

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

Title of the project activity	Inner Mongolia Wuchuan Yihemei Wind Farm 49.5 MW Project
Reference number of the project activity	4422
Version number of the monitoring report	1.0
Completion date of the monitoring report	03/05/2012
Registration date of the project activity	07/02/2011
Monitoring period number and duration of this monitoring period	Mointoring Period 1: 07/02/2011 – 31/03/2012
Project participant(s)	Wuchuan County Yihe Wind Power Generation Co., Ltd. Carbon Resource Management S.A.
Host Party(ies)	P.R. China
Sectoral scope(s) and applied methodology(ies)	Sectoral scope: 1. Energy industries Applied methodology: ACM0002 (version 12.1.0)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	124,980 tCO ₂ e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	104,742tCO ₂ e

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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Inner Mongolia Wuchuan Yihemei Wind Farm 49.5 MW Project is generating renewable electricity utilizing wind power and sells the generated output to the North China Power Grid (NCPG) on the basis of a power purchase agreement (PPA). Based on the conditions of the project site, the project activity has installed 33 wind turbines, each with a capacity of 1.5MW. The total installed capacity of the project activity is 49.5MW. The ex-ante expected net generation of the project activity is approximately 114,580 MWh per year, with a load factor of 26.42%.

33 sets of 1,500kW wind turbines (Goldwind, model GW77/1500kW) were selected. The electricity is exported through the 110kV transmission line to the substation of the North China Power Grid (NCPG).

Project timeline

Commissioning start date	10/11/2010
Date of CDM registration	07/02/2011(PDD version 2.0, dated 02/12/2010)
First renewable crediting period	07/02/2011 – 06/02/2018
Current monitoring period	
Volume 1	07/02/2011 – 31/03/2012
Start of this monitoring period	07/02/2011
End of this monitoring period	31/03/2012

The total emission reductions achieved in the current monitoring period are 104,742tCO₂e.

A.2. Location of project activity

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Host country	People's Republic of China
Province	Inner Mongolia Autonomous Region
City	Hohhot City
County	Wuchuan County
GPS coordinates	East Longitude: 110°54'59"~110°57'08" North Latitude: 41°11'02"~41°13'11"

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)
P.R. China (host)	Wuchuan County Yihe Wind Power Generation Co., Ltd.	No
United Kingdom of Great Britain and Northern Ireland	Carbon Resource Management S.A.	No

A.4. Reference of applied methodology

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ACM0002 version 12.1.0 "Consolidated methodology for grid-connected electricity generation from renewable sources" (valid from 17 Sep 10onwards)

The methodology refers to the following tools

- AM_Tool_01 version 05.2 "Tool for the demonstration and assessment of additionality"

- AM_Tool_02 version 02.2 “Combined tool to identify the baseline scenario and demonstrate additionality” (this tool is not applicable to the project)
- AM_Tool_03 version 02 “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” (this tool is not applicable to the project)
- AM_Tool_07 version 02 “Tool to calculate the emission factor for an electricity system”

These documents are available from: <http://cdm.unfccc.int/methodologies/PAmethodologies/approved>.

A.5. Crediting period of project activity

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Crediting period	First renewable crediting period
Starting date of crediting period	07/02/2011
End date of crediting period	06/02/2018

