



**Monitoring report form**  
**(Version 05.1)**

*Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.*

**MONITORING REPORT**

<b>Title of the project activity</b>	Zhangjiakou Chabei Wind Farm Project	
<b>UNFCCC reference number of the project activity</b>	4844	
<b>Version number of the monitoring report</b>	01	
<b>Completion date of the monitoring report</b>	04/07/2017	
<b>Monitoring period number and duration of this monitoring period</b>	Monitoring period Number: 02 Monitoring period Dates: 02/07/2012 – 31/12/2012 (first and last days included)	
<b>Project participant(s)</b>	Project Owner: CGN (Chabei) Wind Power Co., Ltd.	
<b>Host Party</b>	People's Republic of China	
<b>Sectoral scope(s)</b>	1: Energy industries (renewable sources)	
<b>Selected methodology(ies)</b>	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.1.0)	
<b>Selected standardized baseline(s)</b>	N/A	
<b>Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the registered PDD</b>	102,380 tCO <sub>2</sub> e	
<b>Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period</b>	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	64,119 tCO <sub>2</sub> e	0 tCO <sub>2</sub> e

## SECTION A. Description of project activity

### A.1. Purpose and general description of project activity

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The project is located in Chabei District, Zhangjiakou City, Hebei Province, People's Republic of China. The project involves the installation of 67 wind turbines with each capacity of 1,500 kW, and totals up an installation capacity of 100.5MW. Therefore, it's expected to generate approximately 213,735MWh per year which are sold to the North China Power Grid (NCPG).

The project helps the local government to promote economic development and to improve the air quality. The project assists China in stimulating and accelerating the commercialization of grid-connected wind power technologies and markets which are an important objective of the Chinese government. The project therefore helps reduce GHG emissions versus the high-growth, coal-dominated business-as-usual scenario. The project improves air quality and local livelihoods, promote sustainable renewable energy industry development.

The Project commenced construction in 09/08/2010. The first wind turbine was put into commercial operation in 25/03/2011 and the last wind turbine was put into commercial operation in 05/2011.

The Project involves 67 wind turbines with a capacity of 1,500 kW each. The equipment is manufactured in China by Xinjiang Goldwind Science & Technology Co., Ltd.. The main technical specifications are as follows:

Item	Specification
Manufacturer	Xinjiang Goldwind Science & Technology Co., Ltd.
Model	77/1500kW
Power Rating	1,500kW
Rotor Diameter	77m
Hub height (Centre)	65m
Cut-in Wind Speed	3m/s
Rating Wind Speed	12m/s
Cut-out Wind Speed	25m/s

The expected technical lifetime of the Project is 20 years as stated in the registered PDD.

This Monitoring Report is for the second phase of monitoring period, which is from 02/07/2012-31/12/2012. The total emission reduction achieved in this monitoring period is 64,119 tCO<sub>2</sub>e.

### A.2. Location of project activity

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The project is located within Chabei District, Zhangjiakou City, Hebei Province, People's Republic of China. The central geographical coordinates of the project are east longitude 114.8158° and north latitude 41.4569°.

### 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 whether the Party involved wishes to be considered as project participant (yes/no)
People's Republic of China (host)	CGN (Chabei) Wind Power Co., Ltd.	No

**A.4. Reference of applied methodology and standardized baseline**

&gt;&gt;

The approved methodology applied to the project is the approved consolidated baseline methodology ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.1.0, Sectoral Scope 01).

"Tool to calculate the emission factor for an electricity system" (Version 02.1.0);

"Tool for the demonstration and assessment of additionality" (Version 5.2).

**A.5. Crediting period of project activity**

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The first crediting period of the project was set from 27/05/2011 to 26/05/2018 (Renewable).

**A.6. Contact information of responsible persons/entities**

&gt;&gt;

CGN Carbon Asset Management (Beijing) Co.,Ltd.

