



**Verified Carbon
Standard**

JILIN DA'AN DAGANGZI WIND POWER PROJECT PHASE II

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

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CONTENTS

1.1 Summary Description of the Implementation Status of the Project.....	3
1.2 Sectoral Scope and Project Type.....	3
1.3 Project Proponent.....	4
1.4 Other Entities Involved in the Project.....	4
1.5 Project Start Date.....	4
1.6 Project Crediting Period.....	4
1.7 Project Location.....	5
1.8 Title and Reference of Methodology.....	6
1.9 Participation under other GHG Programs.....	6
1.10 Other Forms of Credit.....	6
1.11 Sustainable Development.....	7
3.1 Implementation Status of the Project Activity.....	10
3.2 Deviations.....	12
3.3 Grouped Projects.....	13
4.1 Data and Parameters Available at Validation.....	13
4.2 Data and Parameters Monitored.....	13
4.3 Monitoring Plan.....	18
5.1 Baseline Emissions.....	23
5.2 Project Emissions.....	29
5.3 Leakage.....	29
5.4 Net GHG Emission Reductions and Removals.....	29

1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The Jilin Da'an Dagangzi Wind Power Project Phase II (hereinafter referred as the project) is to utilize the wind resources for generating renewable electricity to supply into the Jilin grid, an integral part of the Northeast China Power Grid (herein after referred to as NEPG). The project involves the installation of 33 turbines, each of which have a capacity of 1,500kW and total installed capacity of 49.5MW. The project is to utilize the wind resource to generate electricity which would otherwise have been produced by fossil fuel-fired power plants. The Project helps reduce GHG emissions generated from the high-growth, coal-dominated power generation.

The starting date of the construction was 10-03-2008. The first wind turbine was put into operation since 16-12-2008 and all the turbines were put into operation since 15-02-2009. The expected operation period of the Project is 20 years as stated in the approved VCS PD Version 5.0 dated 18-02-2010, approved VCS PD for crediting period renewal with Version 07 dated 21-10-2020.

According to the approved VCS PD for crediting period renewal with Version 07 dated 21-10-2020, the first renewable crediting period of the project has been updated from 01-01-2009¹ to 08-03-2010 to 01-01-2009 to 31-12-2018 and the second crediting period is from 01-01-2019 to 31-12-2028. The estimated emissions reductions of the project are 94,250 tCO₂e annually during the second crediting period.

The project has been registered as VCS project with Ref. VCS548 and as CDM project with Ref. 2586. For the monitoring period from 01-01-2009 to 08-03-2010, the emission reductions of the project were issued under the VCS, the volume issued was 128,377 tCO₂e; for the monitoring period from 09-03-2010 to 24-12-2016, the emission reductions of the project applied for the CDM, the volume issued was 561,051 tCO₂e; for the monitoring period from 25-12-2016 to 31-12-2018, the emission reductions of the project are under the issuance request progress of VCS, the volume to be issued is 177,467 tCO₂e.

The monitoring period of the MR is from 01-01-2019 to 31-12-2020. The total emission reductions achieved in this monitoring period are 186,772 tCO₂e, which are applying for VCS.

1.2 Sectoral Scope and Project Type

Sectoral Scope 1: Energy Industry (renewable/non-renewable sources)

Project type: Wind power project

¹ The project start date is 16-12-2008, while the project owner chose 01-01-2009 as the start date of the first crediting period based on the approved 1st VCS monitoring report.

The project is not a grouped project.

1.3 Project Proponent

Organization name	Jilin CGN Wind Power Co., Ltd.
Contact person	Lei Shi
Title	Vice General Manager
Address	No.2 Building, Area 12 of Advanced Business Park, No.188 West of South 4 th Ring Road, Beijing, P.R.China
Telephone	+86 185 6628 1342
Email	cgnwind@163.com

1.4 Other Entities Involved in the Project

Organization name	CGN Carbon Asset Management (Beijing) Co., Ltd.
Role in the Project	Consultancy
Contact person	Lei Shi
Title	Vice General Manager
Address	No.2 Building, Area 12 of Advanced Business Park, No.188 West of South 4 th Ring Road, Beijing, P.R.China
Telephone	+86 185 6628 1342
Email	cgnwind@163.com

1.5 Project Start Date

The project started on 16-12-2008 (the start date of electricity generation).

1.6 Project Crediting Period

This is the second crediting period. The start date of the crediting is 01-01-2019 and the end date of the crediting period is 31-12-2028. The total number of years for the crediting period is 10 years.

1.7 Project Location

The project is located near the village of Shuanggang, Dagangzi County, Da'an City of Jilin Province in People's Republic of China (P. R. China). The exact location of the project is defined using geographic coordinates obtained with a Global Positioning System (GPS) receiver: E 123°35'26"~123°38'58" Longitude, N 44°18'23" ~ 45°18'46" Latitude for the whole area of the wind farm.



Figure 1. Location of the project

1.8 Title and Reference of Methodology

Following approved baseline & monitoring methodology is applied:

Methodology:

ACM0002 “Grid-connected electricity generation from renewable sources” (Version 20.0)

Reference:

<https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

The applied tools:

Tools: “Tool to calculate the emission factor for an electricity system” (Version 07.0)

Reference:

<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

1.9 Participation under other GHG Programs

The project has been registered as a Clean Development Mechanism (CDM) project in UNFCCC on 09-03-2010 (UNFCCC Ref. 2586), with the first 7 years crediting period started from 09-03-2010. The renewal of the crediting period for the project was approved by CDM EB on 29-03-2019, with the second 7 years crediting period from 09-03-2017 to 08-03-2024. Total GHG emission reductions of 561,051 tCO₂ generated from 09-03-2010 to 24-12-2016 (both days included) by the project has been issued as CER under CDM program. Please refer to the following link for details.

<https://cdm.unfccc.int/Projects/DB/TUEV-SUED1242408811.21/view?cp=1>

1.10 Other Forms of Credit

Emission Trading Programs and Other Binding Limits

The project has been registered as VCS project with Ref. VCS548 and VCUs of 128,377tCO₂e have been issued for the monitoring period from 01-01-2009 to 08-03-2010. All credits generated during this monitoring period (01-01-2019 to 31-12-2020) will be only claimed under VCS program as VCUs for the project to avoid double counting, which will not be used for compliance with emission trading programs or to meet binding limits on GHG emissions.

Other Forms of Environmental Credit

The project hasn't sought or received another form of environmental credits.

1.11 Sustainable Development

The project makes contribution to the local sustainable development as follows:

1. GHG emission reduction

The project helps reduce the greenhouse gas GHG emissions versus the high-growth, coal dominated business-as-usual scenario in the NEPG by reducing the electricity generation from the fossil-fuel fired power plants, particularly the emission of SO_x、NO_x and dust, which contributes to the China's commitment to peak carbon dioxide emissions before 2030.

Otherwise, the project could increase electricity production from renewable sources, which certainly reduces the consumption of fossil fuel in NEPG and further help to achieve the national action to promote renewable energy development.

2. Pollutants emission reduction through replacing fossil fuel combustion

The project utilizes wind energy for generating electricity which would be generated through alternate fuels (fossil fuel) based power plants, contributing to reduction in specific emissions including GHG emissions. Thus, reduce fossil fuel consumption and avoid pollutants emission, such as sulfur dioxide and dust, brought by fossil fuel combustion. Therefore, the project has obvious environmental benefits.