SECTION B. Implementation of project activity

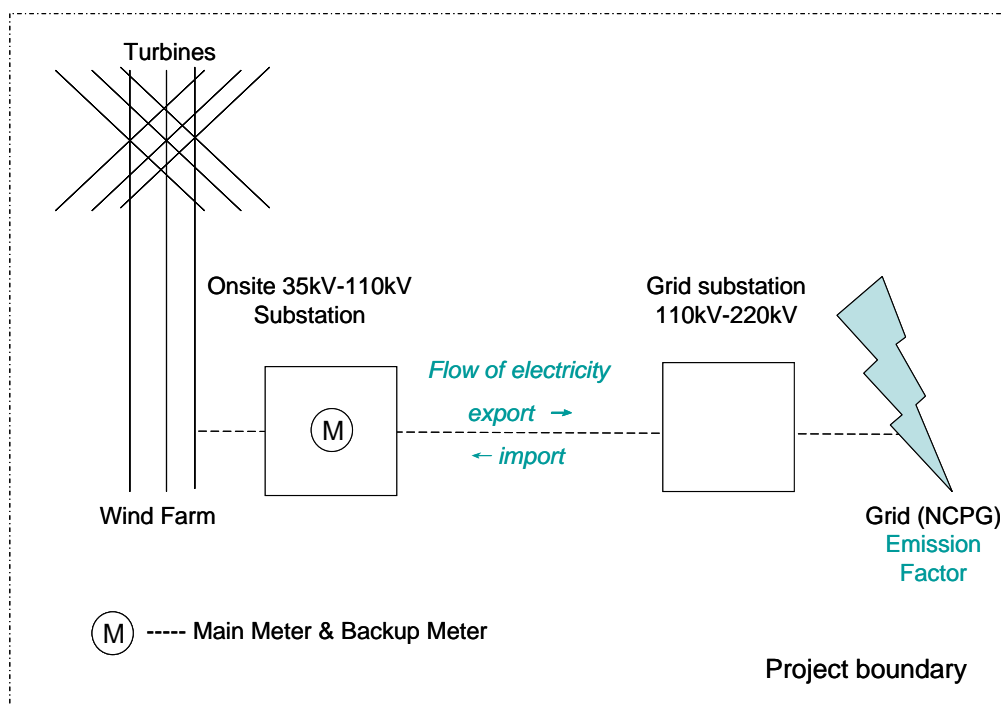
B.1. Description of implemented registered project activity

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The project activity was started construction on 08/04/2010. The project was commissioned from 10/11/2010 and all the 33 wind turbines have been put into operation gradually till 22/11/2010, and well operated before this monitoring period.

During this monitoring period, the wind farm has a good running, smooth data transfer and grid connection, and no special events happened.

No events or situations 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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The monitoring plan is implemented in accordance with that in the registered PDD, no temporary deviation is applied.

B.2.2. Corrections

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The project activity is implemented as in the registered CDM-PDD, no corrections is applied.

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

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The monitoring plan is implemented in accordance with that in the registered PDD, no permanent changes from registered monitoring plan is applied.

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

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

B.2.5. Changes to start date of crediting period

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There have been changes to the start date of crediting period from 01/05/2011 to 07/02/2011 the day that the project was registered during this monitoring period 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

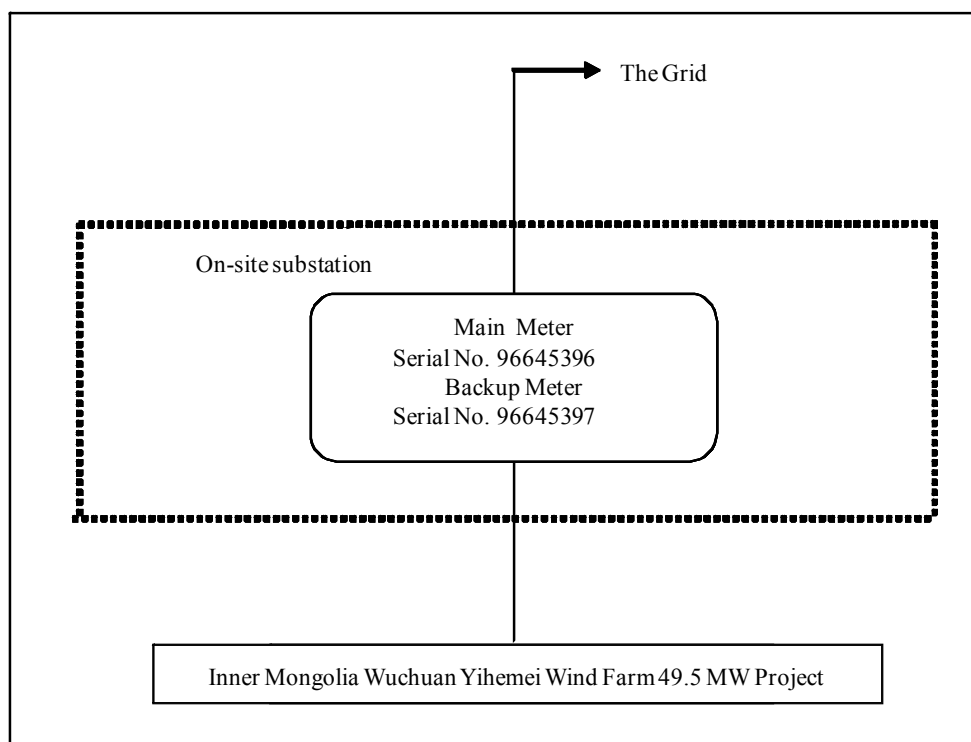
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1. Monitoring system and data collection