Technical Manager: Shishi Tan

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Post code: 100070

Tel: +86 10 83634212

www.cgnwp.com.cn

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

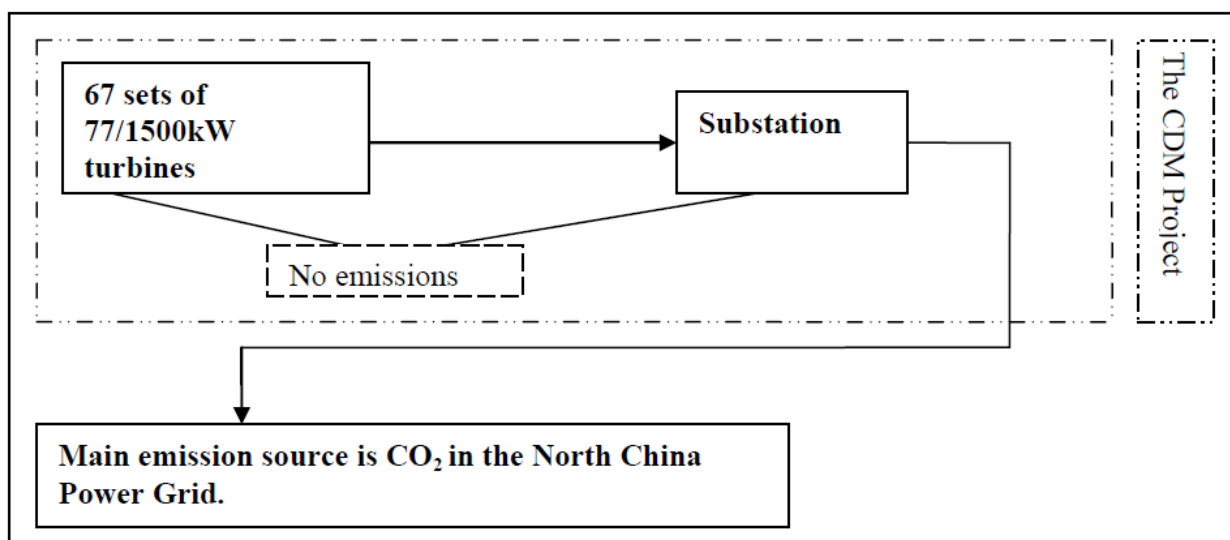
&gt;&gt;

The project installed 67 wind turbines with a capacity of 1,500 kW each. The equipment is manufactured in China by Xinjiang Goldwind Science & Technology Co., Ltd.. Each turbine has a transformer from 690V to 35kV, and is connected with the 220kV substation on the wind farm. The onsite substation is connected to the grid substation via 220kV transmission line. The annual net supplied power of the Project to the grid is monitored through the use of main meter at the onsite substation of the wind farm project.

The Project commenced construction in 08/2010. The first wind turbine was put into commercial operation in 25/03/2011 and the last wind turbine was put into commercial operation in 05/2011. The project implementation follows monitoring plan in the registered PDD.

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, applied methodology or applied standardized baseline

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There is no temporary deviation has been applied during this monitoring period.

### B.2.2. Corrections

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There is no correction to project information or parameter fixed during validation has been approved during this monitoring period.

### B.2.3. Changes to start date of crediting period

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The crediting period of the Project is 27/05/2011 to 26/05/2018 (Renewable) (changed from the original crediting period 01/07/2011 to 30/06/2018).

The change to start date of crediting period has been approved by EB and can be found on the website: <http://cdm.unfccc.int/Projects/DB/DNVCUK1306154648.92/view>

### B.2.4. Inclusion of a monitoring plan to the registered PDD that was not included at registration

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NA

### B.2.5. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

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There is no permanent change from registered monitoring plan or applied methodology or applied standardized baseline.

**B.2.6. Changes to project design of registered project activity**

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There is no change to project design of registered project activity request proposed for the current monitoring period.

**B.2.7. Types of changes specific to afforestation or reforestation project activity**

&gt;&gt;