3. Employment opportunities

The implementation of the project had offered job opportunities for local people during both the construction and operational period, 16 people are permanently employed. The project leads to alleviation of poverty by establishing direct and indirect employment benefits. Such benefits are, for example, accrued out during maintenance operations of the project activity or as generation of permanent labor in the form of security services, cleaning services. The infrastructure in and around the project area are also improve due to project activities. This includes development of road network and improvements of electricity quality, frequency and availability.

4. Economic development

The project leads to an investment of about 461.24 million to a developing region which otherwise would not have happened in the absence of project activity. The generated electricity is fed into the NEPG, thereby improving the grid frequency and availability of electricity to the local stakeholders. This attracts new opportunities for industries and economic activities to be setup in the area thereby resulting in greater local employment, ultimately leading to overall development. Otherwise the region can achieve economic growth and booming of local tourism through the construction and operation of the project. Furthermore, the project will contribute to local government with more tax revenues (about 6.26 million per year).

2 SAFEGUARDS

2.1 No Net Harm

According to clauses 13 and 19 of the Environmental Evaluation Law of the P.R.China, the project entity must analyze the environmental impacts of project activities in P.R.China before utilizing natural resources and beginning project construction. The project developer therefore commissioned a third party, the Northeast Coal Industry and Environment Institute, to conduct the required Environmental Impact Assessment (EIA) in 2007, and the EIA report was approved by the Jilin Provincial Environmental Protection Bureau in September 2007 (approval number: Jihuanjian (biao) zi [2007] No.239).

There are no transboundary impacts related to the project, and there is no resettlement or relocation of population, buildings or public services required. Therefore, social and environmental influences are considered partial, short-term and reversible.

Where impacts of the project were identified, mitigation measures were suggested and defined. The EIA highlights the following with regards to the project, as shown in the following discussion.

Impact on air

the air pollution from dust and other airborne emissions were expected to exist mainly during the period of construction. Protective measures adopted include stopping work on windy days and reducing the speed of vehicles. As the period of construction is short, the impacts on air are deemed to be insignificant after conducting these mitigation measures. During operation, there will be no bad gas emissions generated by the project.

Impact from noise

The operation of the wind turbines will generate continuous low-level noise. It is said in the EIA that 600m away from the turbine is a reasonable distance for residents to not experience any significant adverse noise impacts. The nearest resident area, however, is 2.3km away from the project location. Therefore, the noise of the turbines will not affect the local residents.

Electromagnetic impact

The operation of the wind farm will generate electromagnetic energy, however, it has little effect on residents. According to the survey of the local residents near the project, no impact to local residents and electronic equipment were detected. Furthermore, the site of the project is far from the residential area. Therefore, there is no significant electromagnetic impact expected to be generated.

Impacts from solid waste

Most of the waste earth produced in the construction shall be refilled back to the foundations of the turbines. The staff waste during the construction period will be collected and transported to Baicheng municipal landfill.

Impacts on vegetation

The land area permanently taken by the project will be 68,847m², most of which is grassland. There is little biomass resource and rare plant species in the area. As the lands will be replanted after completion of the project construction, the impacts on grassland are considered insignificant.

Biological impact

There are very few animals at the site and no protected animal has been detected where the project is constructed. Therefore, there is no significant impact by the project to the local ecosystem.

With mitigation controls planned as part of the project construction and EIA process, and the contribution made by the project to sustainable development for the local and national area, the project is expected to have an overall positive impact on the local and global environment. All negative environmental impacts are subject to mitigation measures as described above.

2.2 Local Stakeholder Consultation

Local stakeholders Consultation during the project preparation stage:

The stakeholder consultation for the project activity took place in February 2008. During the consultation, local stakeholders were invited to submit comments on the project activity by filling a questionnaire sent out by the project developer. The project developer put the notice at the project management office as well as the government building around the project site and also randomly sent the questionnaire out around the project site.

The questionnaires included a technical description of the project as well as a brief explanation of how the project activity mitigates climate change through the Clean Development Mechanism of the Kyoto Protocol and brings sustainable development benefits. The questions asked were as follows:

- ☐ What impacts do you think the CDM project activity will have on the local environment?
- ☐ What impacts do you think the CDM project activity will have on employment and social welfare in the local area?
- ☐ Are there any negative impacts on your livelihood during the construction of the CDM project?
- ☐ What would be the overall positive effects of the construction and operation of the CDM project?
- ☐ What would be the overall negative effects of the construction and operation of the CDM project?
- ☐ What is your attitude towards the construction of the CDM project?

□ Do you support the construction of the CDM project?

30 questionnaires were sent to the stakeholders by the project developer. The survey received 100% participation (30 questionnaire returned out of 30). The survey shows the stakeholders believe that the proposed CDM project activity will have positive impacts on the local ecological, environmental, employment and social life. All stakeholders expressed their support to the proposed project. No negative comments have been received on the project.

Local stakeholder Consultation during the project implementation stage:

The project owner has set out the mechanism for on-going communication with local stakeholders and the communications with local stakeholders are being carried out at periodic intervals.

Firstly, stakeholders were informed of the status and progress of the project through the bulletin board on the village committee, and their comments can be recorded in the village committee's complaint book. This information is fed back to the project proponent by the contact person for a timely response.

Secondly, stakeholders can communicate and give feedback directly to the project proponent at any time through the published phone number of contact person.

Finally, the contract person of project owner also meets local villagers to collect their comments and suggestions yearly.

During this monitoring period, the project carried out the communication with local stakeholders in line with the mechanism. Village committee's complaint book were quarterly checked by the contact person, and the contact person visited the villages in Sep. 2019 and Dec. 2020 to communicate with stakeholders. Meanwhile, the local authority has also conducted spot checks on the implementation of the project yearly. There are no negative comments received for the project during this monitoring period. In line with VCS requirements all the processed have been implemented to receive comments from local stakeholders as well as communicate with them.

2.3 AFOLU-Specific Safeguards

The project is not AFOLU project.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The Project is to utilize wind resources for electricity generation through the installation and operation of 33 wind turbines with unit capacity of 1500 kW and total up an installation capacity of 49.5MW. The power generated is delivered to the Northeast China Power Grid by

