

XINJIANG JIMUNAI CGN PHASE I WIND FARM PROJECT

Document Prepared By CGN Carbon Asset Management (Beijing) Co., Ltd.

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Prepared By	CGN Carbon Asset Management (Beijing) Co., Ltd.
Contact	Area 12 of Advanced Business Park, No. 188 west of South 4th Ring Road, No.2 Building, Beijing, The People's Republic of China Telephone: +86 10 63705765 Email:cgndwind@163.com

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The Xinjiang Jimunai CGN Phase I Wind Farm Project (hereafter refers to the Project) is to utilize wind resources for electricity generation through the construction of a wind farm with the installation of 33 wind turbines with capacities of 1,500 kW each, which amount to a total installed capacity of 49.5 MW in Jimunai County, Xinjiang Uygur Autonomous Region, P.R. China. The electricity generated from the Project is sold to Xinjiang Uygur Power Grid, an integral part of the Northwest China Power Grid (NWPG).

By replacing the electricity generated from fossil fuel-fired power plants dominated NWPG. The Project achieves greenhouse gas (GHG) emission reductions by avoiding CO₂ emissions.

The Project started construction on 25/07/2010, and the first wind turbine was put into operation on 19/03/2011, and all wind turbines were put into operation on 23/03/2011. The expected operation period of the Project is 20 years as stated in the registered PDD.

During this monitoring period from 19/03/2011 to 27/10/2011, the total emission reduction achieved is 61,417 tCO₂e.

1.2 Sectoral Scope and Project Type

Category: Renewable electricity in grid connected application

Sectroal Scope 1: Energy Industry

The project is not a grouped project.

1.3 Project Proponent

Organization name	Xinjiang Jimunai CGN Wind Power Co., Ltd.
Contact person	Shi Lei
Title	CDM office director
Address	Area 12 of Advanced Business Park, No. 188 west of South 4th Ring Road, No.2 Building, Beijing, The People's Republic of China
Telephone	+86 10 63705765
Email	cgnwind@163.com

1.4 Other Entities Involved in the Project

There are no other entities involved.

1.5 Project Start Date

19/03/2011(commissioning start date)

1.6 Project Crediting Period

The project crediting period is from 19/03/2011 to 27/10/2011 and the total crediting period is 223 days.

1.7 Project Location

The proposed project is located at the southwest of Jimunai County, Xinjiang Uygur Autonomous Region, P. R. China. The geographical coordinates of the proposed project is 86.0054° - 86.8443° east longitude and 47.5454° - 47.5796° north latitude. Figures 1 and 2 below show the geographical location of the proposed project.

Figure A1. The location of the proposed project in the map of P. R. China



Figure A2. The location of the proposed project in the map of Xinjiang Uygur Autonomous Region, P. R. China



1.8 Title and Reference of Methodology

The approved methodology applied in the proposed project activity is ACM0002 (version 12.1.0) – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

Reference: <http://cdm.unfccc.int/UserManagement/FileStorage/VA17EM2PNDJWBTFY34KGRLZO68S9UQ>

“Tool for the demonstration and assessment of additionality (version 05.2)” and

Reference: http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf

“Tool to calculate the emission factor for an electricity system (version 02.1.0)” is also applied in the proposed project.

Reference:

<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.1.0.pdf>

1.9 Other Programs

The project has been registered as a CDM project on 28/10/2011, for which a renewable crediting period of 3*7 years will be used under the CDM GHG Program. Therefore, CO₂ emission reductions generated by the project during the CDM crediting period will be verified as unique CERs, but not VCUs to avoid double counting. As to the project under VCS Standard (Version. 3.4), only emission reduction achieved from 19/03/2011 to 27/10/2011 will be considered as VCUs.

The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program for the period from 19/03/2011 to 27/10/2011.

The project has been registered as CDM project and the registration number is 5289, the CDM crediting period is from 28/10/2011 to 27/10/2018.

