



Monitoring report form for CDM project activity
(Version 07.0)

Complete this form in accordance with the instructions attached at the end of this form.

MONITORING REPORT

Title of the project activity	CECIC HKC Danjinghe Wind Farm Power project	
UNFCCC reference number of the project activity	2170	
Version number of the PDD applicable to this monitoring report	2.0	
Version number of this monitoring report	1.0	
Completion date of this monitoring report	14/08/2020	
Monitoring period number	11 th Monitoring Period	
Duration of this monitoring period	01/10/2018-31/07/2020	
Monitoring report number for this monitoring period	NA	
Project participants	CECIC HKC Wind Power Co., Ltd. P.R. China (project developer); China Carbon N.V.(Buyer)	
Host Party	P.R. of China	
Applied methodologies and standardized baselines	The approved large-scale consolidated methodology ACM0002: "Grid-connected electricity generation from renewable sources" (Version 16.0.0), in effect as of EB 81"	
Sectoral scopes	Sectoral scope1, Energy Industries (renewable - /non-renewable sources)	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	0	792,394
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	747,652	

SECTION A. Description of project activity

A.1. General description of project activity

>>

The purpose of the CECIC HKC Danjinghe Wind Farm Project (hereinafter referred as “the Project”) is to generate renewable electricity using wind power resources and to sell the generated output to the North China Power Grid (NCPG) on the basis of a power purchase agreement (PPA). The project activity generates greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants that is supplied to NCPG.

The project activity involves the installation and operation 54 wind turbines of 750kW, 100 wind turbines of 800kW and 53 wind turbines of 1500kW. Therefore, the total installed capacity of proposed wind farm is 200MW. Total of 438,550MWh clean electricity generated by the Project are expected to be delivered to the NCPG annually. Accordingly, the estimated annual GHG emission reductions of the Project are 407,303 tCO₂e.

The Project started construction on 11/05/2007. The first wind turbine of the Project started commissioning on 21/01/2009. The Project was in full operation on 13/04/2010.

This monitoring period of the Project is from 01/10/2018 to 30/07/2020. The total emission reduction of the 9th monitoring period is 792,394tCO₂e.

A.2. Location of project activity

>>

The Project site is located Zhangbei County, Zhangjiakou City, Hebei Province in the People's Republic of China. It is located at Latitude between 41°05'00" and 42°12'47", Longitude between 114°16'56" and 114°25'11". More details are shown as the following Figure 1.



Figure 1 The location of the project activity

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
The People's Republic of China (Host Country)	CECIC HKC Wind Power Co., Ltd.	No
The Netherlands (Buyer)	China Carbon N.V	No

A.4. References to applied methodologies and standardized baselines

>>

1. The approved large-scale consolidated methodology ACM0002: "Grid-connected electricity generation from renewable sources"(Version 16.0.0), in effect as of EB 81;

2. The approved "Tool for demonstration and assessment of additionality"(Version 02), in effect as of EB 16 and revised by EB 22

3. The project includes a newly built wind power plant, the baseline scenario was prescribed in the ACM0002 (Version 16.0.0) and the "Combined tool to identify the baseline and demonstrate additionality" (Version 05.0.0) does not need to be applied in the case of Greenfield projects as per ACM0002.

4. The approved "Tool to calculate the emission factor for an electricity system" (Version 04.0), in effect as of EB 75;

5. The approved Methodological Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period"(Version 03.0.1), in effect as of EB 66.

Further information pertaining to the methodology can be obtained at:
<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

A.5. Crediting period type and duration

>>

The crediting period is 3*7 renewable crediting periods.

The 2nd crediting period is from 29/12/2015 to 28/12/2022.

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

>>

The Project started construction on 11/05/2007. The first wind turbine of the Project started commissioning on 21/01/2009. The Project was put into full operation on 13/04/2010. The electricity generated by the Project is delivered to NCPG.