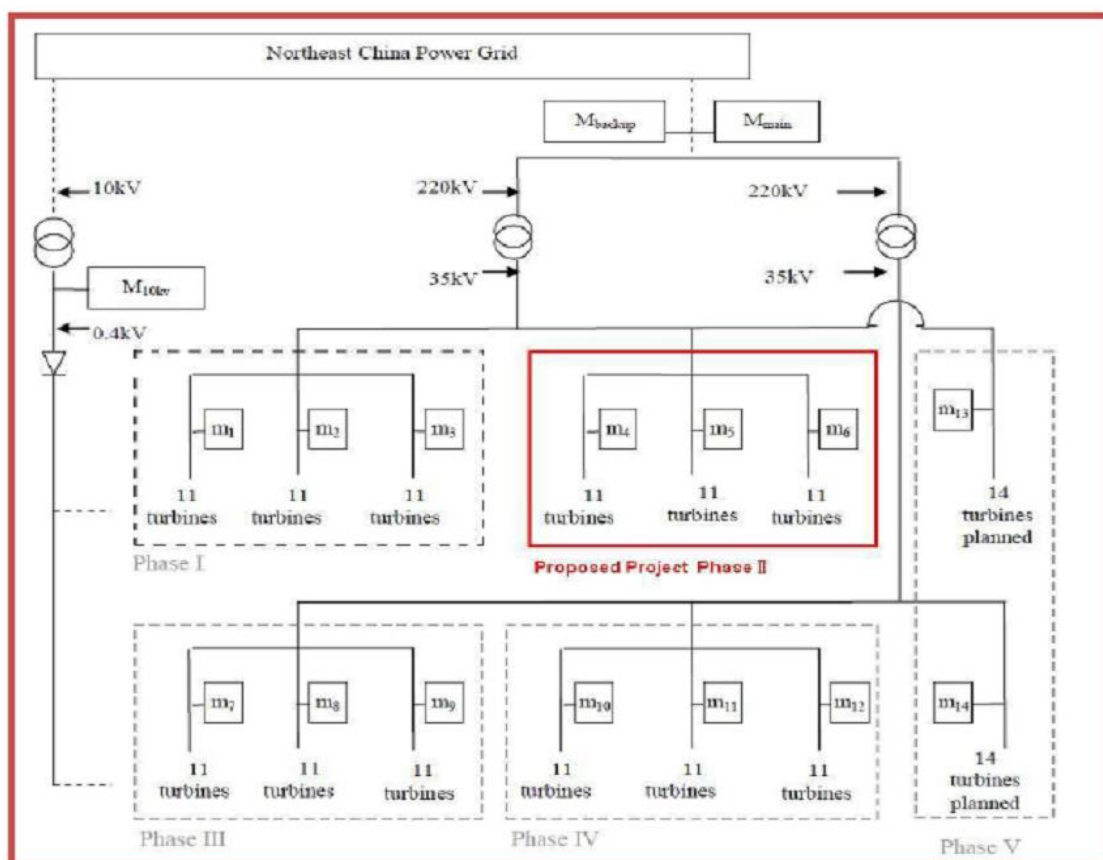
220kV step-up substation. The starting date of the construction was 10-03-2008. The first wind turbine was put into operation since 16-12-2008 and all the turbines were put into operation since 15-02-2009. During the monitoring period, all turbines have come into operation and supplied electricity to the grid.

According to the turbine layout, each turbine is equipped with one transformer which increase the Voltage of electricity generated of 0.69kV to 35kV. The wind power to be generated is delivered to the 35kV-to-220kV transformer via 35kV transmission lines. The power in the 220kV step-up substation is transmitted to the Baicheng 220kV Da'an substation. Then the electricity generated is first transmitted to the Jilin Power Grid and then to the Northeast China Power Grid.

The generator is produced by Dongfang Steam Turbine Works Company. All other items of equipment used in the Project are produced domestically and the project developer is experienced in handling and operating this kind of equipment. The key technical parameters of wind turbines are listed in the following table.

Item	Unit	Index
Type	-	FD77B
Number of blades	-	3
Rated power	kW	1,500
Diameter of wheels	m	77
Cut-in speed	m/s	4
Cut-out speed	m/s	25
Rated wind speed	m/s	16
Height of wheel	m	61.5
Load factor	-	23.78%
Lifetime	Years	20

The technology diagram of the Project is as follows:



During this monitoring period, no special event occurred during this monitoring period, which may impact the applicability of the methodology. In this monitoring period (from 01-01-2019 to 31-12-2020), the total emission reductions achieved is 186,772 tCO₂e.

3.2 Deviations

3.2.1 Methodology Deviations

There are no methodology deviations applied during this monitoring period.

3.2.2 Project Description Deviations

In the registered VCS PD, the crediting period is described as from 01-01-2009 to 08-03-2010. A crediting period deviation was requested in the updated VCS PD for the 2nd renewal crediting period which has already been approved by Verra. The project is registered under VCS Standard Version 2007.1 and completed validation before 19-03-2020. Thus, it remains eligible to apply the crediting period requirements under VCS Standard Version 3, which shall be a maximum of ten years and may be renewed at most twice for a total 30 years. The deviation of crediting period has no impacts on the applicability, additionality or baseline of the project. Furthermore, as the project is also registered as a CDM project with a seven year twice renewable project crediting period, it is not eligible for VCU issuance beyond the end of those 21 years (08-03-

2031). Hence, the first renewable crediting period of the project has been updated from 01-01-2009-08-03-2010 to 01-01-2009 to 31-12-2018, and the second crediting period is from 01-01-2019 to 31-12-2028.

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

3.3 Grouped Projects

The project is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO _{2e} / MWh
Description	The baseline grid emission factor
Source of data	2019 Baseline Emission Factors for Regional Power Grids in China
Value applied	0.9139
Justification of choice of data or description of measurement methods and procedures applied	As per the requirements in "Tool to calculate the emission factor for an electricity system version 07.0".
Purpose of Data	Calculation of baseline emissions
Comments	Calculated ex ante and fixed for the second crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{facility,y}$				
Data unit	MWh/year				
Description	The net electricity supplied to the grid by the project in year y				
Source of data	Measured by electricity meters: M_{main} , M_{10kV} , m_i				
Description of measurement methods and procedures to be applied	The net electricity supplied to the grid by the project is cumulative measurement and monthly recorded by the project owner. The net electricity delivered from the project to the grid is calculated with the formula showed in section 4.3. The accuracy of the electricity meters involved will be described below in the monitored parameter $M_{main,export,y}$, $M_{main,import,y}$, $M_{10kV,import,y}$ and $m_{i,export,y}$.				
Frequency of monitoring/recording	-				
Value monitored	<table border="1"> <thead> <tr> <th>Period</th><th>Value (MWh)</th></tr> </thead> <tbody> <tr> <td></td><td></td></tr> </tbody> </table>	Period	Value (MWh)		
Period	Value (MWh)				

	01-01-2019 to 31-12-2019	102,727.713	
	01-01-2020 to 31-12-2020	101,642.252	
	Total	204,369.966	
Monitoring equipment	Please refer to the monitoring equipment information in the table of “Information of monitoring equipment” below.		
QA/QC procedures to be applied	The metering instruments will be calibrated annually in accordance with the “Technical administrative code of electric energy metering (DL/T448-2016)”. Sale receipts/records to the grid are used to ensure the consistency.		
Purpose of the data	Calculation of baseline emissions		
Calculation method	The net electricity supplied by the project to the grid is calculated through $M_{main,export,y}$, $M_{main,import,y}$, $M_{10kV,import,y}$ and $m_{i,export,y}$ according to the question in section 4.3.		
Comments	-		

