HEBEI KANGBAO WOLONGTUSHAN 30 MW WIND FARM PROJECT

Document Prepared by Beijing Cronus Technology Counsultancy Centre.

Project Title	HEBEI KANGBAO WOLONGTUSHAN 30 MW WIND FARM PROJECT
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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The Hebei Kangbao Wolongtushan 30 MW Wind Farm Project (hereafter referred as "the project") is a Greenfield grid-connected wind power project. The project is invested, constructed and operated by Hebei Construction Investment Zhangjiakou Wind Energy Co, Ltd.

The project will help reduce greenhouse gas (GHG) emissions generated from the high-growth, coal-dominated power generation in North China Power Grid (hereinafter referred to as NCPG). When the proposed project is operated, the electricity generated by the proposed project will displace part of the electricity from the NCPG, and thus greenhouse gas (GHG) generated by coal-fired power plants could be reduced.

The project is a newly constructed wind farm. The total capacity of the project is 30MW and a total of 40 wind turbines with 750kW per-unit capacities were installed. The expected annual electricity supplied to the NCPG is 57,946MWh and the estimated annual GHG emission reductions are 59,089 tCO_2e.

Some important dates for the project are as follows:
The date to start construction: 16/10/2005;
The date of first wind turbine started operation: 30/09/2006;
The date of all wind turbines put into full operation: 01/11/2006;

This monitoring period is from 01/07/2012 to 29/09/2016 (1552 days). The total net electricity supplied to the grid by the project in this monitoring period are 256,570.527MWh and the emission reductions in this monitoring period are 261,621tCO_2.

1.2 Sectoral Scope and Project Type

This category would fall within sectoral scope 1: energy industries (Renewable sources).

Project type: wind power project.

This project is not grouped project.

1.3 Project Proponent

Organization name	Hebei Construction Investment Zhangjiakou Wind Energy Co, Ltd.
Contact person	Huang Hai

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1.4 Other Entities Involved in the Project

Organization name	Beijing Cronus Technology Counsultancy Centre
Role in the Project	Consultancy
Contact person	Li Qiang
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1.5 Project Start Date

30/09/2006 (operation date, which means the date that started to generate GHG emission reductions)

1.6 Project Crediting Period

The first crediting period under VCS is from 30/09/2006-29/09/2016 (10years, renewable). Therefore*, the total* crediting period under VCS would have been from 30/09/2006-29/09/2036 (30 years). However, the project was registered under CDM on 05/04/2007 with registration number of 0878. And *the* total crediting period under CDM is from 05/04/2007 to 04/04/2028 (21years).

According to VCS standard, the total crediting period under VCS is from 30/09/2006 to 29/09/2027.

1.7 Project Location

The project site is located in the south of Kaobao County, Zhangjiakou City of Hebei Province.. The Project has geographical coordinates with north latitude of 41°51' and east longitude of 114°28'.

It is crossed by Hua (de)-Kang (bao) road. All of the 40 sets of wind turbines are sited on Wolongtu Mountain. Figure 1 shows the location of the project:

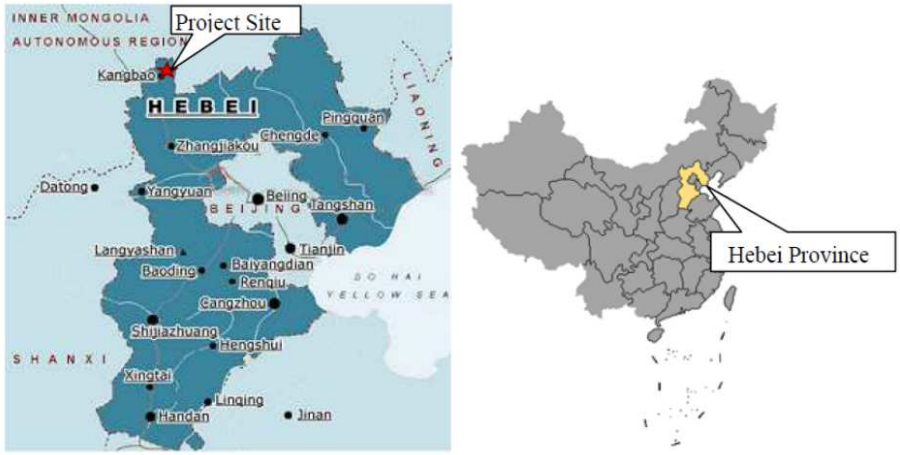

Figure 1. The location of the project

1.8 Title and Reference of Methodology

The project applies the approved consolidated baseline and monitoring methodology ACM0002

"Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 06).

