

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

Title of the project activity	Jilin province Zhenlai Heiyupao 49.5MW the first phase wind farm project
Reference number of the project activity	3111
Version number of the monitoring report	1.0
Completion date of the monitoring report	07/09/2012
Registration date of the project activity	30/05/2010
Monitoring period number and duration of this monitoring period	Monitoring Period 2: 25/03/2011 – 24/06/2012 (first and last days included)
Project participant(s)	Jilin Taihe Windpower Development Co., Ltd Carbon Asset Management Sweden AB (withdrawn)
Host Party(ies)	P.R. China
Sectoral scope(s) and applied methodology(ies)	Sectoral scope 1 : Energy industries (renewable - / non-renewable sources) Applied methodology: ACM0002 (version 09)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	143,692tCO ₂ e
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	107,405tCO ₂ e

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

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Jilin province Zhenlai Heiyupao 49.5MW the first phase wind farm project is generating renewable electricity utilizing wind power and sells the generated output to Northeast China Power Grid 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 1500kW. The total installed capacity of the project activity is 49.5MW. The ex-ante expected net generation of the project activity is approximately 100,120 MWh per year, with a load factor of 23.09%.

33 sets of 1500kW wind turbines (Model SL-1500/82) were selected. The electricity is exported through the 220kV transmission line to Zhenlai substation, which is the substation of Northeast China Power Grid.

Project timeline

Construction start date	10/10/2008
Commissioning start date	14/08/2009
Date of full turbines operation	25/09/2009
Date of CDM registration	30/05/2010
Version of the registered PDD	05
Date of the registered PDD	28/10/2009
First renewable crediting period	30/05/2010 - 29/05/2017
Starting date of crediting period	30/05/2010
Previous monitoring period	
Volume 1	30/05/2010 - 24/03/2011(Withdrawn)
Current monitoring period	
Volume 2	25/03/2011-24/06/2012
End date of crediting period	29/05/2017

The total emission reductions achieved in the current monitoring period are 107,405tCO₂e.

A.2. Location of project activity

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Host country	People's Republic of China
Province	Jilin
City	Baicheng
County	Zhenlai
GPS coordinates	Latitude 45°50' to 45°53'North Longitude 123°25' to 123°29' East

**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)	Jilin Taihe Windpower Development Co., Ltd	No
Sweden	Carbon Asset Management Sweden AB (withdrawn)	No

A.4. Reference of applied methodology

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Title of the approved consolidated baseline and monitoring methodology: ACM0002-Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 09, EB45)

Reference: Tool for the demonstration and assessment of additionality (Version 05.2, EB39)

Tool to calculate the emission factor for an electricity system (Version 01.1, EB35)

Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion (Version 02, EB41)

Please click on following link for more information about the methodology and reference:

<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	30/05/2010
End date of crediting period	29/05/2017