Data / Parameter	$M_{main,export,y}$									
Data unit	MWh/year									
Description	Quantity of the electricity supplied to the grid and measured by the meter M_{main} (or M_{backup}) during the monitoring period y									
Source of data	Measured by electricity meters: M_{main} or M_{backup}									
Description of measurement methods and procedures to be applied	The electricity supplied to the grid is measured by the meter M_{main} (or M_{backup}) and cumulative measurement and monthly recorded by the project owner. The accuracy of electricity meter M_{main} and M_{backup} is 0.2S.									
Frequency of monitoring/recording	Continuously measured and monthly recorded									
Value monitored	<table><tr><th>Period</th><th>Value (MWh)</th></tr><tr><td>01-01-2019 to 31-12-2019</td><td>490,791.840</td></tr><tr><td>01-01-2020 to 31-12-2020</td><td>487,418.272</td></tr><tr><td>Total</td><td>978,210.112</td></tr></table>	Period	Value (MWh)	01-01-2019 to 31-12-2019	490,791.840	01-01-2020 to 31-12-2020	487,418.272	Total	978,210.112	
	Period	Value (MWh)								
	01-01-2019 to 31-12-2019	490,791.840								
	01-01-2020 to 31-12-2020	487,418.272								
Total	978,210.112									
Monitoring equipment	Please refer to the monitoring equipment information in the table of “Information of monitoring equipment” below.									
QA/QC procedures to be applied	The metering instruments will be calibrated annually in accordance with the “Technical administrative code of electric energy metering (DL/T448-2016)”.									
Purpose of the data	Calculation of baseline emissions									
Calculation method	-									
Comments	-									

Data / Parameter	$M_{main,import,y}$								
Data unit	MWh/year								
Description	Quantity of the electricity imported from the grid and measured by the meter M_{main} (or M_{backup}) during the monitoring period y								
Source of data	Measured by electricity meters: M_{main} or M_{backup}								
Description of measurement methods and procedures to be applied	The electricity imported from the grid is measured by the meter M_{main} (or M_{backup}) and cumulative measurement and monthly recorded by the project owner. The accuracy of electricity meter M_{main} and M_{backup} is 0.2S.								
Frequency of monitoring/recording	Continuously measured and monthly recorded								
Value monitored	<table> <tr> <th>Period</th><th>Value (MWh)</th></tr> <tr> <td>01-01-2019 to 31-12-2019</td><td>1,350.624</td></tr> <tr> <td>01-01-2020 to 31-12-2020</td><td>1,278.464</td></tr> <tr> <td>Total</td><td>2,629.088</td></tr> </table>	Period	Value (MWh)	01-01-2019 to 31-12-2019	1,350.624	01-01-2020 to 31-12-2020	1,278.464	Total	2,629.088
Period	Value (MWh)								
01-01-2019 to 31-12-2019	1,350.624								
01-01-2020 to 31-12-2020	1,278.464								
Total	2,629.088								
Monitoring equipment	Please refer to the monitoring equipment information in the table of "Information of monitoring equipment" below.								
QA/QC procedures to be applied	The metering instruments will be calibrated annually in accordance with the "Technical administrative code of electric energy metering (DL/T448-2016)". Sale receipts have been used to cross-check the meters' readings.								
Purpose of the data	Calculation of baseline emissions								
Calculation method	-								
Comments	-								

Data / Parameter	$m_{i,export,y}$
Data unit	MWh/year
Description	Quantity of the electricity supplied to the grid and measured by the meters m_i during the monitoring period y i is the number of the meters which installed at its on-site 35kV low voltage side of the 35kV-to-220kV transformer. $i=1\sim14$
Source of data	Measured by electricity meters: m_i
Description of measurement methods and procedures to be applied	The electricity supplied to the grid is measured by the meter m_i and cumulative measurement and monthly recorded by the project owner. The accuracy of electricity meter m_i is no lower than 0.5S.
Frequency of monitoring/recording	Continuously measured and monthly recorded
Value monitored	Detailed monthly data are presented in Section 5.1. of the monitoring report
Monitoring equipment	Please refer to the monitoring equipment information in the table

	of “Information of monitoring equipment” below.
QA/QC procedures to be applied	The metering instruments will be calibrated annually in accordance with the “Technical administrative code of electric energy metering (DL/T448-2016)”.
Purpose of the data	Calculation of baseline emissions
Calculation method	-
Comments	-

Data / Parameter	$M_{10kV,import,y}$								
Data unit	MWh/year								
Description	Quantity of the electricity imported from the grid and measured by the meters M_{10kV} during the monitoring period y								
Source of data	Measured by electricity meters: M_{10kV}								
Description of measurement methods and procedures to be applied	The electricity imported from the grid is measured by the meter M_{10kV} and cumulative measurement and monthly recorded by the project owner. The accuracy of electricity meter M_{10kV} is 1.0.								
Frequency of monitoring/recording	Continuously measured and monthly recorded								
Value monitored	<table border="1"> <thead> <tr> <th>Period</th><th>Value (MWh)</th></tr> </thead> <tbody> <tr> <td>01-01-2019 to 31-12-2019</td><td>0</td></tr> <tr> <td>01-01-2020 to 31-12-2020</td><td>0</td></tr> <tr> <td>Total</td><td>0</td></tr> </tbody> </table>	Period	Value (MWh)	01-01-2019 to 31-12-2019	0	01-01-2020 to 31-12-2020	0	Total	0
Period	Value (MWh)								
01-01-2019 to 31-12-2019	0								
01-01-2020 to 31-12-2020	0								
Total	0								
Monitoring equipment	Please refer to the monitoring equipment information in the table of “Information of monitoring equipment” below.								
QA/QC procedures to be applied	The metering instruments will be calibrated annually in accordance with the “Technical administrative code of electric energy metering (DL/T448-2016)”. Sale receipts have been used to cross-check the meters’ readings.								
Purpose of the data	Calculation of baseline emissions								
Calculation method	-								
Comments	-								

Information of monitoring equipment

Meters	Type	Accuracy	Serial number	Calibration date	Validity date
M _{main}	ZMD402CT44	0.2S	96628173	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
M _{backup}	ZMD402CT44	0.2S	94348626	12-02-2018	11-02-2019

				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₁	DTSD341	0.5S	1210139747 000006	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₂	DTSD341	0.5S	200708650 50026	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₃	DTSD341	0.5S	200708650 50027	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₄	DTSD341	0.2S	2007071201 0071	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₅	DTSD341	0.5S	200708650 50025	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₆	DTSD341	0.5S	200708650 50021	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₇	DTSD341	0.5S	200808460 40146	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₈	DTSD341	0.5S	200808460 40145	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₉	DTSD341	0.5S	200808460 40142	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₁₀	DTSD341	0.5S	200808460 40141	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₁₁	DTSD341	0.5S	200808460 40151	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₁₂	DTSD341	0.5S	200808460 40143	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₁₃	DTSD341	0.5S	111008957 6000011	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021
m ₁₄	DTSD341	0.5S	200808460 40150	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021

M _{10kV}	DTSD318	1.0	60014972	12-02-2018	11-02-2019
				11-02-2019	10-02-2020
				10-02-2020	09-02-2021

4.3 Monitoring Plan

The monitoring system is specified as below:

Monitoring Organization

Roles and responsibilities have been defined for the relevant staff involved in CDM monitoring, and the prospect of nominating a responsible person has been considered. The responsible person has the overall responsibility for the monitoring system on this project.

A responsible person manages the process of training new staff, ensuring trained staffs perform the monitoring duties and that where trained monitoring staffs are absent, and the integrity of the monitoring system is maintained by other trained staff.

Records of trained CDM staff have been retained by the Project Developer. A formal set of monitoring procedures such as training, data quality assurance and control, and relevant back-up procedures have been identified prior to the start of the project. A description of these procedures is provided in the following tables. It is important to note that these procedures may be based on existing on-site practices.