According to the registered PDD and the applied methodology, the electricity of exports and imports to the grid by the project activity should be monitored by the main meter installed at on-site substation and the metering data will be used to calculate the net electricity supplied to the grid and then the emission reduction could be calculated.

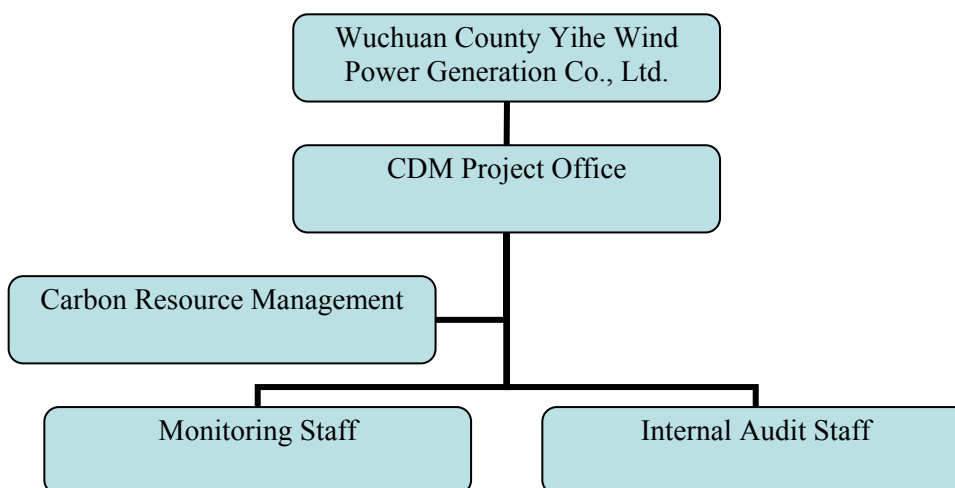
The electricity supplied to NCPG is continuously measured by the main meter installed at on-site substation. The readings at 24:00 of the main meter are read and recorded by the project owner every day. Assigned staff of the project owner recorded the main meter and supplied the monthly readings of the main meter to the Grid Company. After the amount of export electricity and import electricity being agreed by the wind farm and the grid company, receipts of the export electricity and import electricity were issued by the grid company. Both the export electricity and import electricity have been crosschecked with daily and monthly recording of the main meter installed at on-site substation during this monitoring period.

The location of the main meter, backup meter and the transmission lines are displayed as following diagram:



2. Organizational structure and responsibilities

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with Wuchuan County Yihe Wind Power Generation Co., Ltd. Carbon Resource Management had advised the project developer on how to perform the monitoring work. The staffs who were responsible for electricity meter readings and recording, and who were responsible for auditing the metered data had been trained according to the CDM requirements. During this monitoring period, the wind farm was running well. The operating and management structure is illustrated as follows:



3. Emergency procedures

The metering equipments are calibrated and checked periodically by qualified third party for accuracy. Calibration was carried by the qualified Metrology Center of Inner Mongolia Electric Power Research Institute. Meters had been jointly inspected and sealed on behalf of the parties concerned. No errors occurred during this monitoring period.