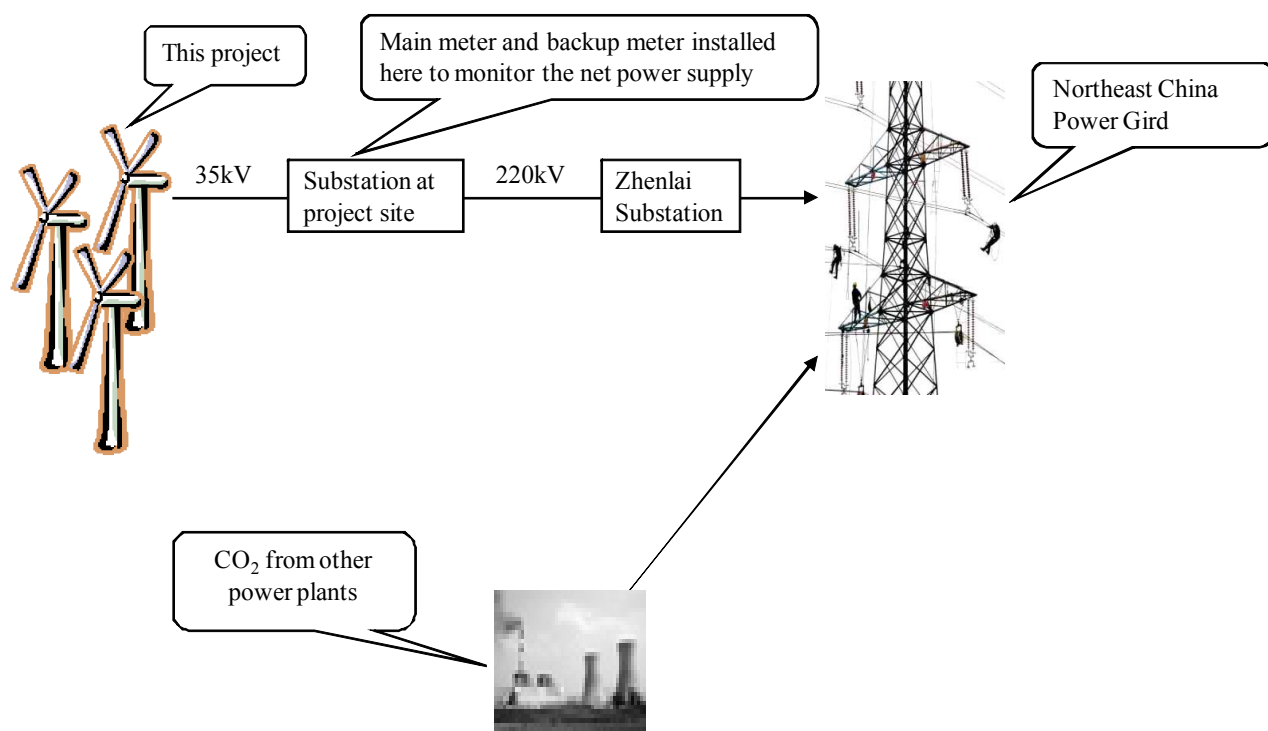
SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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The project activity started construction on 10/10/2008. The project was commissioned from 14/08/2009 and all the 33 wind turbines have been put into operation gradually till 25/09/2009.

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 no changes to the start date of crediting period submitted or approved 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

As the project, namely Jilin province Zhenlai Heiyupao 49.5MW the first phase wind farm project, was sharing main meter with Jilin Zhenlai Heiyupao Phase II Wind Farm Project during this monitoring. Both wind farms are connected through shared transmission line to the Zhenlai substation, which is the substation of the power grid. The net electricity supplied from the two projects is continuously measured by a two-way main meter installed at the substation of wind farm. The readings at 24:00 of the main meter were read and recorded by the project owner every day. Assigned staff of project owner read and recorded the data of export and import on monthly report and the grid company issued ETN (Electricity Transaction Notes) to the wind farm. The exported electricity to the grid by Jilin Zhenlai Heiyupao Phase II Wind Farm Project is continuously measured by the separate meters installed at the Jilin Zhenlai Heiyupao Phase II wind farm. The readings at 24:00 of the separate meters are read and recorded by the project owner every day. Assigned staff of project owner read and recorded the data of export on monthly report and the grid company issued ETN (Electricity Transaction Notes) to the wind farm.

The total net generation recorded by the main meter at the substation will be allocated between the project activity and the other project on the basis of generation as continuously measured by the separate meters installed at the Jilin Zhenlai Heiyupao Phase II Wind Farm.

As per the agreement signed between the Grid Company and wind farm company to define the calculation method of electricity imported and exported, the electricity exported to the grid by this project ($EG_{\text{export},y}$) is calculated as electricity exported to the grid monitored by main meter ($EG_{\text{export},\text{main},y}$) installed at the substation of wind farm minus electricity exported to the grid by Jilin Zhenlai Heiyupao Phase II Wind Farm Project ($EG_{\text{export},\text{II},y}$) measured by the separate meters installed at the Jilin Zhenlai Heiyupao Phase II Wind Farm., i.e. $EG_{\text{export},y} = EG_{\text{export},\text{main},y} - EG_{\text{export},\text{II},y}$.

So the formula to determine electricity delivered to Northeast China Power Grid by the project (EG_y) is:

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

Where:

EG_y is the electricity delivered to Northeast China Power Grid by the project in year y.