CDM Monitoring System Procedures

Procedure name	Description
CDM Staff training	This procedure outlines the steps to ensure that staffs receive adequate training to collect and archive complete and accurate data necessary for CDM monitoring.
CDM data and record keeping arrangements	This procedure provides details of the sites data and record keeping arrangements. The arrangements ensure that complete and accurate records are retained by the appropriate senior Manager within the quality control system.
Data collection	This procedure outlines the steps to collect the data from the meter(s).
CDM data quality control and quality assurance	Data and records are checked prior to being stored and archived. Data from the project are checked to identify possible errors or emissions. The data checks include cross checks of the electricity figures on the receipts. All records will be checked for completeness.
Electricity meter check	This procedure outlines the steps to provide regular and preventative check to the electricity meter (s)
Equipment failure	This procedure details the process of data collection in the case that a problem with any meter occurs.
Equipment calibration	This procedure details the process of organizing and managing the calibration process. The procedure includes details of how a suitable company or organization is commissioned to undertake the calibration to the relevant standards.

The above procedures are available during the verification and documented as part of the monitoring support material. The procedures may be contained in a single document (e.g. a monitoring manual) for CDM monitoring rather than separate procedures. Some of these procedures may exist in the form of existing on-site practices.

Operational procedures and responsibilities for monitoring and quality assurance of emissions reductions from the project activity

Task	On-site technician	Operations manager	Project developer's head office	Head of Maintenance/External company
Collect Data	E	R	N/A	N/A
Enter data into Spread sheet	N/A	E	R	N/A
Make monitoring reports	N/A	E	R	N/A
Archive data & reports	N/A	E	R	N/A
Calibration/ Maintenance	I	I	I	E

Legend: E=responsible for executing data collection, R=responsible for overseeing and assuring quality, I=to be informed

Monitoring equipment and installation

Given that the emission factor is calculated ex-ante, and referring to the Monitoring Methodology ACM0002, the only data to be monitored is the net electricity supplied to the grid by the Project.

The net electricity supplied by the Project to the grid is monitored through the main meter installed in the power plant 220kV high voltage side of the 35kV-to-220kV transformer, and the backup meter which is an assistant meter, is in the power plant 220kV high voltage side of the 35kV-to-220kV transformer also. When the main meter has any troubles, the project developer should employ the data monitored by the backup meter. The main meter and the backup meter are both bidirectional meters which can also monitor the electricity imported from the grid.

In addition, a spare 10kV line is used for supplying electricity in emergency case that the Project fails to generate power. The electricity from the spare 10kV line connecting with the grid monitored by the meter M10kV. Currently four other wind power project shares the same substation 220kV transmission line, the spare 10kV line, and all the involved meters. The separate meters have already been installed in the project site presented as the following meter diagram so that the electricity generation can be monitored respectively to calculate the share of this wind power project of the net electricity delivered to the grid at 220kV transformer. The project is the Phase II of five phases. The net electricity delivered to the Northeast China Power Grid by the Project has been monitored through the meters. There are totally 17 meters involved: M_{main}, M_{backup}, M_{10kV}, m₁, m₂, m₃, m₄, m₅, m₆, m₇, m₈, m₉, m₁₀, m₁₁, m₁₂, m₁₃ and m₁₄.

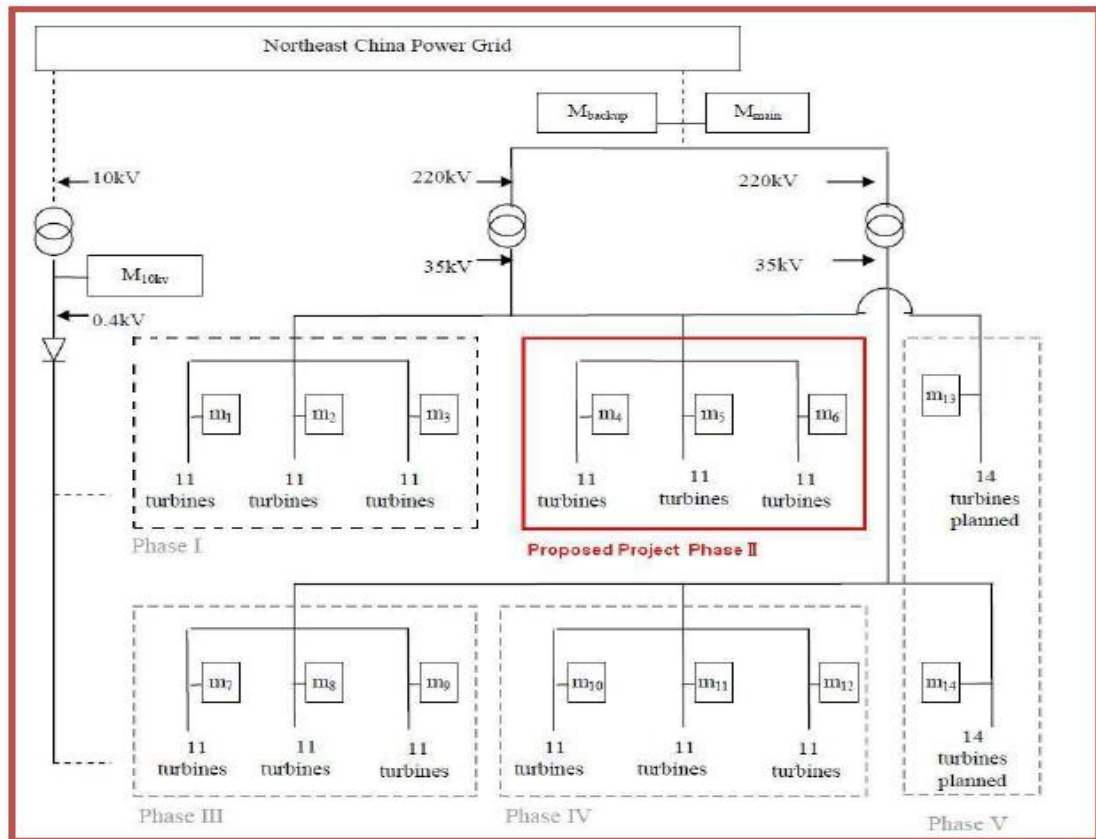
The metering diagram and the meters list are presented as follows, giving an overview of these meters.