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

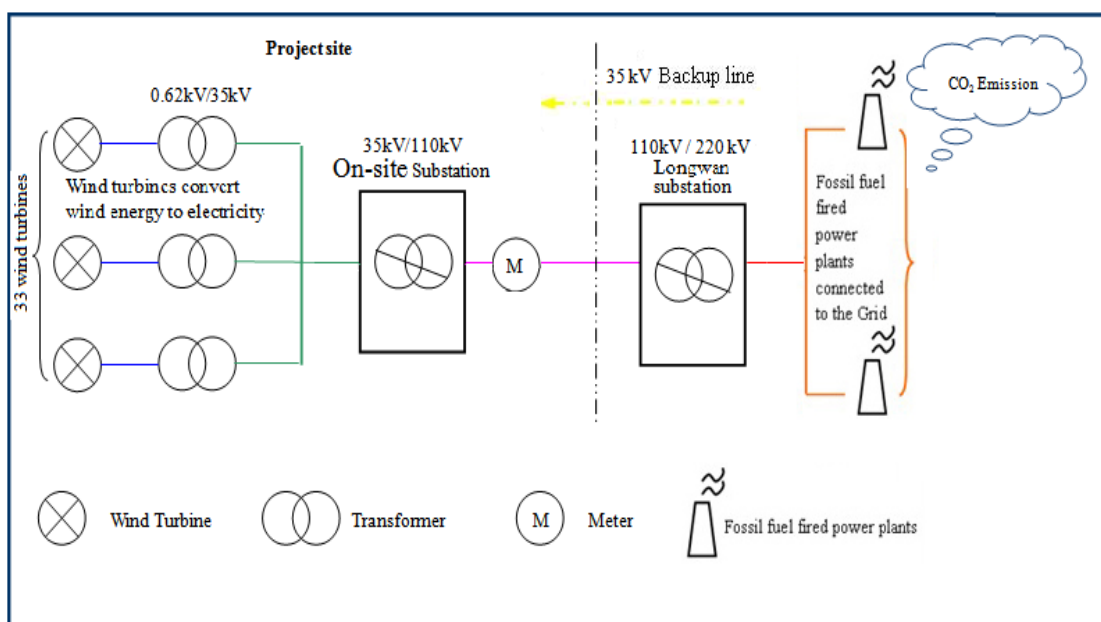
The Project started construction on 25/07/2010, and the first wind turbine was put into operation on 19/03/2011. The expected operation period of the Project is 20 years as stated in the registered PDD. There was no significant malfunction or any emergency occurred for the Project during this monitoring period. No events occurred during this monitoring period which may impact the applicability of the methodology.

The Project involves the installation of 33 wind turbines with capacities of 1500 kW each, which amount to a total installed capacity of 49.5 MW. The wind turbines are supplied by a domestic manufacturer – Goldwind Co., Ltd. The Project uses domestic wind turbines.

The main technical specifications of the wind turbines are as follows:

Wind Turbine		
Item	Unit	Index
Model		77/1500
Rated capacity	kW	1500
Number of blades		3
Rotor diameter	m	77
Swept area	m ²	4656
Rotor speed	m/s	36.28/69.75
Cut-in speed	m/s	3.0
Rated wind speed	m/s	11.5
Cut-off speed	m/s	22
Height of hub	m	65
Lifetime	year	20
Generator		
Rated power	kW	1580
Rated voltage	V	620
Rated current	A	660

The technology diagram of the Project is as follows:



A 35kV/110kV substation is set up at the project site. The electricity supplied by the Project is delivered to the 35kV/110kV on-site substation via a 35kV transmission line, and then the electricity supplied by the Project is delivered to Longwan Substation through 110kV transmission line. The electricity is transmitted to the NWPG finally. The electricity supplied to the grid by the Project is monitored through metering equipment (meter monitoring both electricity input and electricity output) at the 35kV/110kV on-site substation. The meter to measure the electricity imported from the grid through the backup power line is installed at the project site on the 35kV transmission line.

2.2 Deviations

2.2.1 Methodology Deviations

There is no methodology deviations applied during this monitoring period.