The methodology also refers to the following tools:

Tool for the demonstration and assessment of additionality (Version 02).

1.9 Participation under other GHG Programs

The Project has been registered as a CDM project on 05/04/2007 with registration number of 0878. It has been issued seven times under CDM mechanism, covering monitoring period from 05/04/2007 to 30/06/2012.

The credits in this monitoring period (01/07/2012 to 29/09/2016) has not been counted and will not be counted under other kind of GHG programs.

1.10 Other Forms of Credit

The project has been registered as a CDM project on 05/04/2007 with registration number of 0878. It has been issued seven times under CDM mechanism, covering monitoring period from 05/04/2007 to 30/06/2012.

The Project has not created another form of environmental credit, and the Project will not create other environmental credit in the future.

1.11 Sustainable Development

The proposed project will not only supply renewable electricity to grid, but also contribute to sustainable development of the local community, the host country and the world by means of:

1. GHG emission reduction

The proposed project activity will achieve obvious GHG emission reductions by avoiding CO_2 emissions.

2. Pollutants emission reduction through replacing fossil fuel combustion

The proposed project is to replace electricity generated by grid-connected coal-fired power plants in the NCPG, and thus reduce fossil fuel consumption and avoid pollutants emission, such as sulfur dioxide and dust, brought by fossil fuel combustion. Therefore, the proposed project has obvious environmental benefit.

3. Employment opportunities

The conducting of the proposed project will create certain job opportunities for local people during operation and achieve the economic growth in the region. Furthermore, the proposed project plans to utilize domestic made state-of-the-art wind turbines to promote the wind turbine manufacturing industries.

2 SAFEGUARDS

2.1 No Net Harm

The Environmental Impact Assessment of the proposed project was completed by a third party of environment assessment institute and approved by the Environment Protection Bureau of Hebei Province on 19/07/2005. Main contents of the Environmental Impact Assessment are summarized as follows:

Construction Phase

1) Atmospheres

The largest impact scope of dust emission is 420 meters lee. The closest distance between construction site and local village is 500 meters. Therefore, there is not so much environmental impact on local air quality.

2) Noise

Noise during construction is mainly caused by equipment installation and operation. Since the closest distance between construction site and local village is 500 meters, the noise is acceptable during the construction.

3) Solid waste

There will be at most 700 staffs work on site. They will create 1.1 ton solid waste per day. The waste will be collected and moved to close landfill plant periodically.

4) Hydro

Waste water is mainly produced by daily water discharged by workers. Minimum amount of waste water will be discharged directly on the earth. There is no surface water at the project site. So the discharged waste water will be absorbed by earth or vaporized. Therefore surface water will not be polluted.

5) Ecological impact

There is no endangered species live in this area. The project owner will strictly control the on-site construction scope, take vegetation protection into account; meanwhile, restore vegetation generation based on restoration framework, so it will not influence the ecological environment very much.

Operation Phase

1) Hydro

The treated waste water of the project site fulfil standard of<water quality standard of agricultural irrigation>(GB5084-1992). The project owner will prepare one pump to treat waste water. After pumped, the waste water will be composted after decomposed by anaerobic bacteria in septic tank, which will cause little impact on surface water quality.

2) Noise

The Project will produce noise to surrounding areas between 37.1-41.0dB (A) after the project put into production. This is acceptable noise level. Consider that there is no other noise source in the villages nearby, the background noise level is relative low. So the operation noise of the Project can be within level I of <Urban area environmental noise standard>. It will not cause negative impact to local inhabitants.

3) Electromagnetism impact

Wind farm operation will create electromagnetism. However, its density is very low and the electromagnetism is far from local residents area, so it will not cause health damage to local people.

4) Ecological impact

Through strengthening supervision, local landscape will be restored. Animals will come back. The project site is not within the migrate channel of local Aves; therefore, the operation of this project will only have positive impact on local ecological environment. Also, this wind farm will become a new scene spot to local tourism.

Conclusion

The project does not have any major adverse impacts on the environment during its construction and operation phase. Therefore, this project does not do harm to local environment.