During this monitoring period, the Project was operated and implemented in accordance with the registered PDD. Neither emergencies (including of overhaul times, downtimes of equipment, exchange of equipment, etc.) happened to the monitoring system in this monitoring period, nor events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

The project has installed and operated 54 wind turbines of 750kW, 100 wind turbines of 800kW and 53 wind turbines of 1500kW. The selected turbines were manufactured by Zhejiang Windey Wind Generating Engineering Co. Ltd. The detailed parameters of selected turbines are provided in the following Table1:

Table1 Technology parameter of WTGs for the Project

Key Technology Parameter	WD49/750KW	WD49/750KW	WD49/750KW
Rotor diameter (m)	49	54	77
Swept area(m ²)	1886	2290	4656
Number of paddles	3	3	3
Rated Rotate speed(rpm)	15	15	15
Cut-in wind speed (m/s)	3.5	3.5	3.5
Rated wind speed (m/s)	15	15	15
Cut-out wind speed (m/s)	23	25	20
Hub height of the wind turbines (m)	65	65	65
Total Capacity (MW)	40.5	80	79.5
Number of turbine	54	100	53
Rated Voltage	690	690	690
Manufacturer	Zhejiang Windy Wind Generating Engineering Co.,Ltd.		

The total installed capacity of the Project is 200 MW. The electricity generated from the project was transmitted to Zhangbei substation of NCPG via 35kV/220kV transformer at the onsite substation. The following diagram shows the technical process:

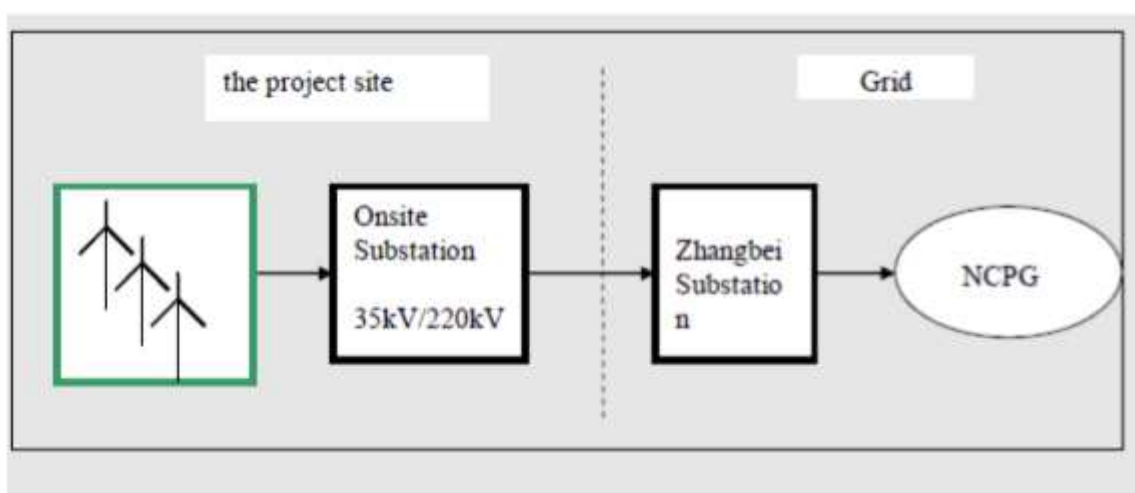


Figure 2: Grid connection of the project

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

>>

There are no temporary deviations from the monitoring plan or applied methodology to this project.

B.2.2. Corrections

>>

There is no correction during this monitoring period.

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

>>

There is no change to the start date of the crediting period.

B.2.4. Inclusion of monitoring plan

>>

There is no Inclusion of a monitoring plan to the registered PDD that was not included at registration during this monitoring period.

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

>>

There is no permanent change from the registered monitoring plan, applied methodologies or applied standardized baseline during this monitoring period.

B.2.6. Changes to project design

>>

There is no any change to the project design of the project activity

B.2.7. Changes specific to afforestation or reforestation project activity

>>

N/A as this is not a A/R project.