2.2.2 Project Description Deviations

There is no project description deviations applied during this monitoring period.

2.3 Grouped Project

The project is not a grouped project.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ / MWh

Description	Combined margin emission factor for grid connected power generation in year y
Source of data	Registered CDM PDD with Ref No.5289
Value applied:	0.9180
Justification of choice of data or description of measurement methods and procedures applied	Refer to the registered CDM PDD with Ref No.5289
Purpose of the data	Calculation of baseline emissions
Comments	The data is calculated ex-ante according to the applied tool.

3.2 Data and Parameters Monitored

Data / Parameter	$EG_{\text{Facility},y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied to the grid by the Project in year y.
Source of data	Electricity meter readings from the meters at the project site
Description of measurement methods and procedures to be applied	Continuously measurement and monthly recording
Frequency of monitoring/recording	Calculated based on the measurement results of $EG_{\text{export},y}$, $EG_{\text{import},y}$ and $EG_{\text{im-backup},y}$
Value monitored:	66,903.07
Monitoring equipment	Please refer to the monitoring equipment information in the table of parameters $EG_{\text{export},y}$, $EG_{\text{import},y}$ and $EG_{\text{im-backup},y}$
QA/QC procedures to be applied	The net electricity supplied to the grid by the Project is also monitored and recorded at the central control room. The project operator is responsible for recording such data. Receipts for electricity sales are kept for further verification.
Purpose of the data	Baseline Emission calculation
Calculation method	Quantity of net electricity generation supplied to the grid by the Project is measured as electricity supplied to the grid by the Project ($EG_{\text{export},y}$) minus imports ($EG_{\text{import},y}$ and $EG_{\text{im-backup},y}$). $EG_{\text{export},y}$, $EG_{\text{import},y}$ and $EG_{\text{im-backup},y}$ is measured by

	electricity meters as the following table shows.
Comments	-

Data / Parameter	EG _{export,y}																						
Data unit	MWh																						
Description	Electricity supplied to the grid by the Project in year y.																						
Source of data	Electricity meter reading (M1 as main meter, M2 as backup meter) at the on-site substation																						
Description of measurement methods and procedures to be applied	Continuously measurement and monthly recording																						
Frequency of monitoring/recording	Continuously measurement and monthly recording																						
Value monitored:	67,345.08MWh																						
Monitoring equipment	Electricity meter reading (M1 as main meter, M2 as backup meter) at the on-site substation. <table border="1"> <tr> <td></td><td>Main meter</td><td>Backup meter</td></tr> <tr> <td>Meter Type</td><td colspan="2">Bidirectional meter</td></tr> <tr> <td>Accuracy</td><td colspan="2">0.2S</td></tr> <tr> <td>Calibration frequency</td><td colspan="2">Annually</td></tr> <tr> <td>Serial No.</td><td>4200415011003274797</td><td>4200415011003274798</td></tr> <tr> <td>Calibration done on</td><td>01/11/2010</td><td>01/11/2010</td></tr> <tr> <td>Validity of Calibration</td><td>01/11/2010-31/10/2011</td><td>01/11/2010-31/10/2011</td></tr> </table>			Main meter	Backup meter	Meter Type	Bidirectional meter		Accuracy	0.2S		Calibration frequency	Annually		Serial No.	4200415011003274797	4200415011003274798	Calibration done on	01/11/2010	01/11/2010	Validity of Calibration	01/11/2010-31/10/2011	01/11/2010-31/10/2011
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Calibration done on	01/11/2010	01/11/2010																					
Validity of Calibration	01/11/2010-31/10/2011	01/11/2010-31/10/2011																					
QA/QC procedures to be applied	The electricity exported to the grid by the Project is monitored and recorded at the central control room. The project operator is responsible for recording such data. Receipts for electricity sales are kept for verification.																						
Purpose of the data	Baseline Emission calculation																						
Calculation method	-																						