2.2 Local Stakeholder Consultation

There was no residence living within 5km from the project location through investigation at pre-feasibility stage (It is further confirmed by DOE at on-site validation on 18/06/2006).

After the Project was put into construction, on 25/04/2006, the Project owner published an opinion invitation letter on the board of a stock farm, which is the nearest place from the Project site, for 10 business days to invite public comments on the construction and environmental impacts after putting into production.

Meanwhile, on 08/05/2006, a meeting was held in the office of Kangbao Government to complete a survey of people's opinion and Several Communities' opinion on this wind farm construction and its environmental impacts after putting into production. Stakeholder involved in this project includes:

Government: Kangbao Country Development and Reform Bureau

NGOs: Hebei Province Electricity Power Design Institute

Enterprise: Sanmianjing Stock Farm

Inhabitants: Inhabitants from Kangbao Country

Others: the Project owner

Comments received through these surveys are summarized as follows. The commission of local village issued a support letter for the Project.

From the outcome of the survey, people almost agreed this wind farm's construction would actively promote local wind farm development, decrease environment pollution and improve local environmental quality. In addition, the construction of this wind farm would facilitate with the optimization of society structure, economic and culture development in the area close to the wind farm. Abundant supply of electricity power could promote the development of third industry in local. It has potential political and economic impacts on building local society which aims at well living standard.

In addition, after the public comments invitation letter were published for 10 business days, the stock farm committee collected all the suggestions from the stakeholders. It is suggested that the implementation of the project would not only utilized the water resources for power generation but also achieving the GHG mitigation by substituting the fossil-fuel power generation. The electricity generated by the proposed projects would be supplied for residential and industrial use. Knowing that the project would not bring any environmental pollution to local environment, all stakeholders agree on the project.

In addition,

- ✓ Wind power project, as a renewable project, is conducive to improving the environment and reducing pollution of the area.
- ✓ As there was no residence living within 5 km from the project location, the construction of the project would not have negative impacts on the well-beings of local residents.
- ✓ The construction and operation of the project can accelerate the development of transportation, construction material and construction-related industries in the area driving its economy forward.

2.3 AFOLU-Specific Safeguards

This project is not an AFOLU project. Therefore, this section is not applicable.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project is a Greenfield grid-connected wind power project. The total installed capacity of the project is 30 MW equipped with 40 sets of wind turbines with a unit installed capacity of 750kW.

Construction of the project was started on 16/10/2005. The date of first wind turbine started operation was 30/09/2006. And the date of all wind turbine started full operation was 01/11/2006.

The project applies WTG-box transformer unit to boost voltage of the generated electricity from 690V to 35kV. Then the electricity will be transmitted to the main transformers via 35kV collection lines. The Project is designed to deliver 57,946 MWh of electricity to the NCPG per year via a 110 kV outlet circuit.

Major technical parameters of the key equipments employed by the project are illustrated in the following table.

Table 1. Main technical parameters of the Project

Parameters	Unit	Value
Type of turbine	/	Goldwind-S50/750
Rated output	kW	750
Quantity of blades	/	3

During this monitoring period (01/07/2012 to 29/09/2016), the project operated normally. No equipment is overhauled or replaced in this monitoring period. No emergencies which may impact the methodology application and monitoring occurred during the monitoring period.

3.2 Deviations

3.3.1 Methodology Deviations

There is no methodology deviation in this monitoring period.

3.3.2 Project Description Deviations

There is a deviation for the crediting period. The project is registered under Voluntary Carbon Standard, version 1 and completed validation before 19/03/2020, thus it remains eligible to apply the crediting period requirements under Voluntary Carbon Standard, version 1 which shall be a maximum of ten years and may be renewed at most twice, so the first renewable crediting period of the project shall be updated from 30/09/2006 ~ 14/04/2007 to 30/09/2006 ~ 29/09/2016 (10 years).

3.3 Grouped Projects

Not applicable because this is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF_y
Data unit	tCO_{2e}/MWh
Description	Baseline emission factor of NCPG
Source of data	Registered PDD
Value applied	1.0197
Justification of choice of data or description of measurement methods and procedures applied	Official statistical data
Purpose of Data	Calculation of baseline emissions
Comments	This parameter is ex-ante determined in the registered CDM-PDD and fixed in the first crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{net,y}$
Data unit	MWh
Description	Net electricity supplied to the Grid by the Project.
Source of data	Calculated
Description of measurement methods and procedures to be applied	Calculated as $EG_{net,y}= EG_y - EG_{im\text{-}110kV,y} - EG_{im\text{-}10kV,y}$
Frequency of monitoring/recording	Continuously measurement and monthly recording
Value monitored	256,570.527
Monitoring equipment	The information of the electricity meter is in the following table.