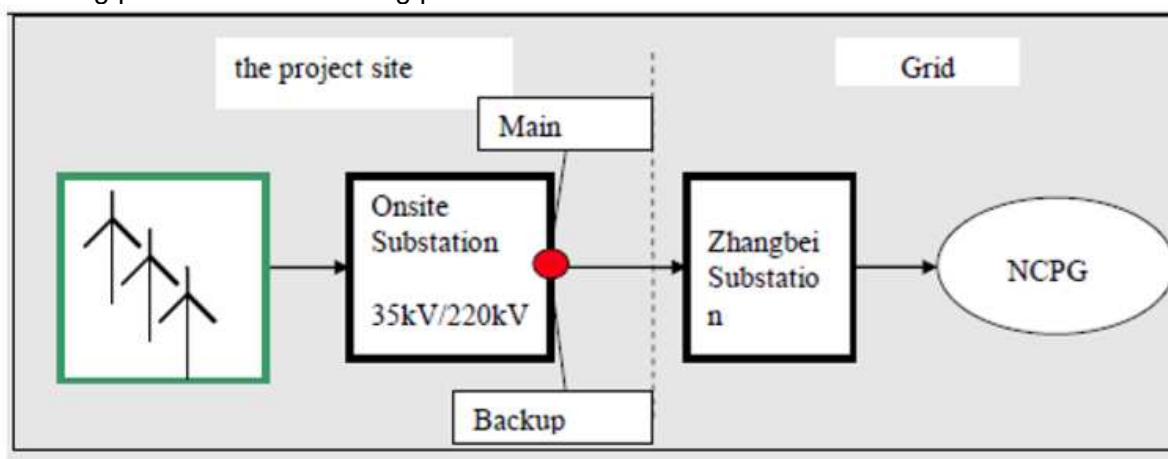
SECTION C. Description of monitoring system

>>

1. Data collection and management

Data generation and aggregation:

The net electricity generation of the Project was monitored through the main metering equipment installed at output side of the onsite substation, recording exports to the grid (supply) and imports from the grid (consumption). Net generation supplied is calculated as exports minus imports. The data were monitored continuously, and the results were recorded and supplied by the grid company to the developer monthly. The cut-off time is 24:00 of last day of each month during the crediting period. The monitoring points are shown as below:



Data calculation:

As described in the monitoring plan, the net electricity supplied to the grid by the project (EG_y) can be calculated as:

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

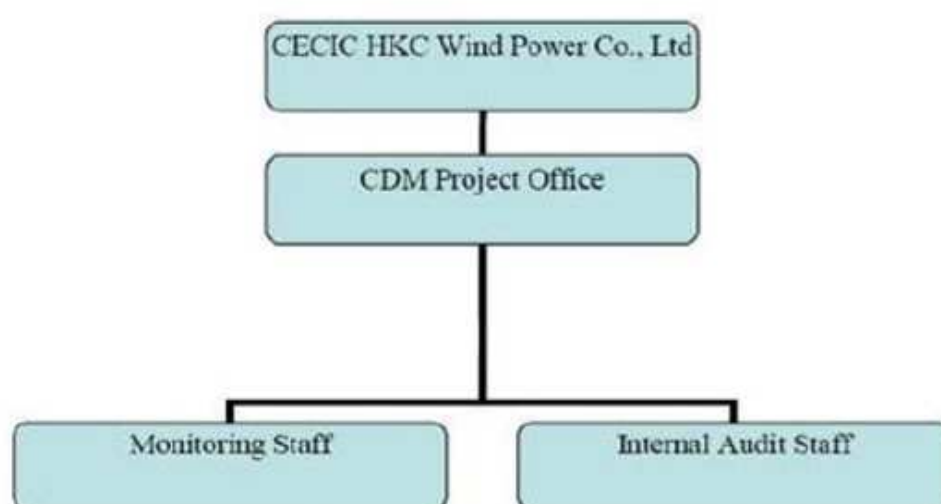
Where: EG_y is the net electricity supplied to the grid by the project;

$EG_{\text{export},y}$ is the electricity exported to the grid by the project;

$EG_{\text{import},y}$ is the electricity imported from the grid by the project.