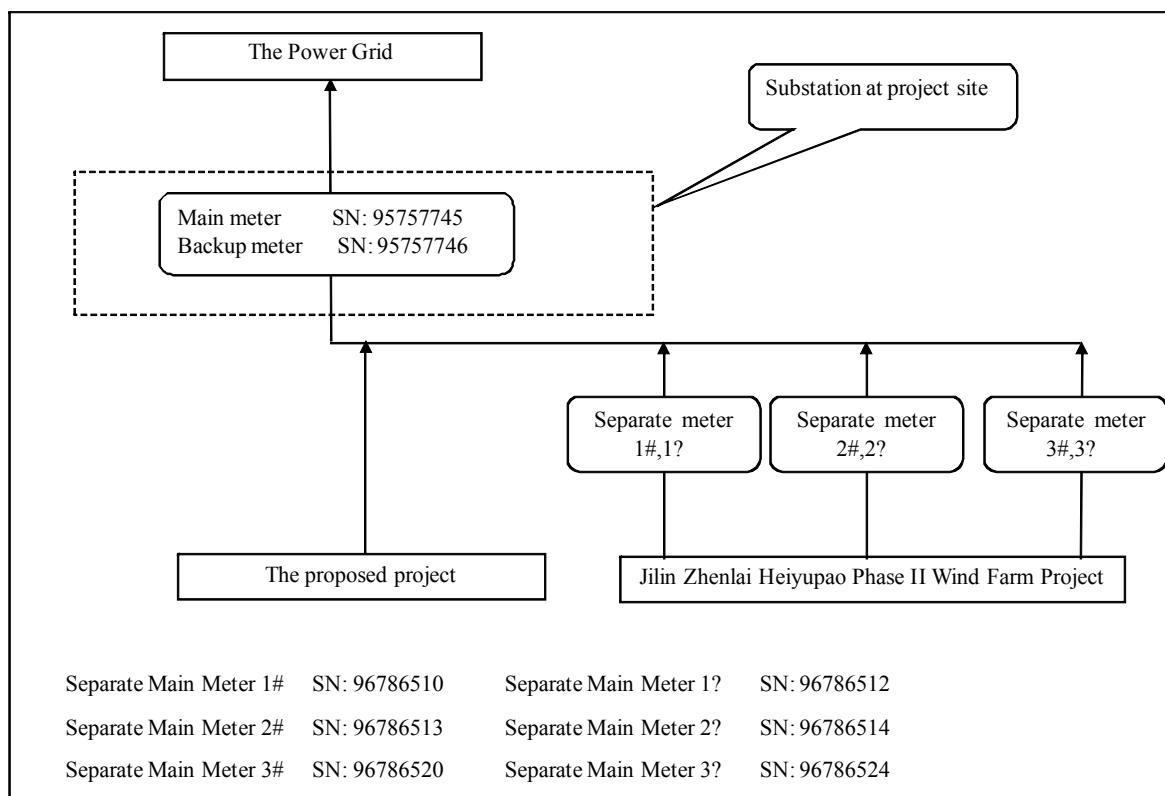
$EG_{\text{export},y}$ is the electricity exported to Northeast China Power Grid by the project in year y, equals to

$EG_{\text{export},\text{main},y} - EG_{\text{export},\text{II},y}$. $EG_{\text{export},\text{main},y}$ is electricity exported to the grid monitored by main meter,

$EG_{\text{export},\text{II},y}$ is electricity exported to the grid by Jilin Zhenlai Heiyupao Phase II Wind Farm Project;

$EG_{\text{import},y}$ is the electricity imported from Northeast China Power Grid by the two project in year y, monitored by main meter.

The location of the meters in relation to the grid, the project, Jilin Zhenlai Heiyupao Phase II Wind Farm, and the transmission lines are displayed as following diagram:



2. Organizational structure and responsibilities

In order to obtain effective monitored data, the project owner established a monitoring management structure that identified the relative staffs for data recording, collection and preservation. In addition, the project owner has designated a special monitoring director to take charge of supervision.