QA/QC procedures to be applied	The electricity meters are calibrated by qualified entity according to national standards. The electricity records are crosschecked with sales receipts. The conservative value is used for calculation.
Purpose of the data	Calculation of baseline emissions
Calculation method	$EG_{net,y} = EG_y - EG_{im\text{-}110kV,y} - EG_{im\text{-}10kV,y}$
Comments	/

Data / Parameter	EG_y
Data unit	MWh
Description	Electricity supplied to the Grid by the Project in year y
Source of data	This parameter is continuously measured by electricity meter 102. The meter readings are read and recorded by Project owner. Sales receipts are used for cross check.
Description of measurement methods and procedures to be applied	It is continuously measured by the bi-directional meters and monthly recorded by the project owner.
Frequency of monitoring/recording	Continuously measured and monthly recorded
Value monitored	256,943.317
Monitoring equipment	The information of the electricity meter is in the following table.
QA/QC procedures to be applied	The electricity meters are calibrated by qualified entity according to national standards. The main information is shown below:

Type	ZFD402C
Location	electricity meter installed at 110kV main transmission line in Project activity site
Serial number	09070111440059
Accuracy	0.2s
Calibration frequency	once a year
Calibration date	02/07/2011 02/07/2012 02/07/2013 02/07/2014 02/07/2015 02/07/2016

Purpose of the data	Calculation of baseline emissions
Calculation method	/
Comments	/

Data / Parameter	$EG_{im\text{-}110kV,y}$
Data unit	MWh
Description	Electricity imported from the Grid by the Project through 110 kV line.
Source of data	Measured by electricity meter 102.
Description of measurement methods and procedures to be applied	It is continuously measured by the bi-directional meter and monthly recorded by the project owner.
Frequency of monitoring/recording	Continuously measured and monthly recorded
Value monitored	380.790
Monitoring equipment	The information of the electricity meter is in the following table.
QA/QC procedures to be applied	The electricity meters are calibrated by qualified entity according to national standards. The main information is shown below:

Type	ZFD402C
Location	electricity meter installed at 110kV main transmission line in Project activity site
Serial number	09070111440059
Accuracy	0.2s
Calibration frequency	once a year
Calibration date	02/07/2011 02/07/2012 02/07/2013 02/07/2014 02/07/2015 02/07/2016

Purpose of the data	Calculation of baseline emissions
Calculation method	/
Comments	/

<table>
<tr><td>Data / Parameter</td><td>$EG_{im\text{-}10kV,y}$</td></tr>
<tr><td>Data unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Electricity imported from the Grid by the Project through 10 kV backup line</td></tr>
<tr><td>Source of data</td><td>Measured by electricity meter</td></tr>
<tr><td>Description of measurement methods and procedures to be applied</td><td>This parameter is continuously measured by electricity meter installed at the 10kV backup line and is monthly recorded. Sales receipts are used for cross check.

The accuracy of M5 is 1.0</td></tr>
<tr><td>Frequency of monitoring/recording</td><td>Continuously measured and monthly recorded</td></tr>
<tr><td>Value monitored</td><td>0</td></tr>
<tr><td>Monitoring equipment</td><td>The information of the electricity meter is in the following table.</td></tr>
<tr><td>QA/QC procedures to be applied</td><td>The electricity meter is calibrated by qualified entity according to national standards. The main information is shown below:

<table><tr><td>Type</td><td>DSSD331</td></tr><tr><td>Location</td><td>electricity meter installed at the 10kV backup line in Project activity site</td></tr><tr><td>Serial number</td><td>00002023</td></tr><tr><td>Accuracy</td><td>1.00 (not exceed☐2% of full-scale rating which is onsistent with the RMP)</td></tr><tr><td>Calibration frequency</td><td>once a year</td></tr><tr><td>Calibration date</td><td>02/07/2011
02/07/2012
02/07/2013
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02/07/2015
02/07/2016</td></tr></table></td></tr>
<tr><td>Purpose of the data</td><td>Calculation of baseline emissions</td></tr>
<tr><td>Calculation method</td><td>/</td></tr>
<tr><td>Comments</td><td>/</td></tr>
</table>

4.3 Monitoring Plan

1. Monitoring data

The net electricity ($EG_{net,y}$) supplied to the grid by the project will not be measured directly. It is the difference of the following parameters.