NA

**SECTION C. Description of monitoring system**

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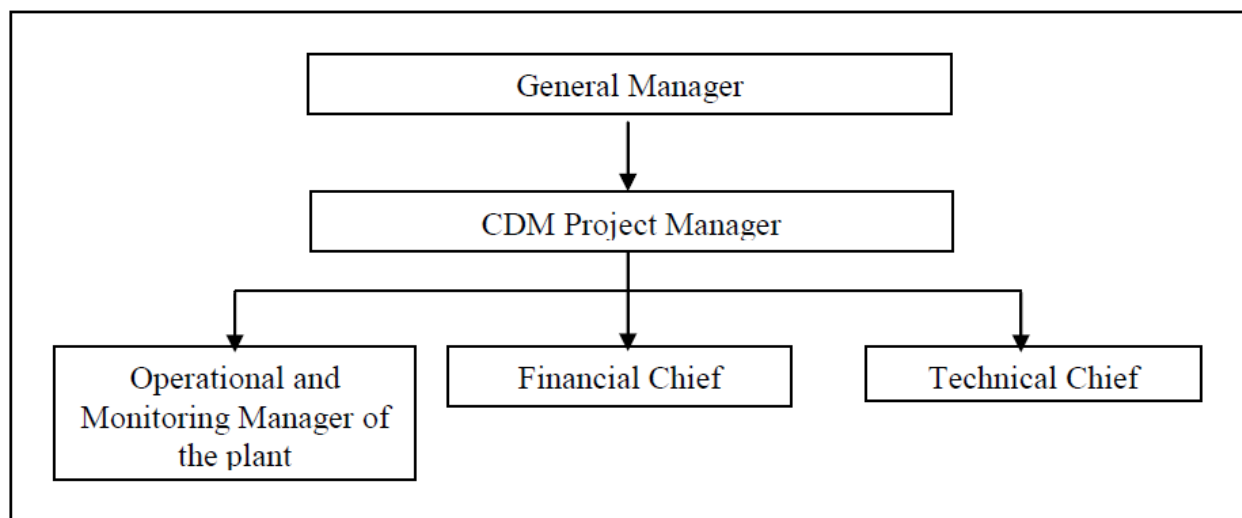
In accordance with the Monitoring Methodology ACM0002, Ver 12.1.0, the key data that must be monitored ex-post for the specific crediting period (since the emission factor has been calculated ex ante), the monitoring system is specified as below:

**1. Introduction**

The proposed Project adopts the approved consolidated monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources (version 12.1.0) to determine the emission reductions from the net electricity generation from the wind farm.

**2. Responsibility**

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the Project owner. The Project owner was responsible for the monitoring related work, including the relevant data collection, monitoring and verification. A CDM working panel was established internally. The operational and organizational structure for the monitoring process is showed as in the Figure below.

**3. Training**

The CDM project management office assign and train the dedicated people carrying out the monitoring work. The CDM project manager completed the monitoring personnel training to ensure that relevant personnel are capable of performing their designated tasks to high standards.

Furthermore, a CDM manual was designed as a guideline for the project owner for management of the Project and monitoring of the data during the operation period. Details on the authority and

responsibility for monitoring, measurement and reporting, the procedures for the training of monitoring personnel, the procedures for day-to-day records handling, the procedures for internal audits, the procedures for corrective actions and so on are provided in the CDM manual for the Project owner.

#### **4. Installation of meter**

The annual net supplied power of the proposed project activity to the grid is monitored by the main meter at the onsite substation of the wind farm project, recording the quantity of annual electricity exported to the grid ( $EG_{\text{export},y}$ ) and the quantity of annual electricity imported to the grid ( $EG_{\text{import},y}$ ). Annual net generation is calculated as  $EG_{\text{export},y}$  minus  $EG_{\text{import},y}$ . The backup meter is installed at the onsite substation. The accuracy of the main meter and backup meter is 0.2S. The main meter monitor the flow continuously and are reported monthly. The main meter is read by the qualified operating staff of the wind farm. A monthly report of the net on-grid electricity from the main meter installed at the onsite substation is established on the basis of the data.

#### **5. Calibration**

The metering equipment is calibrated and checked for accuracy in accordance with industry standards. The accuracy of the main meter and backup meter are 0.2S. The net generation output by the meter alone suffices for the purpose of billing and emission reduction verification during the monitoring period.

The metering equipment shall be jointly inspected and sealed on behalf of the parties concerned and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

Calibration is carried out by the qualified entity with the records being supplied to CGN (Chabei) Wind Power Co., Ltd., and these records has been maintained by CGN (Chabei) Wind Power Co., Ltd..

The metering equipment installed shall be tested by qualified entity after: the detection of a difference larger than the allowable error in the readings of main meter; the repair of all or part of meter caused by the failure of one or more parts to operate in accordance with the specifications. If any errors are detected the party owning the meter shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.

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 CGN (Chabei) Wind Power Co., Ltd. and the Power 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 Power Grid Company and CGN (Chabei) Wind Power Co., Ltd. fail to agree then the matter will be referred for arbitration according to agreed procedures.

No events or situations that occurred during this monitoring period.