Meters' list is as below:

Meter	Owner	Monitor	Site
M_{main}	Power company	The total electricity of the all five projects exported to the grid ($M_{main,export,y}$) and imported from the grid ($M_{main,import,y}$).	At 220kV high voltage side of the 35kV-to-220kV transformer
M_{backup}	Power company	All the electricity exported to the grid ($M_{main,export,y}$) and imported from the grid ($M_{main,import,y}$). Only when the main meter has a breakdown, the readings of back up meter will be adopted.	At 220kV high voltage side of the 35kV-to-220kV transformer
M_{10kV}	Project owner	The electricity imported of all five projects from grid through the 10kV spare line.	At enter of the spare 10kV line connect the grid
m_1	Project owner	Phase I project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_2	Project owner	Phase I project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_3	Project owner	Phase I project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_4	Project owner	The Project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_5	Project owner	The Project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_6	Project owner	The Project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_7	Project owner	Phase III project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_8	Project owner	Phase III project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_9	Project owner	Phase III project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_{10}	Project owner	Phase IV project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_{11}	Project owner	Phase IV project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_{12}	Project owner	Phase IV project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer

m_{13}	Project owner	Phase V project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer
m_{14}	Project owner	Phase V project	At power plant 35kV low voltage side of the 35kV-to-220kV transformer

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



The net electricity supplied to the grid by the Project (EG_y) will be calculated as follows:

$$EG_y = M_{main,export,y} - \frac{\sum_{i=1}^6 m_{i,export,y}}{14} - M_{main,import,y} - M_{10kv,import,y}$$

Where:

- EG_y = the calculated net electricity supplied to the grid by the Project during the monitoring period y;
- $m_{i,export,y}$ = the electricity supplied to the grid and measured by the meters m_i during the monitoring period y;
- $M_{main,export,y}$ = the electricity supplied to the grid and measured by the meter M_{main} during the monitoring period y;
- $M_{main,import,y}$ = the electricity imported from the grid and measured by the meter M_{main} during the monitoring period y;
- $M_{10kv,import,y}$ = the electricity imported from the grid and measured by the meter M_{10kv} during the monitoring period y;

i = the monitoring period y .
the number of the meters m_i which installed at power plant 35kV low voltage side of the 35kV-to-220kV transformer. $i=1\sim14$.

It is conservative to calculate the net electricity supplied to the grid by the Project by deduction of the total electricity of the all five projects imported from the grid ($M_{main,import,y}$) and the total electricity of the all five projects imported from grid through the 10kV spare line ($M_{10kv,import,y}$).

The net electricity delivered to the grid by the Project shall be recorded by the project owner and the data should be cross-checked against relevant electricity sale receipts from the grid.

The Project owner should ensure that the meter readings be readily available for VVB's verification.

Data recording procedure, management and archiving

The monitoring steps are as follows:

(1) The measured data of all the 17 meters (M_{main} , M_{backup} , M_{10kv} and m_i ($i=1\sim14$)) has been monitored continuously and recorded monthly. The Project Developer and the Grid Company check these data at the same time. The net electricity supplied to the grid by the Project is calculated based on these data.

(2) The Project Developer and the Grid Company have confirmed the electricity sales receipts of each wind project, respectively.

(3) The copies of sales receipts have been obtained to cross check the data of supplied electricity.

(4) The project developer has archived the data electronically until two years after the end of the crediting period or the last issuance of VCUs, whichever occurs later.

The cut-off time for the meter recording and sales receipts of exported and imported Electricity by meter M_{main} is at 24:00 on 24th every month.

A spare 10kV line was used for supplying electricity in emergency case that the project fails to generate power in the registered Monitoring Plan. The electricity from the spare 10kV line was monitored by the meter M_{10kv} . But according to the actual situation, the spare 10 kV line was only used for the construction purpose of the projects; when the Dagangzi Wind Power Project Phase I (the first project of the Dagangzi Wind Power Project Phase I-V) starting operation in December 2007, the spare 10 kV line was cut off but the spare 10kV line is still at the project site. Once the project meets the emergency case, the spare 10kV line will be connected again, therefore, the project owner still recorded the electricity import by the spare 10kV line monthly and calibrated the meter according to the monitor plan.

All relevant documentation such as technical drawings and reports has been stored and available for reference. All the data shall be kept until two years after the end of crediting period.

Quality Assurance and Quality Control

The quality of data has been maintained through the development of an overarching monitoring system. Relevant operating procedures have been provided to relevant monitoring staff, and the monitoring staff has been supervised.

The meters have been calibrated annually in accordance with the “Technical administrative code of electric energy metering (DL/T448 -2016)”.

All data collected on-site has been checked internally before being compiled in an electronic format, to ensure that it is complete and of appropriate quality. Electricity export by the project to the Power Grid has been cross-checked against the export electricity sales receipts and the electricity import from the Power Grid by the M_{main} to the project has been cross-checked against the import electricity sales receipts. The electricity imported from the grid via 10kV line to the Project, which was measured by the meter M_{10kV} , has been confirmed by the Power Grid as well.

Emergency procedures

When the meters have a breakdown, the electricity generation difference will be treated as follows:

- (1) When one of the main meter or backup meter has a breakdown, the readings of the other meter will be adopted;
- (2) If both the main meter and back-up meter have breakdowns, Jilin CGN Wind Power Co., Ltd and the Northeast China Power Grid shall jointly prepare a reasonable and conservative estimate of the correct reading and deducting the line losses, then provide sufficient evidence that this estimation is reasonable and conservative when DOE undertakes verification.
- (3) If any of 17 meters has breakdown, the project owner and Northeast China Power Grid shall jointly prepare a reasonable and conservative estimate of the correct reading and provide sufficient evidence that this estimation is reasonable and conservative.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

In accordance with the ACM0002, baseline emissions are calculated according to the following formula:

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

$$EG_y = M_{main,export,y} + \sum_{i=1}^6 m_{i,export,y} - M_{main,import,y} - M_{10kv,import,y}$$

Where

EG_y - Net electricity supplied to the grid during the monitoring period (MWh)

$EF_{grid,CM,y}$ - Emission factor of the grid (tCO₂/MWh) (0.9139 tCO₂/MWh as calculated ex-ante in the approved VCS PD for crediting period renewal and fixed during the second crediting period according to the methodology of ACM0002 version 20.0)

$M_{main,export,y}$ = Quantity of the electricity supplied to the grid and measured by the meter M_{main} during the monitoring period (MWh)

$M_{main,import,y}$ = Quantity of the electricity imported from the grid and measured by the meter M_{main} during the monitoring period (MWh)

$m_{i,export,y}$ = Quantity of the electricity supplied to the grid and measured by the meters m_i during the monitoring period (MWh)

i = the number of the meters installed at power plant 35kV low voltage side of the 35kV-to-220kV transformer. $i=1\sim14$.

$M_{10kv,import,y}$ = Quantity of the electricity imported from the grid and measured by the meter M_{10kv} during the monitoring period (MWh)

The electricity supplied to the grid by meter m_i and M_{main} is listed as below:

Period	Electricity supplied by phase I project monitored by m ₁ , m ₂ and m ₃ (m _{1,export,y} + m _{2,export,y} + m _{3,export,y})	Electricity supplied by phase II project monitored by m ₄ , m ₅ and m ₆ (m _{4,export,y} + m _{5,export,y} + m _{6,export,y})	Electricity supplied by phase III project monitored by m ₇ , m ₈ and m ₉ (m _{7,export,y} + m _{8,export,y} + m _{9,export,y})	Electricity supplied by phase IV project monitored by m ₁₀ , m ₁₁ and m ₁₂ (m _{10,export,y} + m _{11,export,y} + m _{12,export,y})	Electricity supplied by phase V project monitored by m ₁₃ and m ₁₄ (m _{13,export,y} + m _{14,export,y})	Total electricity supplied to the grid monitored by the meters installed on the 35kV lines (m _{1,export,y} + ... + m _{14,export,y})	Electricity supplied to the grid monitored by the main meter (M _{main,export,y})
	MWh	MWh	MWh	MWh	MWh	MWh	MWh
	A1	A2	A3	A4	A5	A	B
01-01-2019 to 24-01-2019	4298.91	4675.86	4431.42	4451.79	3585.68	21443.66	21049.952
25-01-2019 to 24-02-2019	7462.56	8183.28	7797.51	7634.97	6853.28	37931.60	37359.872
25-02-2019 to 24-03-2019	10626.00	11510.73	10203.90	10676.40	9651.04	52668.07	52389.920
25-03-2019 to 24-04-2019	11513.04	12448.17	11201.19	11593.47	10366.72	57122.59	56809.984
25-04-2019 to 24-05-2019	13437.48	13266.75	12463.29	13688.43	11318.44	64174.39	63899.968