Comments	-
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Data / Parameter	EG _{import,y}		
Data unit	MWh		
Description	Electricity purchased from the grid by the Project in year y.		
Source of data	Electricity meter reading (M1 as main meter, M2 as backup meter) at the on-site substation		
Description of measurement methods and procedures to be applied	Continuously measurement and monthly recording		
Frequency of monitoring/recording	Continuously measurement and monthly recording		
Value monitored:	435.6MWh		
Monitoring equipment	Electricity meter reading (M1 as main meter, M2 as backup meter) at the on-site substation.		
		Main meter	Backup meter
	Meter Type	Bidirectional meter	
	Accuracy	0.2S	
	Calibration frequency	Annually	
	Serial No.	4200415011003274797	4200415011003274798
	Calibration done on	01/11/2010	01/11/2010
	Validity of Calibration	01/11/2010-31/10/2011	01/11/2010-31/10/2011
QA/QC procedures to be applied	The electricity exported to the grid by the Project is monitored and recorded at the central control room. The project operator is responsible for recording such data. Receipts for electricity sales are kept for verification.		
Purpose of the data	Baseline Emission calculation		
Calculation method	-		
Comments	-		

Data / Parameter	EG _{im-backup,y}														
Data unit	MWh														
Description	Electricity imported from the grid by the Project through the backup power line in the year y.														
Source of data	Electricity meter reading (M3) at the project site.														
Description of measurement methods and procedures to be applied	Continuously measurement and monthly recording														
Frequency of monitoring/recording	Continuously measurement and monthly recording														
Value monitored:	6.412														
Monitoring equipment	Electricity meter reading (M3) at the project site. <table border="1"> <tr> <td></td><td>Meter</td></tr> <tr> <td>Meter Type</td><td>Bidirectional meter</td></tr> <tr> <td>Accuracy</td><td>0.5S</td></tr> <tr> <td>Calibration frequency</td><td>Annually</td></tr> <tr> <td>Serial No.</td><td>954931</td></tr> <tr> <td>Calibration done on</td><td>12/03/2011</td></tr> <tr> <td>Validity of Calibration</td><td>12/03/2011-11/03/2012</td></tr> </table>		Meter	Meter Type	Bidirectional meter	Accuracy	0.5S	Calibration frequency	Annually	Serial No.	954931	Calibration done on	12/03/2011	Validity of Calibration	12/03/2011-11/03/2012
	Meter														
Meter Type	Bidirectional meter														
Accuracy	0.5S														
Calibration frequency	Annually														
Serial No.	954931														
Calibration done on	12/03/2011														
Validity of Calibration	12/03/2011-11/03/2012														
QA/QC procedures to be applied	Electricity imported from the grid through the backup line is double checked according to electricity sales receipts.														
Purpose of the data	Baseline Emission calculation														
Calculation method	-														
Comments	-														

3.3 Monitoring Plan

Grid-connected electricity generated by the Project is monitored through metering equipment (a meter monitoring both electricity output generated from the Project and electricity input provided by the grid) at the on-site substation.

Monitoring equipments include two meters, the main meter (M1) and the backup meter (M2). All the meters are the multifunctional electricity meters (accuracy degree is 0.2s, bidirectional). M1