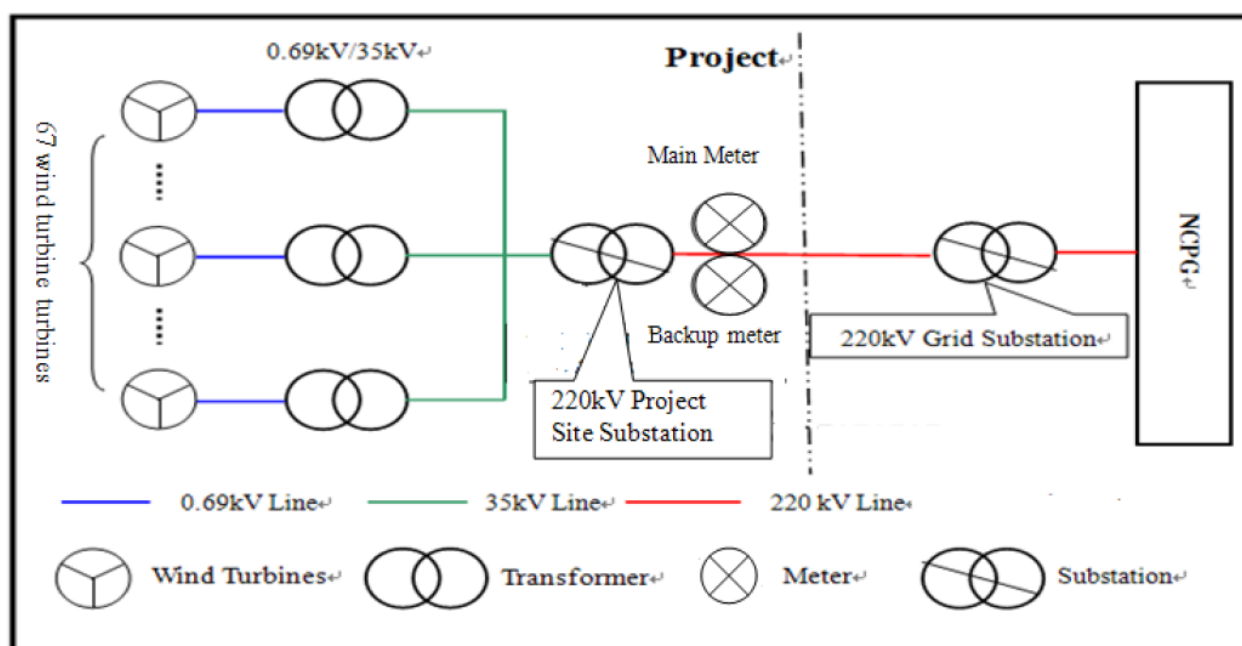
#### **6. Monitored data**

Grid-connected electricity generated by the proposed project is monitored through the main metering equipment. Every month CGN (Chabei) Wind Power Co., Ltd. obtains the on-grid electricity generation from the substation.

Due to the regulation of the local Grid Company, the monthly cut-off time for electricity supplied to and imported from the grid is at 24:00 on the first day of every month. The records of the electricity supplied to the grid by this proposed project and the electricity imported from the grid are issued based on the power purchase agreement (PPA) signed between the project entity and the power grid company and the readings from the main meter. The net electricity generation is calculated as exports to the grid minus imports from the grid. The monitoring period started from 27/05/2011, the grid company and the project owner recorded and confirmed the readings on 27/05/2011 and the grid company issued a confirmation statement for that month.

At 24:00 of the first day of each month, assigned staff of the project owner and a designated person from the grid company jointly recorded the main meter and supplied the monthly readings of the main meter to the grid Company, then the grid company issues records for sold electricity to the wind farm. The records for sold electricity issued by the grid based on the readings of the main meter serve as a double check reference. Both the export electricity and import electricity can be crosschecked with the records for sold electricity.

A diagram shows how parameters are monitored is presented as follows:



## 7. Quality control

Monthly net generation data is approved and signed off by CDM manager before it is accepted and stored.

This audit checks compliance with operational procedures in this monitoring plan.

This internal audit also identifies potential improvements to procedures to improve monitoring and reporting in future years.

## 8. Data management system

Physical document such as paper-based maps, diagrams and environmental assessments has been collected in a central place, together with this monitoring plan. In order to facilitate auditors' reference of relevant literature relating to the proposed project, the project material and monitoring results will be indexed. All paper-based information has been stored by the technology department of CGN (Chabei) Wind Power Co., Ltd. and all the material have a copy for backup.

And all data including calibration records is kept until 2 years after the end of the total crediting period of the CDM project.

## 9. Reporting and Verification

CGN (Chabei) Wind Power Co., Ltd. records readings from the main meter monthly.

CGN (Chabei) Wind Power Co., Ltd. carries out an internal audit on the readings and calculations.

CGN (Chabei) Wind Power Co., Ltd., after the internal audit, reports the readings, grid data and calculations to the DOE for verification.

