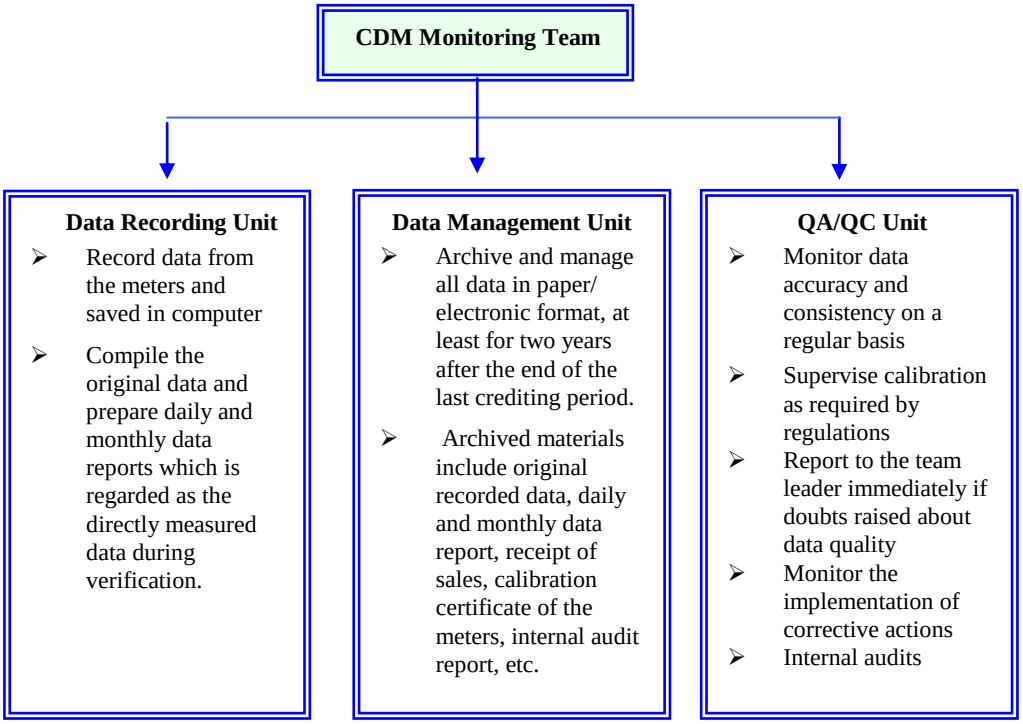


Figure 4 Management Structure of the CDM group

C.3. Data monitoring

The specific steps for monitoring the electricity delivered to the grid are listed below:

The data is monitored through metering equipment at the wind farm.

The exported and imported electricity measured by the main meter and backup meter are aggregated at 00:00 on 28th day in every month and are recorded by assigned persons from the grid company and the wind farm on the last day of every month.

Based on the readings of the meters, the Grid Company issued Electricity Transaction Notes (ETNs) to the wind farm company for the exported and imported electricity. After confirming the numbers on the ETNs for the exported electricity to the Grid by the project, the wind farm company issued sales invoices to the Grid Company subsequently on a monthly basis. The Grid Company issued sales invoices to the wind farm company for the imported electricity by the wind farm based on the readings of the meters.

C.4. Emergency procedures

Should any previous months reading of the main meter be inaccurate by more than the allowable error, or otherwise functioned improperly, the grid-connected electricity generated by the project shall be determined by:

First, by reading the backup meter, unless a test by either party reveals it is inaccurate;

If the backup system is not with acceptable limits of accuracy or is otherwise performing improperly the project owner and grid company shall jointly prepare an estimate of the correct reading;

If the project owner and the grid company fail to agree the estimate of the correct reading, then the matter will be referred for arbitration according to agreed procedures.