Should any previous months reading of the main meter be inaccurate by more than the allowable error, or otherwise functioned improperly, the net generation output shall be determined by:

- (a) first, by reading backup meter, unless a test by either party reveals it is inaccurate;
- (b) if the backup system is not within acceptable limits of accuracy or operation is performed improperly Wuchuan County Yihe Wind Power Generation Co., Ltd. and the North China Power Grid shall jointly prepare an reasonable and conservative estimate of the correct reading, and provide sufficient evidence that this estimation is reasonable and conservative when DOE undertakes verification; and
- (c) if the North China Power Grid and Wuchuan County Yihe Wind Power Generation Co., Ltd. fail to agree then the matter will be referred for arbitration according to agreed procedures.

During the monitoring period, there is no emergency incident.

SECTION D. Data and parameters

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

Data/Parameter	$EF_{grid, CM}$
Unit	tCO₂/MWh
Description	Baseline emission factor
Source of data	Registered PDD
Value(s) applied	0.9502
Purpose of data	Baseline emission calculation
Additional comment	ex-anted according to the applied methodology

D.2. Data and parameters monitored

Data/Parameter	$EG_{facility,y}$
Unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid
Measured/Calculated /Default	Quantity of net electricity generation supplied by the project plant/unit to the grid ($EG_{facility,y}$) is calculated from the measured electricity exported to the grid by the proposed project ($EG_{export,y}$) minus the measured electricity imported from the grid by the proposed project ($EG_{import,y}$).
Source of data	The main meter installed at on-site substation
Value(s) of monitored parameter	110,231.95MWh(From 07/02/2011 to 31/03/2012)



Monitoring equipment	Information of Monitoring equipment as follow tables:																
	Meter description	Serial No.	Accuracy	Calibration frequency	Type												
	Main meter	96645396	0.2S	annually	digital												
	Back up meter	96645397	0.2S	annually	digital												
	<table><tr><th>Serial No.</th><th>Calibration on</th><th>Validity</th></tr><tr><td rowspan="2">96645396</td><td>14/09/2010</td><td>14/09/2010 to 13/09/2011</td></tr><tr><td>11/04/2011</td><td>11/04/2011 to 10/04/2012</td></tr><tr><td rowspan="2">96645397</td><td>14/09/2010</td><td>14/09/2010 to 13/09/2011</td></tr><tr><td>11/04/2011</td><td>11/04/2011 to 10/04/2012</td></tr></table>					Serial No.	Calibration on	Validity	96645396	14/09/2010	14/09/2010 to 13/09/2011	11/04/2011	11/04/2011 to 10/04/2012	96645397	14/09/2010	14/09/2010 to 13/09/2011	11/04/2011
Serial No.	Calibration on	Validity															
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96645397	14/09/2010	14/09/2010 to 13/09/2011															
	11/04/2011	11/04/2011 to 10/04/2012															
	Calibration was carried by Metrology Center of Inner Mongolia Electric Power Research Institute and the calibration records were supplied to the developer by the power grid. The accreditation certificate for the calibrator (No. of accreditation certificate: Meng (2009) 15021) was issued by Quality and Technical Supervision Bureau of Inner Mongolia Autonomous Region and valid for this monitoring period.																
Measuring/Reading/Recording frequency	Measuring continuously/ Reading daily/ Recording monthly																
Calculation method (if applicable)	$EG_{facility,y} = EG_{export,y} - EG_{import,y}$																
QA/QC procedures	The metering equipment are calibrated and checked annually for accuracy by the qualified third party in accordance with relevant industry standards. The error resulting of the meters will not exceed 0.5%. Monthly net generation data are approved and signed off by CDM manager before it is accepted and stored.																
Purpose of data	Baseline Emission calculation																
Additional comment	N/A																

Data/Parameter	$EG_{export,y}$
Unit	MWh
Description	The quantity of annual electricity exported to the grid by the proposed project
Measured/Calculated/Default	The electricity supplied by the proposed project activity is monitored continuously through main meter installed at on-site substation. A back-up meter was installed at the onsite substation of the wind farm project.