## SECTION D. Data and parameters

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

Data/parameter:	$EF_{grid,CM,y}$
Unit	tCO <sub>2</sub> /MWh
Description	Combined margin emission factor
Source of data	Registered PDD
Value(s) applied	0.9502
Choice of data or measurement methods and procedures	NA
Purpose of data	Baseline emission calculation
Additional comments	The baselines emission factor was determined ex ante and will be used throughout the first crediting period.

### D.2. Data and parameters monitored

Data/parameter:	$EG_{export,y}$					
Unit	MWh					
Description	Quantity of annual electricity exported to the grid by the proposed project					
Measured/calculated/default	Continuously measured by the main meter at the onsite substation of the wind farm project					
Source of data	Meters at the onsite substation of the wind farm project					
Value(s) of monitored parameter	67,813.152 MWh					
Monitoring equipment	Meters	Serial No.	Accuracy class	Calibration date	Validity	Calibration frequency
	Main Meter	96212980	0.2s	03/07/2012	Yes	annually
	Backup Meter	96212981	0.2s	03/07/2012	Yes	annually
Measuring/reading/recording frequency:	Continuously measurement and monthly recording					
Calculation method (if applicable):	NA					



QA/QC procedures:	The metering equipment is calibrated annually for accuracy by a qualified third party in accordance with industry standard. Monthly generation data is approved and signed off by CDM manager before it is accepted and stored. The supply of electricity to the grid is cross-checked against records for sold electricity. Data will be archived for 2 years following the end of the last crediting period.
Purpose of data:	Baseline emission calculation
Additional comments:	No additional capacity is connected and shared the same transmission line, substation or metering equipment with the project during the monitoring period.

Data/parameter:	<b><math>EG_{import,y}</math></b>					
Unit	MWh					
Description	Quantity of annual electricity exported to the grid by the proposed project					
Measured/calculated/default	Continuously measured by the main meter at the onsite substation of the wind farm project					
Source of data	Meters at the onsite substation of the wind farm project					
Value(s) of monitored parameter	333.168 MWh					
Monitoring equipment	Meters	Serial No.	Accuracy class	Calibration date	Validity	Calibration frequency
	Main Meter	96212980	0.2s	03/07/2012	Yes	annually
	Backup Meter	96212981	0.2s	03/07/2012	Yes	annually
Measuring/reading/recording frequency:	Continuously measurement and monthly recording					
Calculation method (if applicable):	NA					
QA/QC procedures:	The metering equipment is calibrated annually for accuracy by a qualified third party in accordance with industry standard. Monthly generation data is approved and signed off by CDM manager before it is accepted and stored. The supply of electricity to the grid is cross-checked against records for sold electricity. Data will be archived for 2 years following the end of the last crediting period.					
Purpose of data:	Baseline emission calculation					
Additional comments:	No additional capacity is connected and shared the same transmission line, substation or metering equipment with the project during the monitoring period.					

Data/parameter:	<b><math>EG_{facility,y}</math></b>
Unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Measured/calculated/default	Calculated by $EG_{export,y}$ minus $EG_{import,y}$
Source of data	Meters at the onsite substation of the wind farm project
Value(s) of monitored parameter	67,479.984 MWh

Monitoring equipment	Meters	Serial No.	Accuracy class	Calibration date	Validity	Calibration frequency
	Main Meter	96212980	0.2s	03/07/2012	Yes	annually
	Backup Meter	96212981	0.2s	03/07/2012	Yes	annually
Measuring/reading/recording frequency:	Continuously measurement and monthly recording					
Calculation method (if applicable):	Net generation is calculated as exports minus imports. $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y}$					
QA/QC procedures:	<p>The metering equipment is calibrated annually for accuracy by a qualified third party in accordance with industry standard.</p> <p>Monthly generation data is approved and signed off by CDM manager before it is accepted and stored.</p> <p>The supply of electricity to the grid is cross-checked against records for sold electricity.</p> <p>Data will be archived for 2 years following the end of the last crediting period.</p>					
Purpose of data:	Baseline emission calculation					
Additional comments:	No additional capacity is connected and shared the same transmission line, substation or metering equipment with the project during the monitoring period.					

### D.3. Implementation of sampling plan

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The parameters monitored described in section D.2 above do not involve the sampling approach.

## 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 emission  $BE_y$  ( $tCO_2$ ) during the monitoring period results from:

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

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

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

Where:

$BE_y$  is Baseline emissions in year  $y$  ( $tCO_2/\text{yr}$ ).

$EG_{PJ,y}$  is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year  $y$  (MWh/yr).