1) EG_y is the electricity supplied to the Grid by the Project in year y;
2) $EG_{im\text{-}110kV,y}$ is the electricity imported from the Grid by the Project through 110 kV line;
3) $EG_{im\text{-}10kV,y}$ is the electricity imported from the Grid by the Project through 10 kV backup line.

2. Project Integrate Management

This monitoring plan has been implemented by Hebei Construction Investment Zhangjiakou Wind Energy Co, Ltd., the project owner. The Project Manager is responsible for implementation and supervision of the monitoring activity and liaison in this CDM project. The data report personnel are responsible for managing, processing and submitting data. The QC personnel are responsible for calibration of meters and supervision of the whole process quality. The training personnel is responsible for setting up training programme which is able to ensure the successful operation and the data & documents management.

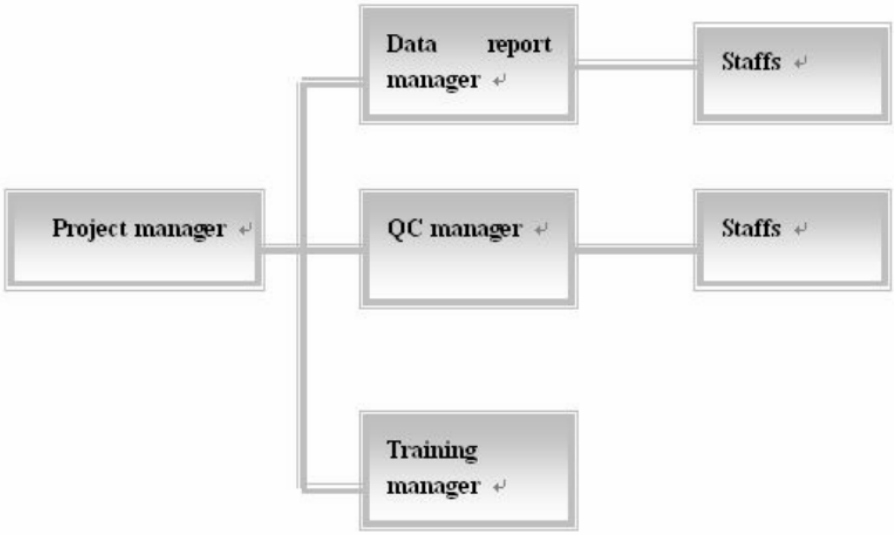

Figure 2. Monitoring System Structure

3. Measurement and calibration of equipment and meters

The electricity generated by the project will be transmitted to on-site transformers which increase the voltage to 110 kV, and then delivered to NCPG by 110kV main transmission line. The simplified electrical grid connection diagram is shown in the following figure 3:

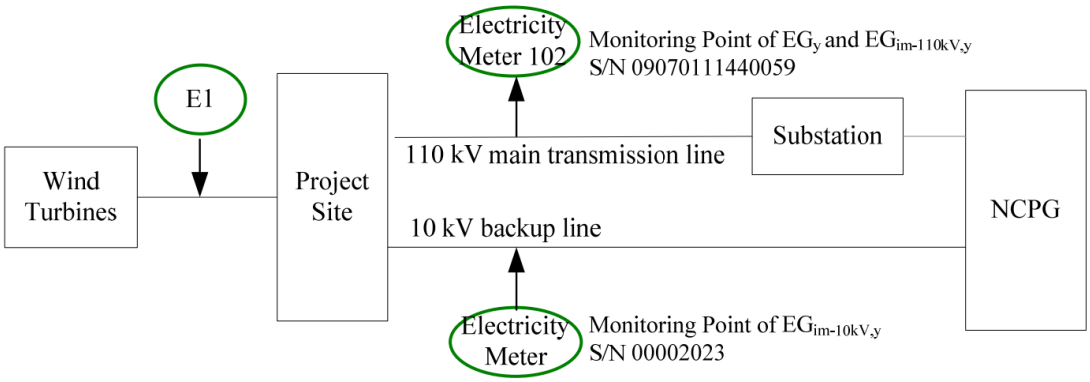

Figure 3. The monitoring points of the project

Unit electricity generation by each turbine E1 will be online monitored by the automatic system. The computer system will automatically obtain data and save it. The project owner established the monitoring system. The equipment will be maintained every year according to national standard to ensure its accuracy.