25-05-2019 to 24-06-2019	8704.50	9128.70	8573.25	8745.03	7613.76	42765.24	42349.824
25-06-2019 to 24-07-2019	3771.60	4110.75	3720.15	4213.44	3165.40	18981.34	18470.144
25-07-2019 to 24-08-2019	4779.39	4992.96	4596.48	4952.43	4240.32	23561.58	23170.048
25-08-2019 to 24-09-2019	6042.33	5981.43	5940.90	6285.51	4105.92	28356.09	27969.920
25-09-2019 to 24-10-2019	13212.36	13041.42	12267.15	13493.76	9854.04	61868.73	61529.952
25-10-2019 to 24-11-2019	9546.39	10455.48	9586.71	10041.36	8788.64	48418.58	47930.080
25-11-2019 to 24-12-2019	5401.41	5940.48	7161.00	7761.18	5503.12	31767.19	31230.144
25-12-2019 to 31-12-2019	1224.30	1382.43	1364.16	1540.14	1139.88	6650.91	6632.032
Sub-total (2019)	100020.27	105118.44	99307.11	105077.91	86186.24	495709.97	490791.840
01-01-2020 to 24-01-2020	4270.77	4880.19	4806.27	5418.42	4027.80	23403.45	22738.144
25-01-2020 to 24-02-2020	7869.54	8877.75	7951.86	8579.34	7437.36	40715.85	39579.936
25-02-2020 to 24-03-2020	12050.85	12554.64	12312.93	12020.61	10801.56	59740.59	59290.176
25-03-2020 to 24-04-2020	12001.08	12817.98	12666.78	11466.63	11224.64	60177.11	59669.984
25-04-2020 to 24-05-2020	10026.24	10582.11	10046.40	9995.79	9156.84	49807.38	49280.000
25-05-2020 to 24-06-2020	6710.34	7250.88	6394.08	7373.31	6353.48	34082.09	33419.936
25-06-2020 to 24-07-2020	4450.74	4614.75	4368.63	5024.88	4081.28	22540.28	21979.936
25-07-2020 to 24-08-2020	3211.95	3325.35	3098.76	3489.99	2851.80	15977.85	15520.032
25-08-2020 to 24-09-2020	8708.70	8880.48	8446.20	9264.57	7850.08	43150.03	42709.920
25-09-2020 to 24-10-2020	10401.30	10914.75	10280.55	11025.42	8709.68	51331.70	50979.808
25-10-2020 to 24-11-2020	9759.54	10134.18	9840.60	10114.02	8797.88	48646.22	48050.112
25-11-2020 to 24-12-2020	7367.22	8305.92	8255.10	8142.75	6755.00	38825.99	38050.144
25-12-2020 to 31-12-2020	1142.40	1298.43	1268.61	1454.25	1025.36	6189.05	6150.144
Sub-total (2020)	97970.67	104437.41	99736.77	103369.98	89072.76	494587.59	487418.272
Total	197990.94	209555.85	199043.88	208447.89	175259.00	990297.56	978210.112

Note: The electricity supplied to the grid by meter m_i and M_{main} during the period from 25-12-2019 to 31-12-2019 and the period from 25-12-2020 to 31-12-2020 were calculated by the meter readings on 25-12-2019, 31-12-2019, 25-12-2020 and 31-12-2020, which were sourced from the daily records carried out by the project owner. The relevant certificate issued by the power grid company was used to take the crosscheck.

The electricity imported from the grid and measured by the meter M_{10kV} is as below:

A spare 10kV line was used for supplying electricity in emergency case that the project fails to generate power in the registered Monitoring Plan. The electricity from the spare 10kV line was

monitored by the meter M_{10kV} . But according to the actual situation, the spare 10 kV line was only used for the construction purpose of the projects; when the Dagangzi Wind Power Project Phase I (the first project of the Dagangzi Wind Power Project Phase I-V) starting operation in December 2007, the spare 10 kV line was cut off but the spare 10kV line is still at the project site. Once the project meet the emergency case, the spare 10kV line will be connected again, therefore, the project owner still recorded the electricity import by the spare 10kV line monthly and calibrated the meter according to the MP. In this monitoring period, the electricity imported from the grid and measured by the meter M_{10kV} is 0MWh.

$$M_{10kV,import,y} = 0MWh \quad (C)$$

The electricity imported from the grid and measured by meter M_{main} used for ERs calculation is listed as follows:

Period	Electricity imported from the grid monitored by the main meter ($M_{main,import,y}$)		
	Monitoring value	Value on receipts	Conservative value
	MWh	MWh	MWh
	D	E	F=MAX(D,E)
01-01-2019 to 24-01-2019	99.264	99.264	99.264
25-01-2019 to 24-02-2019	83.072	83.072	83.072
25-02-2019 to 24-03-2019	68.288	68.288	68.288
25-03-2019 to 24-04-2019	71.808	71.808	71.808
25-04-2019 to 24-05-2019	51.040	51.040	51.040
25-05-2019 to 24-06-2019	130.592	130.592	130.592
25-06-2019 to 24-07-2019	230.912	230.912	230.912
25-07-2019 to 24-08-2019	99.616	99.616	99.616
25-08-2019 to 24-09-2019	109.824	109.824	109.824
25-09-2019 to 24-10-2019	79.552	79.552	79.552
25-10-2019 to 24-11-2019	102.432	102.432	102.432
25-11-2019 to 24-12-2019	174.944	174.944	174.944
25-12-2019 to 31-12-2019	49.280	49.280	49.280
Sub-total (2019)	1350.624	1350.624	1350.624
25-12-2019 to 24-01-2020	169.312	169.312	169.312
25-01-2020 to 24-02-2020	137.984	137.984	137.984
25-02-2020 to 24-03-2020	103.488	103.488	103.488
25-03-2020 to 24-04-2020	57.024	57.024	57.024
25-04-2020 to 24-05-2020	89.408	89.408	89.408
25-05-2020 to 24-06-2020	67.584	67.584	67.584
25-06-2020 to 24-07-2020	146.432	146.432	146.432
25-07-2020 to 24-08-2020	109.120	109.120	109.120
25-08-2020 to 24-09-2020	156.992	156.992	156.992
25-09-2020 to 24-10-2020	75.328	75.328	75.328
25-10-2020 to 24-11-2020	56.672	56.672	56.672

25-11-2020 to 24-12-2020	69.696	69.696	69.696
25-12-2020 to 31-12-2020	39.424	39.424	39.424
Sub-total (2020)	1278.464	1278.464	1278.464
Total	2629.088	2629.088	2629.088

Note: The electricity imported from the grid by meter M_{main} during the period from 25-12-2019 to 31-12-2019 and the period from 25-12-2020 to 31-12-2020 were calculated by the meter readings on 25-12-2019, 31-12-2019, 25-12-2020 and 31-12-2020, which were sourced from the daily records carried out by the project owner. The relevant certificate issued by the power grid company was used to take the crosscheck.