2. Organizational structure and responsibilities

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with CECIC HKC Wind Power Co., Ltd. The CDM Manager of CECIC HKC Wind Power Co., Ltd is responsible for the monitoring and reporting of the wind farm. The net generated electricity from this project is monitored and recorded using one main meter and one backup meter. They are both installed at the output side of the onsite substation. The meter readings are used for both CDM purposes and sales of the electricity generated to the grid company. The CDM operating and management structure is illustrated as follows:



3. Emergency Procedures

Should any previous month's 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 with acceptable limits of accuracy or operation is performed improperly the CECIC HKC Wind Power Co., Ltd and the NCPG 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 NCPG and CECIC HKC Wind Power Co., Ltd fail to agree then the matter would be referred for arbitration according to agreed procedures.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

(Copy this table for each data or parameter.)

Data/Parameter	$EF_{\text{grid},\text{CM},y}$
Unit	tCO ₂ e/MWh
Description	Emission factor which is determined ex-ant according to the applied methodology.
Source of data	The renewable crediting period registered PDD

Value(s) applied	0.92875
Choice of data or measurement methods and procedures	Fixed before project registration
Purpose of data/parameter	Baseline emissions calculations
Additional comments	The parameter of $EF_{grid, CM, y}$ which used to calculate baseline emissions during the monitoring period is ex ante fixed by the parameters in the section B.6.2 of the renew crediting period registered PDD.

D.2. Data and parameters monitored

(Copy this table for each data or parameter.)

Data/Parameter	EG _{facility,y}							
Unit	MWh							
Description	The net electricity supplied to the grid by the project in year y							
Measured/calculated/default	Measured							
Source of data	Meter reading records of onsite meters.							
Value(s) of monitored parameter	853,184.640							
Monitoring equipment	Meter	Type	Serial No	Accuracy	Calibration Date	Validity	Calibration Frequency	
	Main	ZMQ	94291593	0.2s	2018-05-10; 2019-04-17	Yes	Annually	
	Backup	ZMQ	94291596	0.2s		Yes	Annually	
Measuring/reading/recording frequency	Measuring continuously/Reading monthly/Recording monthly							
Calculation method (if applicable)	EG _{facility,y} =EG _{export} -EG _{import} Net electricity supplied to the grid is calculated as exports minus imports							
QA/QC procedures	EG _{facility,y} is calculated as EG _{export} minus EG _{import} , both of which are continuously measured by the main meter installed at the onsite Substation. Electricity Transaction Notes (ETNs) are issued by the grid to the project owner for confirmation of the electricity generation. Reading records were saved as both hard and electrical copy. The meter readings were also transferred via a remote transmission line to the grid company. The meters were calibrated according to the national standard. The calibration is carried out annually by a qualified organization with the records being supplied to the grid company and project owner.							
Purpose of data/parameter	Baseline emissions							
Additional comments	N/a							

D.3. Implementation of sampling plan

>>

Not applicable.

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

>>

The baseline emissions in year y is calculated as

$$BE_y = EG_{\text{facility},y} * EF_{\text{grid},CM,y}$$

Period	EG _{facility,y} (MWh)	EF _{grid,CM,y} (tCO _{2e})	BE _y (tCO _{2e})
01/10/2018-31/12/2018	121,619.52	0.92875	112,954
01/01/2019-31/12/2019	470,883.60	0.92875	437,333
01/01/2020-31/07/2020	260,681.52	0.92875	242,107
Total in this monitoring period	853,184.640	0.92875	792,394

The detailed calculation of EG_{facility,y} is calculated below: $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y}$