(1) Responsibility of General Manager:

All the affairs related to CDM project monitoring is managed by general manager.

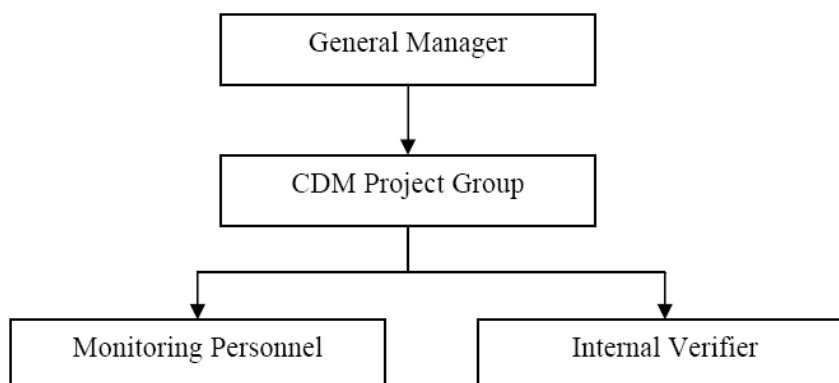
(2) Responsibility of CDM Project Group:

CDM Project Group is in charge of all process of the CDM project directly. The tasks include Meters calibration and training affairs; Check the daily operation report forms; Archive emergency situation disposal report.

(3) Responsibility of Monitoring Personnel and Internal Verifier:

Monitoring Personnel is in charge of data achievement; Executive emergency plan; Draft operation report forms and emergency situation disposal report; Internal Verifier is in charge of data supervision, identification, and cross check the data reported and archived.

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 Jilin Electric Power Research Institute Co., Ltd. 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) Firstly, 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, the project owner and the grid company shall jointly prepare a 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 grid company and the project owner 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 _y
Unit	tCO ₂ /MWh
Description	Baseline emission factor
Source of data	Registered PDD
Value(s) applied	1.1438
Purpose of data	Baseline emission calculation
Additional comment	ex-anted according to the applied methodology

**D.2. Data and parameters monitored**

Data/Parameter	EG _y				
Unit	MWh				
Description	Electricity delivered to Northeast China Power Grid by the project in year y.				
Measured/Calculated/Default	Electricity delivered to Northeast China Power Grid by the project in year y (EG _y) is calculated as follows: EG _y = EG _{export,y} — EG _{import,y} Where: EG _{export,y} = EG _{export,main,y} - EG _{export,II,y} . The results from the main meter and separate meters are recorded by the project owner at 24:00 on 24 th of every month.				
Source of data	The main meter installed at the substation at project site and separate meters installed at Jilin Zhenlai Heiyupao Phase II wind farm				
Value(s) of monitored parameter	93,902.6680MWh(From 25/03/2011 to 24/06/2012)				
Monitoring equipment	The main meter and backup meter installed at substation at project site. The separate meters installed at Jilin Zhenlai Heiyupao Phase II wind farm. Information of Monitoring equipment as follow tables:				
	Meter	Serial No.	Type	Accuracy	Calibration frequency
	Main Meter	95757745	ZMD402CT44	0.2S	annually
	Backup Meter	95757746	ZMD402CT44	0.2S	annually
	Separate Main Meter 1#	96786510	ZMD402CT44.0457/3 × 57.7/100V/3×5(6)A	0.2S	annually
	Separate Backup Meter 1’#	96786512	ZMD402CT44.0457/3 × 57.7/100V/3×5(6)A	0.2S	annually
	Separate Main Meter 2#	96786513	ZMD402CT44.0457/3 × 57.7/100V/3×5(6)A	0.2S	annually
	Separate Backup Meter 2’#	96786514	ZMD402CT44.0457/3 × 57.7/100V/3×5(6)A	0.2S	annually
	Separate Main Meter 3#	96786520	ZMD402CT44.0457/3 × 57.7/100V/3×5(6)A	0.2S	annually
	Separate Backup Meter 3’#	96786524	ZMD402CT44.0457/3 × 57.7/100V/3×5(6)A	0.2S	annually