Electricity supplied to the North China Power Grid through the main transmission line by the Project (EG_y) will be continuously measured by electricity meter(s) and will be monthly recorded. Accuracy of the meter(s) here is (are) 0.2s. Electricity meter(s) involved of EG_y will be calibrated once a year by qualified entity to ensure its accuracy. Calibration certificates will be maintained by the Project owner and provided to DOE for verification.

Electricity imported from the Grid through the main transmission line by the Project ($EG_{im-110kV,y}$) will be measured by same electricity meter(s) of EG_y and will be monthly recording. Accuracy of the meter(s) here is (are) 0.2s. Electricity meter(s) involved of $EG_{im-110kV,y}$ will be calibrated once a year by qualified entity to ensure its accuracy. Calibration certificates will be maintained by the Project owner and provided to DOE for verification.

Electricity imported from the Grid through the 10kV backup line by the Project ($EG_{im-10kV,y}$) will be measured by electricity meter(s) installed at the 10kV backup line and will be monthly recorded. Electricity meter(s) here will be equipped in line with relevant national regulation. The error resulting from the meter(s) here shall not exceed ±2% of full-scale rating. Electricity meter(s) involved of $EG_{im-10kV,y}$ will be calibrated once per five years by qualified entity to ensure its accuracy. Calibration certificates will be maintained by the Project owner and provided to DOE for verification.

4. Quality Assurance and Quality Control Procedure

Electricity supplied to Gird by the project (EGy) is monitored by electricity meter(s). The data is stored in Grid Company and Project owner. In addition, the data is sent to Millennium Capital Service for storage and analysis at the beginning of each month.

Electricity imported from the Grid through the main transmission line by the Project ($EG_{im-110kV,y}$) is monitored by electricity meter(s). The data is stored in Grid Company and Project owner. In

addition, the data is sent to Millennium Capital Service for storage and analysis at the beginning of each month.

Electricity imported from the Grid through the 10kV backup line by the Project ($EG_{im-10kV,y}$) is monitored by electricity meter(s). The data is stored in Grid Company and Project owner. In addition, the data is sent to Millennium Capital Service for storage and analysis.

5. Information collection and management

All physical documents including the readings in electronic and manual form will be stored by the project owner. All data collected as part of monitoring will be kept at least for 2 years after the end of the last crediting period by the project owner.

6. Procedure of emergency handling

In case metering equipment is damaged and no reliable readings can be recorded, the project owner will estimate net supply by the project activity according to the following procedure:

a. In case the main meter is damaged only:

By reading the backup meter.

b. In case both the main meter and the backup one are damaged:

The project owner and the grid company will jointly calculate a conservative estimate of power supplied to the grid. A statement will be prepared indicating

- The background to the damage to metering equipment
- The assumptions used to estimate net supply to the grid for the days for which no record could be recorded the estimation of power supplied to the grid.

7. Monitoring Report

The Project owner will annually prepare a monitoring report which will include a summary of metering values of power supplied to and received from the grid, a report on calibration and a calculation of emission reductions.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

According to ACM0002, the baseline emission during this verification period is calculated as

$BEy = EG_{net,y} \times EF_y$

Where:

BE_y is the baseline emissions in year y(tCO_2e)

$EG_{net,y}$ is the net electricity supplied to the grid by the project in year y (MWh);

EF_y is the baseline emission factor of NCPG, which is fixed in the first crediting period (tCO_2e/MWh)

$$EG_{net,y} = EG_y - EG_{im\text{-}110kV,y} - EG_{im\text{-}10kV,y}$$

where

EG_y is the electricity supplied to the Grid by the Project in year y;
$EG_{im\text{-}110kV,y}$ is the electricity imported from the Grid by the Project through 110 kV line;
$EG_{im\text{-}10kV,y}$ is the electricity imported from the Grid by the Project through 10 kV backup line.

The yearly electricity volume and baseline emissions are listed in following table 2.