	EG _{export,y} (MWh)			EG _{import,y} (MWh)			EG _{facility,y} (MWh)
	Electricity exported	ETN	Data for calculation	Electricity imported	ETN	Data for calculation	
01/10/2018-31/10/2018	36,637.920	36,637.920	36,637.920	110.880	110.880	110.880	36,527.040
01/11/2018-30/11/2018	48,182.640	48,182.640	48,182.640	345.840	345.840	345.840	47,836.800
01/12/2018-10/12/2018	37,387.680	37,387.680	37,387.680	132.000	132.000	132.000	37,255.680
Total in 2018	122,208.240	122,208.240	122,208.240	588.720	588.720	588.720	121,619.520
01/01/2019-31/01/2019	41,413.680	41,413.680	41,413.680	132.000	132.000	132.000	41,281.680
01/02/2019-28/02/2019	37,226.640	37,226.640	37,226.640	81.840	81.840	81.840	37,144.800
01/03/2019-31/03/2019	58,019.280	58,019.280	58,019.280	113.520	113.520	113.520	57,905.760
01/04/2019-31/04/2019	42,984.480	42,984.480	42,984.480	124.080	124.080	124.080	42,860.400
01/05/2019-31/05/2019	37,989.600	37,989.600	37,989.600	87.120	87.120	87.120	37,902.480
01/06/2019-30/06/2019	31,632.480	31,632.480	31,632.480	168.960	168.960	168.960	31,463.520
01/07/2019-31/07/2019	25,853.520	25,853.520	25,853.520	137.280	137.280	137.280	25,716.240
01/08/2019-31/08/2019	26,677.200	26,677.200	26,677.200	97.680	97.680	97.680	26,579.520
01/09/2019-30/09/2019	27,638.160	27,638.160	27,638.160	105.600	105.600	105.600	27,532.560
01/10/2019-31/10/2019	36,843.840	36,843.840	36,843.840	129.360	129.360	129.360	36,714.480
01/11/2019-30/11/2019	54,149.040	54,149.040	54,149.040	108.240	108.240	108.240	54,040.800
01/12/2019-31/12/2019	51,836.400	51,836.400	51,836.400	95.040	95.040	95.040	51,741.360
Total in 2019	457,266.480	472,264.320	472,264.320	1380.720	1380.720	1380.720	470,883.600
01/01/2020-31/01/2020	40,938.480	40,938.48	40,938.480	139.920	139.920	139.920	40,798.560
01/02/2020-28/02/2020	32,786.160	32,786.16	32,786.160	66.000	66.000	66.000	32,720.160
01/03/2020-	35,502.720	35,502.72	35,502.720	84.480	84.480	84.480	35,418.240

31/03/2020							
01/04/2020-31/04/2020	44,148.720	44148.72	44,148.720	95.040	95.040	95.040	44,053.680
01/05/2020-31/05/2020	33,007.920	33007.92	33,007.920	84.480	84.480	84.480	32,923.440
01/06/2020-30/06/2020	35,373.360	35373.36	35,373.360	55.440	55.440	55.440	35,317.920
01/07/2020-31/07/2020	39,594.720	39594.72	39,594.720	145.200	145.200	145.200	39,449.520
Total in 2020	261352.08	261352.08	261352.08	670.560	670.560	670.560	260681.52
Total in this monitoring period (670days)	840,826.80 0	855,824.64 0	855,824.64 0	2640.000	2640.00 0	2640.000	853,184.64 0

E.2. Calculation of project emissions or actual net removals

>>

According to the applied methodology and the registered PDD, as a newly built wind project, the project emissions of this project are zero.

E.3. Calculation of leakage emissions

>>

According to the applied methodology and the registered PDD, as a renewable energy project, the leakage of this project is not considered.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	792,394	0	0	0	792,394	792,394

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
792,394	747,652

E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

>>

The annual emission reductions estimated in registered PDD is 407,303tCO₂ per year, this monitoring period includes 670 days. So, the amount estimated ex ante is $407,303/365 \times 670 = 747,656$ tCO₂.

E.6. Remarks on increase in achieved emission reductions

>>

The actual GHG emission reductions achieved is 5.98% greater than the amount based on the ex-ante estimation in the registered PDD. The reason is that wind resource is rich during the operation years. Besides, operation skill is improved year after year.

E.7. Remarks on scale of small-scale project activity

>>

This is not a small-scale project.

- - - - -

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
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 (EB 70, 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).

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		