	Serial No.	Calibration on	Validity
	95757745	08/03/2011	08/03/2011 to 07/03/2012
		03/03/2012	03/03/2012 to 02/03/2013
	95757746	08/03/2011	08/03/2011 to 07/03/2012
		03/03/2012	03/03/2012 to 02/03/2013
	Separate Main Meter 1#	18/10/2010	18/10/2010 to 17/10/2011
		12/10/2011	12/10/2011 to 11/10/2012
	Separate Backup Meter 1’#	18/10/2010	18/10/2010 to 17/10/2011
		12/10/2011	12/10/2011 to 11/10/2012
	Separate Main Meter 2#	18/10/2010	18/10/2010 to 17/10/2011
		12/10/2011	12/10/2011 to 11/10/2012
	Separate Backup Meter 2’#	18/10/2010	18/10/2010 to 17/10/2011
		12/10/2011	12/10/2011 to 11/10/2012
	Separate Main Meter 3#	18/10/2010	18/10/2010 to 17/10/2011
		12/10/2011	12/10/2011 to 11/10/2012
	Separate Backup Meter 3’#	18/10/2010	18/10/2010 to 17/10/2011
12/10/2011		12/10/2011 to 11/10/2012	
Calibration was carried by Jilin Electric Power Research Institute Co., Ltd. and the calibration records were supplied to the developer by the power grid. The accreditation certificate for the calibrator (No. of accreditation certificate: Ji (2009) 0112) was issued by Quality and Technical Supervision Bureau of Jilin province and valid for this monitoring period.			



Measuring/Reading/Recording frequency	Measuring continuously/ Reading daily/ Recording monthly
Calculation method (if applicable)	Calculated as export of electricity minus import of electricity.
QA/QC procedures	Monthly net generation data are approved by CDM manager. The data are double checked by receipt of sales or commercial data. The accuracy of the electricity is 0.2S. The meter is calibrated according to the industry standard by a qualified organization to ensure accuracy.
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

$$BE_y = EG_y \times EF_y$$

Where:

 BE_y = Baseline emissions (tCO₂e/yr). EG_y = Electricity delivered to Northeast China Power Grid by the project (MWh). EF_y = Emission factor of the grid(tCO₂/MWh) .

Period	EG _y (MWh)	EF _{grid,CM,y} (tCO ₂ e/MWh)	Baseline emissions (tCO ₂ e)
25/03/2011-24/06/2012	93,902.6680	1.1438	107,405 (round down)

The detailed calculation of EG_y is calculated below:**Table 1: Data of electricity exported to the grid by the project**



Period	Total exported electricity to the grid $EG_{\text{export,main,y}}$ (MWh)	Electricity exported to the grid by Jilin Zhenlai Heiyupao Phase II Wind Farm Project $EG_{\text{export,II,y}}$ (MWh)	Electricity exported to the grid by the project $EG_{\text{export,y}}$ (MWh)	Value from sales receipts for $EG_{\text{export,y}}$ (MWh)	Conservative value (MWh)
25/03/2011-24/04/2011	22,409.1120	10,445.2964	11,963.8156	11,960.0000	11,960.0000
25/04/2011-24/05/2011	17,473.3680	7,224.2884	10,249.0796	10,250.0000	10,249.0796
25/05/2011-24/06/2011	11,459.7120	5,525.3352	5,934.3768	5,930.0000	5,930.0000
25/06/2011-24/07/2011	8,933.4960	4,166.1648	4,767.3312	4,770.0000	4,767.3312
25/07/2011-24/08/2011	7,381.1760	3,254.1376	4,127.0384	4,130.0000	4,127.0384
25/08/2011-24/09/2011	14,036.8800	7,208.8716	6,828.0084	6,830.0000	6,828.0084
25/09/2011-24/10/2011	20,470.0320	10,373.5212	10,096.5108	10,100.0000	10,096.5108
25/10/2011-24/11/2011	12,744.3360	6,602.4392	6,141.8968	6,140.0000	6,140.0000
25/11/2011-24/12/2011	8,992.3680	4,575.4800	4,416.8880	4,410.0000	4,410.0000
25/12/2011-24/01/2012	4,987.7520	2,661.0920	2,326.6600	2,330.0000	2,326.6600
25/01/2012-24/02/2012	9,647.3520	4,962.4400	4,684.9120	4,680.0000	4,680.0000
25/02/2012-24/03/2012	7,845.5520	3,695.7256	4,149.8264	4,150.0000	4,149.8264
25/03/2012-24/04/2012	16,528.5120	8,209.5468	8,318.9652	8,320.0000	8,318.9652
25/04/2012-24/05/2012	11,805.2880	5,871.9976	5,933.2904	5,930.0000	5,930.0000
25/05/2012-24/06/2012	9,540.9600	4,818.9624	4,721.9976	4,720.0000	4,720.0000
Total	184,255.8960	89,595.2988	94,660.5972		94,633.4200