The electricity supplied to the grid by the Project used for ERs calculation is listed as follows:

Period	Electricity supplied to the grid by the Project used for ERs calculation		
	Calculated value	Value on receipts	Conservative value
	MWh	MWh	MWh
	$G=B \times A2-A$	H	$I=MIN(G:H)$
01-01-2019 to 24-01-2019	4590.011	4590.000	4590.000
25-01-2019 to 24-02-2019	8059.937	8060.000	8059.937
25-02-2019 to 24-03-2019	11449.940	11450.000	11449.940
25-03-2019 to 24-04-2019	12380.047	12380.000	12380.000
25-04-2019 to 24-05-2019	13210.019	13210.000	13210.000
25-05-2019 to 24-06-2019	9040.025	9040.000	9040.000
25-06-2019 to 24-07-2019	4000.041	4000.000	4000.000
25-07-2019 to 24-08-2019	4909.990	4910.000	4909.990
25-08-2019 to 24-09-2019	5899.971	5900.000	5899.971
25-09-2019 to 24-10-2019	12970.008	12970.000	12970.000
25-10-2019 to 24-11-2019	10349.994	10350.000	10349.994
25-11-2019 to 24-12-2019	5840.052	5840.000	5840.000
25-12-2019 to 31-12-2019	1378.506	1379.000	1378.506
Sub-total (2019)	104078.541	104079.000	104078.337
25-12-2019 to 24-01-2020	4741.457	4741.000	4741.000
25-01-2020 to 24-02-2020	8630.073	8630.000	8630.000
25-02-2020 to 24-03-2020	12459.984	12460.000	12459.984
25-03-2020 to 24-04-2020	12709.960	12710.000	12709.960
25-04-2020 to 24-05-2020	10470.062	10470.000	10470.000
25-05-2020 to 24-06-2020	7110.008	7110.000	7110.000
25-06-2020 to 24-07-2020	4500.029	4500.000	4500.000
25-07-2020 to 24-08-2020	3230.068	3230.000	3230.000
25-08-2020 to 24-09-2020	8789.903	8790.000	8789.903
25-09-2020 to 24-10-2020	10839.927	10840.000	10839.927
25-10-2020 to 24-11-2020	10009.996	10010.000	10009.996
25-11-2020 to 24-12-2020	8139.946	8140.000	8139.946
25-12-2020 to 31-12-2020	1290.268	1290.000	1290.000
Sub-total (2020)	102921.682	102921.000	102920.716

Total	207000.223	207000.000	206999.054
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Note: The electricity supplied to the grid by the Project during the period from 25-12-2019 to 31-12-2019 and the period from 25-12-2020 to 31-12-2020 were calculated by the equation of $G=B \times A2/A$. The relevant certificate issued by the power grid company was used to take the crosscheck.

The net electricity supplied to the grid by the Project used for ERs calculation is listed as follows:

Period	Net electricity supplied to the grid by the project (EG _{facility,y})			
	Electricity supplied to the grid by the Project used for ERs calculation	Electricity imported from the grid monitored by the main meter (M _{main,import,y})	Electricity imported from the grid via the 10kV line by the meter M10kV (M _{10kV,import,y})	Net electricity supplied to the grid by the project (EG _{facility,y})
	MWh	MWh	MWh	MWh
	I	F	C	J=I-F-C
01-01-2019 to 24-01-2019	4590.000	99.264	0.000	4490.736
25-01-2019 to 24-02-2019	8059.937	83.072	0.000	7976.865
25-02-2019 to 24-03-2019	11449.940	68.288	0.000	11381.652
25-03-2019 to 24-04-2019	12380.000	71.808	0.000	12308.192
25-04-2019 to 24-05-2019	13210.000	51.040	0.000	13158.960
25-05-2019 to 24-06-2019	9040.000	130.592	0.000	8909.408
25-06-2019 to 24-07-2019	4000.000	230.912	0.000	3769.088
25-07-2019 to 24-08-2019	4909.990	99.616	0.000	4810.374
25-08-2019 to 24-09-2019	5899.971	109.824	0.000	5790.147
25-09-2019 to 24-10-2019	12970.000	79.552	0.000	12890.448
25-10-2019 to 24-11-2019	10349.994	102.432	0.000	10247.562
25-11-2019 to 24-12-2019	5840.000	174.944	0.000	5665.056
25-12-2019 to 31-12-2019	1378.506	49.280	0.000	1329.226
Sub-total (2019)	104078.337	1350.624	0.000	102727.713
25-12-2019 to 24-01-2020	4741.000	169.312	0.000	4571.688
25-01-2020 to 24-02-2020	8630.000	137.984	0.000	8492.016
25-02-2020 to 24-03-2020	12459.984	103.488	0.000	12356.496
25-03-2020 to 24-04-2020	12709.960	57.024	0.000	12652.936
25-04-2020 to 24-05-2020	10470.000	89.408	0.000	10380.592
25-05-2020 to 24-06-2020	7110.000	67.584	0.000	7042.416
25-06-2020 to 24-07-2020	4500.000	146.432	0.000	4353.568
25-07-2020 to 24-08-2020	3230.000	109.120	0.000	3120.880
25-08-2020 to 24-09-2020	8789.903	156.992	0.000	8632.911
25-09-2020 to 24-10-2020	10839.927	75.328	0.000	10764.599
25-10-2020 to 24-11-2020	10009.996	56.672	0.000	9953.324
25-11-2020 to 24-12-2020	8139.946	69.696	0.000	8070.250
25-12-2020 to 31-12-2020	1290.000	39.424	0.000	1250.576
Sub-total (2020)	102920.716	1278.464	0.000	101642.252

Total	206999.054	2629.088	0.000	204369.966
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As shown above, the net electricity supplied to the grid during this monitoring period (from 01-01-2019 to 31-12-2020) is 204,369.966 MWh.

The baseline emission is:

$$BE_{2019} = EG_{2019} \times EF_{grid,CM,y} = 102,727.713 \text{ MWh} \times 0.9139 \text{ tCO}_2\text{e/MWh} = 93,882 \text{ tCO}_2\text{e}$$

$$BE_{2020} = EG_{2020} \times EF_{grid,CM,y} = 101,642.252 \text{ MWh} \times 0.9139 \text{ tCO}_2\text{e/MWh} = 92,890 \text{ tCO}_2\text{e}$$

$$BE_y = EG_y \times EF_{grid,CM,y} = 204,369.966 \text{ MWh} \times 0.9139 \text{ tCO}_2\text{e/MWh} = 186,772 \text{ tCO}_2\text{e}$$

5.2 Project Emissions

According to ACM0002 (Version 20.0), no project emissions were to be counted by the Project.

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

5.3 Leakage

According to the baseline methodology ACM0002 (version 20.0), the leakage of the Project is not considered.

5.4 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 2019	93,882	0	0	93,882
Year 2020	92,890	0	0	92,890
Total	186,772	0	0	186,772

The annual average emission reductions estimated in the approved VCS PD for crediting period renewal is 94,250 tCO₂e, so the estimated amount of emission reductions for the corresponding 731 days (the duration of this monitoring period) is $731/365 \times 94,250 = 188,758 \text{ tCO}_2\text{e}$, which is a little higher than the actual value of 186,772 tCO₂e.