Source of data	The main meter installed at on-site substation				
Value(s) of monitored parameter	110,495.14MWh (From 07/02/2011 to 31/03/2012)				
Monitoring equipment	Information of Monitoring equipment as follow tables:				
	Meter description	Serial No.	Accuracy	Calibration frequency	Type
	Main meter	96645396	0.2S	annually	digital
	Back up meter	96645397	0.2S	annually	digital
	Serial No.	Calibration on	Validity		
	96645396	14/09/2010	14/09/2010 to 13/09/2011		
		11/04/2011	11/04/2011 to 10/04/2012		
	96645397	14/09/2010	14/09/2010 to 13/09/2011		
		11/04/2011	11/04/2011 to 10/04/2012		
Calibration was carried by Metrology Center of Inner Mongolia Electric Power Research Institute and the calibration records were supplied to the developer by the power grid. The accreditation certificate for the calibrator (No. of accreditation certificate: Meng (2009) 15021) was issued by Quality and Technical Supervision Bureau of Inner Mongolia Autonomous Region and valid for this monitoring period.					
Measuring/Reading/Recording frequency	Measuring continuously/ Reading daily/ Recording monthly				
Calculation method (if applicable)	N/A				
QA/QC procedures	1. The export electricity supply to the grid is checked by measurement results with records for sold electricity. 2. When the main meter fails to work normally, the readings of the back-up meter will be adopted. 3. All data collected as part of monitoring should be archived electronic and paper documents and be kept at least for 2 years after the end of the last crediting period. 4. The main meter is calibrated once per year by a qualified calibration organization in accordance with industry standards.				
Purpose of data	Baseline Emission calculation				
Additional comment	N/A				



Data/Parameter	EG _{import,y}																			
Unit	MWh																			
Description	The quantity of annual electricity imported from the grid by the proposed project																			
Measured/Calculated /Default	The electricity imported to the proposed project activity is monitored continuously through main meter installed at on-site substation. A back-up meter was installed at the onsite substation of the wind farm project.																			
Source of data	The main meter installed at on-site substation																			
Value(s) of monitored parameter	263.19MWh (From 07/02/2011 to 31/03/2012)																			
Monitoring equipment	Information of Monitoring equipment as follow tables:																			
	<table><tr><th>Meter description</th><th>Serial No.</th><th>Accuracy</th><th>Calibration frequency</th><th>Type</th></tr><tr><td>Main meter</td><td>96645396</td><td>0.2S</td><td>annually</td><td>digital</td></tr><tr><td>Back up meter</td><td>96645397</td><td>0.2S</td><td>annually</td><td>digital</td></tr></table>					Meter description	Serial No.	Accuracy	Calibration frequency	Type	Main meter	96645396	0.2S	annually	digital	Back up meter	96645397	0.2S	annually	digital
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96645397	14/09/2010	14/09/2010 to 13/09/2011																		
	11/04/2011	11/04/2011 to 10/04/2012																		
Calibration was carried by Metrology Center of Inner Mongolia Electric Power Research Institute and the calibration records were supplied to the developer by the power grid. The accreditation certificate for the calibrator (No. of accreditation certificate: Meng (2009) 15021) was issued by Quality and Technical Supervision Bureau of Inner Mongolia Autonomous Region and valid for this monitoring period.																				
Measuring/Reading/ Recording frequency	Measuring continuously/ Reading daily/ Recording monthly																			
Calculation method (if applicable)	N/A																			