Table 2: Electricity imported from the grid by the project

Period	Electricity imported from the grid by the project $EG_{\text{import,y}}$ (MWh)	Value from sales receipts for $EG_{\text{import,y}}$ (MWh)	Conservative value (MWh)
25/03/2011-24/04/2011	14.2560	14.2560	14.2560
25/04/2011-24/05/2011	20.0640	20.0640	20.0640
25/05/2011-24/06/2011	42.7680	42.7680	42.7680
25/06/2011-24/07/2011	50.6880	50.6880	50.6880
25/07/2011-24/08/2011	67.3200	67.3200	67.3200
25/08/2011-24/09/2011	49.3680	49.3680	49.3680
25/09/2011-24/10/2011	28.7760	28.7760	28.7760
25/10/2011-24/11/2011	60.4560	60.4560	60.4560
25/11/2011-24/12/2011	70.2240	70.2240	70.2240
25/12/2011-24/01/2012	140.9760	140.9760	140.9760
25/01/2012-24/02/2012	53.3280	53.3280	53.3280
25/02/2012-24/03/2012	34.5840	34.5840	34.5840
25/03/2012-24/04/2012	16.1040	16.1040	16.1040
25/04/2012-24/05/2012	23.4960	23.4960	23.4960
25/05/2012-24/06/2012	58.3440	58.3440	58.3440
Total	730.7520	730.7520	730.7520

Table 3: The calculation of the net electricity supplied from the project activity (MWh)

Period	EG _{export,y} (MWh)	EG _{import,y} (MWh)	EG _y (MWh)
25/03/2011-24/04/2011	11,960.0000	14.2560	11,945.7440
25/04/2011-24/05/2011	10,249.0796	20.0640	10,229.0156
25/05/2011-24/06/2011	5,930.0000	42.7680	5,887.2320
25/06/2011-24/07/2011	4,767.3312	50.6880	4,716.6432
25/07/2011-24/08/2011	4,127.0384	67.3200	4,059.7184
25/08/2011-24/09/2011	6,828.0084	49.3680	6,778.6404
25/09/2011-24/10/2011	10,096.5108	28.7760	10,067.7348
25/10/2011-24/11/2011	6,140.0000	60.4560	6,079.5440
25/11/2011-24/12/2011	4,410.0000	70.2240	4,339.7760
25/12/2011-24/01/2012	2,326.6600	140.9760	2,185.6840
25/01/2012-24/02/2012	4,680.0000	53.3280	4,626.6720
25/02/2012-24/03/2012	4,149.8264	34.5840	4,115.2424
25/03/2012-24/04/2012	8,318.9652	16.1040	8,302.8612
25/04/2012-24/05/2012	5,930.0000	23.4960	5,906.5040
25/05/2012-24/06/2012	4,720.0000	58.3440	4,661.6560
Total	94,633.4200	730.7520	93,902.6680

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 _{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	107,405	0	0	107,405

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})	143,692	107,405

According to the registered PDD, the ex-ante estimated average annual emission reductions are 114,515tCO_{2e}. This monitoring period covers 458 days, therefore the ex-ante estimated emission reductions should be 143,692tCO_{2e} as per registered PDD (114,515*458/365=143,692(round down)).

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

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The actual emission reductions during this monitoring period are 107,405tCO₂e and so the actual volume would appear to be smaller 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		