C.5. Data management system

Physical document such as paper-based maps, diagrams and environmental assessments are collected in a central place, together with this monitoring plan. In order to facilitate auditors' reference of relevant literature relating to the project, the project material and monitoring results are indexed. All paper-based information is stored by the technology department of the project owner and all the material has a copy for backup. And all data including calibration records is kept until 2 years after the end of the total credit time of the CDM project.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/Parameter	EF_y
Unit	**tCO_2e/MWh**
Description	The baseline emission factor
Source of data	PDD
Value(s) applied	0.880
Purpose of data	Used for Baseline emission calculation
Additional comment	The value of EF_y calculated ex-ante is used and isn't updated during the first crediting period.

D.2. Data and parameters monitored

<table>
<tr><td>Data/Parameter</td><td>EG_y</td></tr>
<tr><td>Unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Net electricity delivered to grid in year y</td></tr>
<tr><td>Measured/Calculated /Default</td><td>Measured</td></tr>
<tr><td>Source of data</td><td>Meter reading recording</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>81,705.826MWh</td></tr>
<tr><td>Monitoring equipment</td><td>
<table>
<tr><td>Meter description</td><td>Type</td><td>accuracy</td><td>Serial Number</td></tr>
<tr><td>M1 (backup meter)</td><td>Electricity meter</td><td>0.2s</td><td>02077812</td></tr>
<tr><td rowspan="2">M2 (main meter)</td><td rowspan="2">Electricity meter</td><td rowspan="2">0.2s</td><td>02069159</td></tr>
<tr><td>02068436[3]</td></tr>
</table>
<table>
<tr><td>Meter description</td><td>Serial Number</td><td>Calibration Date</td><td>Validity</td><td>Calibration Frequency</td></tr>
<tr><td rowspan="2">M1 (backup meter)</td><td rowspan="2">02077812</td><td>16/12/2010</td><td>15/12/2011</td><td rowspan="5">annually</td></tr>
<tr><td>08/11/2011</td><td>07/11/2012</td></tr>
<tr><td rowspan="3">M2(main meter)</td><td rowspan="2">02069159</td><td>16/12/2010</td><td>15/12/2011</td></tr>
<tr><td>08/11/2011</td><td>07/11/2012</td></tr>
<tr><td>02068436</td><td>29/11/2011</td><td>28/11/2012</td></tr>
</table>
</td></tr>
<tr><td>Measuring/Reading/ Recording frequency</td><td>Continuously measured and monthly recorded</td></tr>
<tr><td>Calculation method (if applicable)</td><td>$EG_y=EG_{export,y}-EG_{import,y}$
$EG_{export,y}$–Electricity exported to the grid
$EG_{import,y}$ – Electricity imported from the grid</td></tr>
<tr><td>QA/QC procedures</td><td>According to registered monitoring plan, meters are calibrated annually by Fujian Provincial Electric Power Company Metrological Verification Center[4]. Data measured by meters is cross checked by electricity sales receipt.</td></tr>
<tr><td>Purpose of data</td><td>The date is used for baseline emission calculation.</td></tr>
<tr><td>Additional comment</td><td></td></tr>
</table>

D.3. Implementation of sampling plan

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Not applicable

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

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[3] The meter (Serial No. 02069159) with the accuracy of 0.2s was replaced to a new meter with the accuracy of 0.2s (Serial No. 02068436) on 15/12/2011 according to national standard.

[4] Fujian Provincial Electric Power Company Metrological Verification Center is authorized by Quality and Technology Supervision Bureau of Fujian Province during the period of 18/09/2009-17/09/2012 with Certificate No. (Min)Faji (2006)270021

The baseline emission BE_y during the monitoring period results from:

$BE_y = EG_y * EF_y$

Where

EG_y – Net electricity delivered to the grid in year y
EF_y –The baseline emission factor (calculated ex-ante and isn't updated during the first crediting period) in year y

$EG_y = EG_{export,y} - EG_{import,y}$

Where
$EG_{export,y}$–Electricity exported to the grid in year y
$EG_{import,y}$ – Electricity imported from the grid in year y