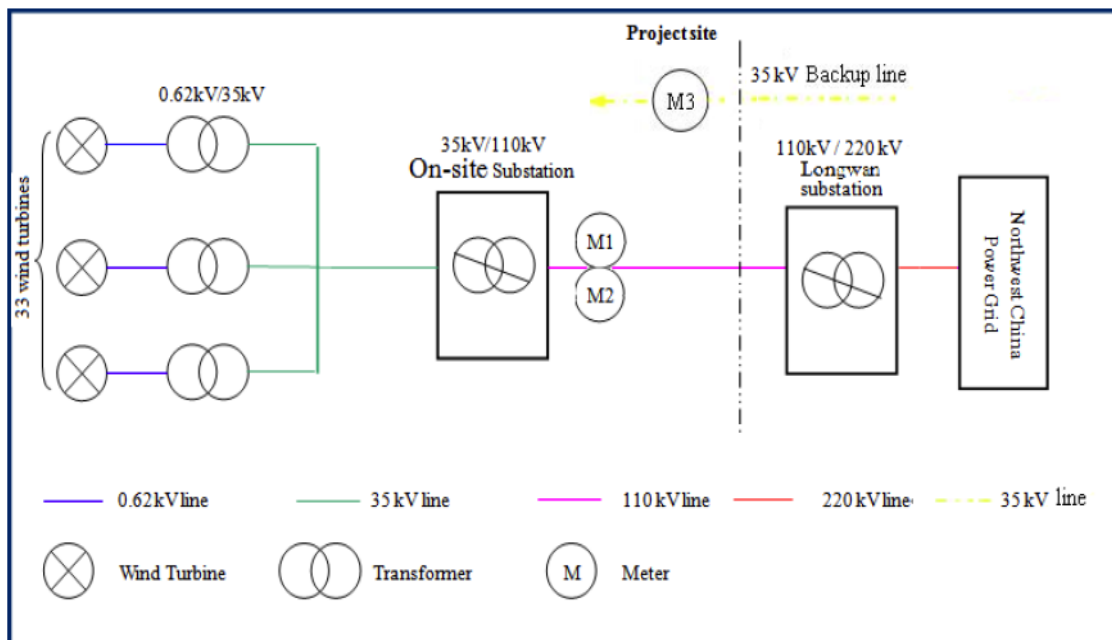
as the main meter is used to monitor the electricity supplied to the grid by the Project and the electricity purchased from the Grid. M2 is used to monitor the electricity supplied to the grid and imported from the grid by the Project in case M1 is damaged. The main meter (M1) and backup meter (M2) are equipped at the high pressure site (110kV) of the 110kV on-site substation of the Project and the project owner is responsible for conducting the meters monitoring.

A backup power line is used for supplied electricity in emergent case that the main power line fails to supply power. A meter (hereafter referred as meter M3) is installed to measure the electricity imported via this line. This meter is owned, maintained and monitored by the local grid company. The accuracy of the meter is 0.5s.

The receipts of the electricity supplied to the power grid by the Project and the electricity purchased from the grid is issued based on the power purchase agreement (PPA) signed between the project owner and the grid company and the readings from the main meter (M1).

The net electricity supplied by the Project is calculated as electricity supplied to the grid by the Project minus imports.

A diagram shows how parameters are monitored and the location of meters is presented as follows.