$EF_{\text{grid},CM,y}$  is the Combined margin  $CO_2$  emission factor for grid connected power generation in year  $y$  calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" ( $tCO_2/\text{MWh}$ ).

$EG_{\text{export},y}$  is the quantity of annual electricity exported to the grid by the proposed project (MWh);

$EG_{\text{import},y}$  is the quantity of annual electricity imported from the grid by the proposed project (MWh);

$EG_{\text{facility},y}$  is the quantity of net electricity generation supplied by the project plant/unit to the grid in year  $y$  (MWh).

The monitored data of the main meter and calculation of  $EG_{\text{facility},y}$ :

Monitoring period	Electricity exported to the grid ( $EG_{\text{export},y}$ ) unit: MWh	Electricity imported from the grid ( $EG_{\text{import},y}$ ) unit: MWh	Quantity of net electricity generation supplied to the Grid ( $EG_{\text{facility},y}$ ) unit: MWh
02/07/2012 0:00-01/08/2012 24:00	10,651.740	47.256	10604.484
02/08/2012 0:00-01/09/2012 24:00	9,105.360	73.260	9032.100
02/09/2012 0:00-01/10/2012 24:00	9,693.024	93.852	9599.172
02/10/2012 0:00-01/11/2012 24:00	13,077.636	34.188	13043.448
02/11/2012 0:00-01/12/2012 24:00	13,168.188	34.716	13133.472
02/12/2012 0:00-01/01/2013 24:00	12,117.204	49.896	12067.308
<b>Total</b>	<b>67,813.152</b>	<b>333.168</b>	<b>67,479.984</b>

According to the registered PDD, the Emission factor of the grid is determined ex-ante; the ex-ante determined emission factor is 0.9502 tCO<sub>2</sub>e/MWh.

$$BE_y = EG_{\text{facility},y} \times EF_{\text{grid,CM},y} = 67,479.984 \text{ MWh} \times 0.9502 \text{ tCO}_2\text{e/MWh} = 65,119 \text{ tCO}_2\text{e}.$$

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

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According to ACM0002 (Version 12.1.0), for the project is a renewable energy project activity, hence,  $PE_y = 0 \text{ tCO}_2\text{e}$ .

## E.3. Calculation of leakage

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According to the applied methodology (Version 12.1.0), no leakage is considered for the project.

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

Item	Baseline emissions or baseline net GHG removals by sinks (t CO <sub>2</sub> e)	Project emissions or actual net GHG removals by sinks (t CO <sub>2</sub> e)	Leakage (t CO <sub>2</sub> e)	GHG emission reductions or net GHG removals by sinks (t CO <sub>2</sub> e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
<b>Total</b>	<b>64,119</b>	<b>0</b>	<b>0</b>	<b>64,119</b>	<b>0</b>	<b>64,119</b>

**E.5. Comparison of actual emission reductions or net 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 (t CO <sub>2</sub> e)	101,823	64,119

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

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The comparison shows that the actual emission reduction is lower than the expectation in the registered PDD.

## Appendix 1. Contact information of project participants and responsible persons/entities

<b>Project participant and/or responsible person/ entity</b>	<input checked="" type="checkbox"/> Project participant <input checked="" type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
<b>Organization name</b>	CGN (Chabei) Wind Power Co., Ltd.
<b>Street/P.O. Box</b>	No.188 west of South 4th ring road, Fengtai District
<b>Building</b>	No. 2 Building, Area 12
<b>City</b>	Beijing
<b>State/region</b>	-
<b>Postcode</b>	100070
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<b>Fax</b>	+86-10-63705875
<b>E-mail</b>	cgnwind@163.com
<b>Website</b>	-
<b>Contact person</b>	Shi Lei
<b>Title</b>	-
<b>Salutation</b>	Mr.
<b>Last name</b>	Shi
<b>Middle name</b>	-
<b>First name</b>	Lei
<b>Department</b>	-
<b>Mobile</b>	-
<b>Direct fax</b>	+86-10-63705875
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<b>Personal e-mail</b>	cgnwind@163.com

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## Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> <li>• Include provisions related to delayed submission of a monitoring plan;</li> <li>• Provisions related to the Host Party;</li> <li>• Remove reference to programme of activities;</li> <li>• Overall editorial improvement.</li> </ul>
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> <li>• Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0));</li> <li>• Include provisions related to standardized baselines;</li> <li>• Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1;</li> <li>• Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>;</li> <li>• Editorial improvement.</li> </ul>
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		