Electricity Exported to the Grid

Period	Electricity exported to the grid by meter reading(MWh)	Electricity exported to the grid from sales receipts(MWh)	Value of electricity exported to the grid used for the calculation of emission reductions(MWh)
	A	B	C=Min(A,B)
28/05/2011-27/06/2011	3,842.564	3,839.674	3,839.674
28/06/2011-27/07/2011	2,795.320	2,790.411	2,790.411
28/07/2011-27/08/2011	1,359.204	1,350.915	1,350.915
28/08/2011-27/09/2011	6,363.060	6,363.023	6,363.023
28/09/2011-27/10/2011	11,020.328	11,020.303	11,020.303
28/10/2011-27/11/2011	9,768.220	9,768.180	9,768.180
28/11/2011-27/12/2011	9,855.736	9,855.721	9,855.721
28/12/2011-27/01/2012	9,219.848	9,219.838	9,219.838
28/01/2012-27/02/2012	9,869.024	9,869.014	9,869.014
28/02/2012-27/03/2012	7,740.524	7,740.504	7,740.504
28/03/2012-27/04/2012	5,033.688	5,033.657	5,033.657
28/04/2012-27/05/2012	5,155.392	5,152.554	5,152.554
Total	82,022.908	82,003.794	82,003.794

Electricity Imported from the Grid

Period	Electricity imported from the grid by meter reading(MWh)	Electricity imported from the grid from sales receipts(MWh)	Value of electricity imported from the grid used for the calculation of emission reductions (MWh)
	D	E	F=Max(D,E)
28/05/2011-27/06/2011	41.096	41.096	41.096
28/06/2011-27/07/2011	35.684	35.684	35.684
28/07/2011-27/08/2011	60.28	60.28	60.28
28/08/2011-27/09/2011	28.688	28.688	28.688
28/09/2011-27/10/2011	13.904	13.904	13.904
28/10/2011-27/11/2011	5.896	5.896	5.896
28/11/2011-27/12/2011	2.244	2.244	2.244
28/12/2011-27/01/2012	5.412	5.412	5.412
28/01/2012-27/02/2012	13.156	13.156	13.156
28/02/2012-27/03/2012	16.984	16.984	16.984
28/03/2012-27/04/2012	45.32	45.32	45.32

28/04/2012-27/05/2012	29.304	29.304	29.304
Total	297.968	297.968	297.968

$EG_y = EG_{export,y} - EG_{import,y}$ = 82,003.794 MWh–297.968 MWh =81,705.826 MWh

$BE_y = EG_y * EF_y$ = 81,705.826 MWh × 0.880 tCO_2e/MWh = 71,901 tCO_2e

E.2. Calculation of project emissions or actual net GHG removals by sinks

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Being a wind power project, there are no project emissions according to the ACM0002 methodology. There was no fossil fuel consumption by the project for electricity generation during the monitoring period.

E.3. Calculation of leakage

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The leakage from the project is zero.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Time Period	Baseline emissions or baseline net GHG removals by sinks (tCO_2e)	Project emissions or actual net GHG removals by sinks (tCO_{2e})	Leakage (tCO_2e)	Emission reductions or net anthropogenic GHG removals by sinks (tCO_2e)
Total	71,901	0	0	71,901

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (tCO_2e)	84,130	71,901

E.6. Remarks on difference from estimated value in registered PDD

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In conclusion, from 28/05/2011 to 27/05/2012, just 1 year, the ERs accomplished are 71,901 tCO_2e, which is 85.46% of the estimated annual ER in PDD. According to the registered PDD, the estimated annual ERs are 84,130 tCO_2e. In comparison, the actual emission reductions in this monitoring period are lower than the estimates in the registered PDD due to the actual wind source variation compared with that in FSR.

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History of the document

Version	Date	Nature of revision
02.0	EB 66 13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory **Document Type**: Form **Business Function**: Issuance		