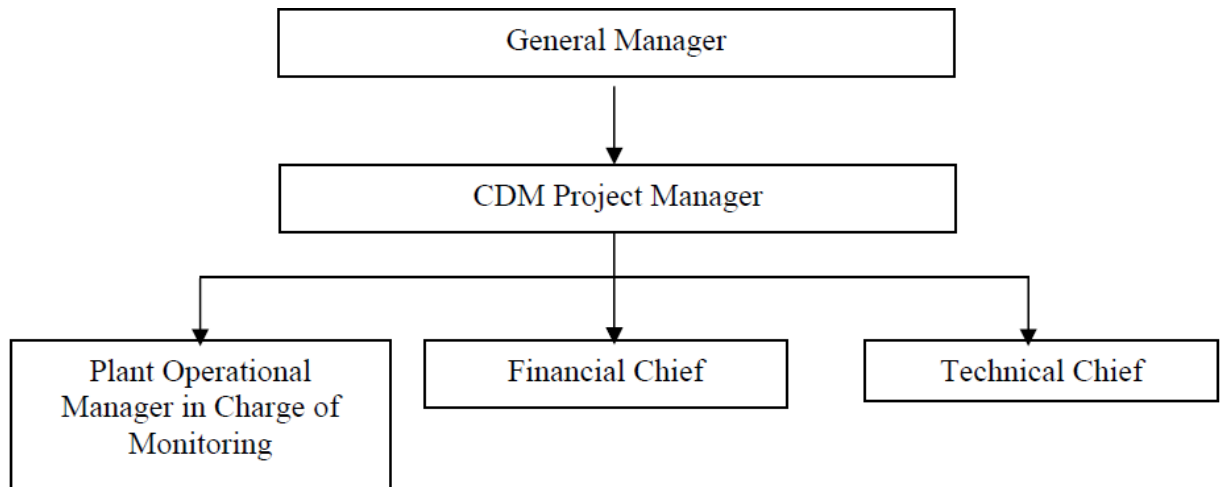


Due to the regulation of the local Grid Company, the monthly cut-off time for the recording of the electricity supplied to the grid and electricity imported from the grid through the main line are at 24:00 on the 27th day in every month. All the relative metered readings and receipts of electricity sales have been achieved for periodic verification. The cut-off time of electricity imported from grid through the backup power line is 18th in every month. All the relative metered readings and receipts of electricity sales have been achieved for periodic verification.

The General Manager of the project entity appoints a CDM project manager or a chief officer. The operational and monitoring manager of the plant, the Financial Chief, and the Technical Chief are responsible for the collection of the data and information required in the monitoring plan. The collected information is documented and sent to the CDM manager or responsible staffs of the project entity monthly.

The CDM manager is in charge of the implementation of the Monitoring Plan and report to the General Manager of the company. The General Manager of the company makes the confirmations on monitoring, calculation data and reports.

The organization of the monitoring implementers is illustrated in the table below:



4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Baseline Emissions are calculated by multiplying the ex-ante Baseline Emission factor by annual power generation.

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

Where:

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

$EG_{\text{Facility},y}$ = Quantity of net electricity generation supplied to the grid by the Project in year y. (MWh)

$EF_{\text{grid},\text{CM},y}$ = Combined margin emission factor for grid connected power generation in year y (tCO₂/MWh).

Period		EG _{export,y} (MWh)	EG _{import,y} (MWh)
19/03/2011 0:00	27/04/2011 24:00	746.24	435.6
28/04/2011 0:00	27/05/2011 24:00	13,456.08	
28/05/2011 0:00	27/06/2011 24:00	9,995.92	
28/06/2011 0:00	27/07/2011 24:00	11,244.64	
28/07/2011 0:00	27/08/2011 24:00	9,555.48	
28/08/2011 0:00	27/09/2011 24:00	12,774.08	
28/09/2011 0:00	27/10/2011 24:00	9,572.64	
Total		67,345.08	435.6

Period		EG _{im-backup,y} (MWh)
19/03/2011	18/04/2011	0.924
19/04/2011	18/05/2011	1.022
19/05/2011	18/06/2011	1.218
19/06/2011	18/07/2011	0.329
19/07/2011	18/08/2011	1.022
19/08/2011	18/09/2011	0.441
19/09/2011	18/10/2011	0.112
19/10/2011	18/11/2011	1.344
Total		6.412

$$EG_{\text{Facility},y} = EG_{\text{export},y} - EG_{\text{import},y} - EG_{\text{im-backup},y} = 67,345.08 - 435.6 - 6.412 = 66,903.07 \text{ MWh}$$

$$BE_y = EG_{\text{Facility},y} \times EF_{\text{grid,CM},y} = 66,903.07 \times 0.9180 = 61,417 \text{ tCO}_2\text{e}$$

4.2 Project Emissions

According to ACM0002 (Version 12.1.0), no project emissions were to be counted by the Project.

Hence, $PE_y = 0 \text{ tCO}_2\text{e}$.

4.3 Leakage

According to the baseline methodology ACM0002 (version 12.1.0), the leakage of the Project is not considered.

4.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 1 (19/03/2011-27/10/2011)	61,417	0	-	61,417
Total	61,417	0	-	61,417

The annual average emission reductions estimated in the registered CDM-PDD is 107,695 tCO₂, so the estimated amount of emission reductions for the corresponding 223 days (the duration of this monitoring period) are $223/365 \times 107,695 = 65,797 \text{ tCO}_2$, which is higher than the actual value of 61,417 tCO₂.