QA/QC procedures	1. The import electricity from the grid is checked by results with records for sold electricity. 2. When the main meter fails to work normally, the readings of the back-up meter will be adopted. 3. All data collected as part of monitoring should be archived electronic and paper documents and be kept at least for 2 years after the end of the last crediting period. 4. The main meter is calibrated once per year by a qualified calibration organization in accordance with industry standards.
Purpose of data	Baseline Emission calculation
Additional comment	N/A

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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The baseline emissions in year y is calculated as

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

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

 BE_y = Baseline emissions in year y (tCO₂/yr).

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

 $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the “Tool to calculate the emission factor for an electricity system”.

Period	$EG_{facility,y}$ (MWh)	$EF_{grid,CM,y}$ (tCO ₂ e/MWh)	Baseline emissions (tCO ₂ e)
07/02/2011-31/03/2012	110231.95	0.9502	104742

The detailed calculation of $EG_{facility,y}$ is calculated below:

Table 1: Monitored electricity and calculation



Period	EG _{export,y} (MWh)			EG _{import,y} (MWh)			EG _{facility,y} (MWh)
	Measured by the main meter	Electricity data in Sales Receipts	To be conservative	Measured by the main meter	Electricity data in Sales Receipts	To be conservative	EG _{export,y} - EG _{import,y}
07/02/2011-28/02/2011	4939.24	4939.24	4939.24	27.34	27.34	27.34	4911.90
01/03/2011-31/03/2011	11044.04	11044.04	11044.04	5.96	5.96	5.96	11038.08
01/04/2011-30/04/2011	12303.25	12303.25	12303.25	7.08	7.08	7.08	12296.17
01/05/2011-31/05/2011	14010.72	14010.72	14010.72	8.90	8.90	8.90	14001.82
01/06/2011-30/06/2011	8387.15	8387.15	8387.15	8.94	8.94	8.94	8378.21
01/07/2011-31/07/2011	6433.91	6433.91	6433.91	20.93	20.93	20.93	6412.98
01/08/2011-31/08/2011	6771.97	6771.97	6771.97	18.04	18.04	18.04	6753.93
01/09/2011-30/09/2011	3301.89	3301.89	3301.89	19.59	19.59	19.59	3282.30
01/10/2011-31/10/2011	8630.91	8630.91	8630.91	14.30	14.30	14.30	8616.61
01/11/2011-30/11/2011	6462.59	6462.59	6462.59	46.56	46.56	46.56	6416.03
01/12/2011-31/12/2011	7918.84	7918.84	7918.84	16.89	16.89	16.89	7901.95
01/01/2012-31/01/2012	5203.03	5203.03	5203.03	22.86	22.86	22.86	5180.17
01/02/2012-29/02/2012	7488.45	7488.45	7488.45	13.53	13.53	13.53	7474.92
01/03/2012-31/03/2012	7599.15	7599.15	7599.15	32.27	32.27	32.27	7566.88
Total			110495.14			263.19	110231.95

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

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According to the applied methodology, as a renewable energy project, the project emissions of this project are zero.

E.3. Calculation of leakage

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According to the applied methodology, as a renewable energy project, the Leakage of this project are 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 ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (tCO ₂ e)
Total	104,742	0	0	104,742

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 (tCO₂e)	124,980	104,742

According to the registered PDD, the ex-ante estimated average annual emission reductions are 108,873 tCO₂e. This monitoring period covers 419 days, therefore the ex-ante estimated emission reductions should be 124,980tCO₂e as per registered PDD (108,873 *419/365=124,980).

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

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The total emission reductions for this monitoring period are 104,742 tCO₂e. As the monitoring period is for 419 days, multiplying the annual volume in the PDD by 419/365days give a volume of 124,980 tCO₂ and so the actual volume would appear to be lower than the estimates in the registered PDD.



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		