Table 2. Baseline emissions

Period	Electricity supplied to the Grid by the Project (EG_y)(MWh)	Electricity imported from the grid by the project ($EG_{im\text{-}110kV,y}$) (MWh)	Electricity delivered to the project through the backup line ($EG_{im\text{-}10kV,y}$) (MWh)	Net electricity supplied to the grid by the project ($EG_{net,y}$) (MWh)	EF_y （tCO_2/yr)	Baseline Emissions (tCO_2e)
01/07/2012-31/12/2012	30,451.070	57.380	0.000	30,393.690	1.0197	30,992
01/01/2013-31/12/2013	60,541.684	97.520	0.000	60,444.164	1.0197	61,634
01/01/2014-31/12/2014	60,411.435	95.790	0.000	60,315.645	1.0197	61,503
01/01/2015-31/12/2015	60,646.016	79.210	0.000	60,566.806	1.0197	61,759
01/01/2016-29/09/2016[1]	44,893.112	50.890	0.000	44,850.222	1.0197	45,733
Total in this monitoring period	**256,943.317**	**380.790**	**0.000**	**256,570.527**	**5.099**	**261,621**

[1] According to Electricity sales receipts, the electricity between 2016/09/01~2016/09/30 is 717.624MWh. Thus, the electricity between 2016/09/01~2016/09/29 is calculated as 7117.624MWh*29/30=6,880.370MWh. The monthly data are shown in appendix 1.

The monthly data are shown in appendix 1.

5.2 Project Emissions

According to the ACM0002, the emission of wind power project activity is zero, i.e. PEy=0.

5.3 Leakage

According to ACM0002, the leakage of wind power project is not needed to be considered.

5.4 Net GHG Emission Reductions and Removals

In according with the registered PD,

ERy=BEy – PEy - Ly

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01/07/2012-31/12/2012	30,992	0	0	30,992
01/01/2013-31/12/2013	61,634	0	0	61,634
01/01/2014-31/12/2014	61,503	0	0	61,503
01/01/2015-31/12/2015	61,759	0	0	61,759
01/01/2016-29/09/2016	45,733	0	0	45,733
Total	**261,621**	**0**	**0**	**261,621**

The emission reductions in the registered PD are 59,089tCO_2e/yr. This monitoring period is from 01/07/2012 to 29/09/2016(1552 days). The ex-ante estimated ER for this monitoring period are 59,089*3+59,089*457/731=251,129tCO_2. And the actual ER for this monitoring period is 261,621tCO_2, which increases 4.13% than the ex-ante estimation. This would not influence the

project additionality. Based on the registered PD, when the net exported electricity increases 4.53% could the IRR reach benchmark.

There are several reasons for the electricity generation. First, wind resource is sufficient these years. Second, the wind turbines and generators are operated and maintained well. Third, renewable electricity is encouraged and the grid has a great number of demand.

APPENDIX 1: < MONTHLY ELECTRICTY SUPPLY>

Period	Electricity supplied to the Grid by the Project			Electricity imported from the Grid by the Project through 110 kV line			Electricity imported from the Grid by the Project through 10 kV backup line			Net electricity supplied to the grid by the project ($EG_{net,y}$) (MWh)
	EG_y (MWh)	Electricity from receipts (MWh)	Conservative data between A1 & B1 (MWh)	$EG_{im-110kV,y}$ (MWh)	Electricity from receipts (MWh)	Conservative data between A2 &B2 (MWh)	$EG_{im-10kV,y}$ (MWh)	Electricity from receipts (MWh)	Conservative data between A3 &B3 (MWh)	
	A1	B1	C1=min(A1,B1)	A2	B2	C2=max(A2,B2)	A3	B3	C3=max(A3,B3)	**D=C1-C2-C3**
2012/07/01 ~2012/07/31	5,671.000	5,671.000	5,671.000	7.760	7.760	7.760	0.000	0.000	0.000	5,663.240
2012/08/01 ~2012/08/31	5,400.900	5,400.900	5,400.900	13.100	13.100	13.100	0.000	0.000	0.000	5,387.800
2012/09/01 ~2012/09/30	4,261.650	4,261.650	4,261.650	5.980	5.980	5.980	0.000	0.000	0.000	4,255.670
2012/10/01 ~2012/10/31	5,237.200	5,237.200	5,237.200	11.260	11.260	11.260	0.000	0.000	0.000	5,225.940
2012/11/01 ~2012/11/30	4,651.700	4,651.700	4,651.700	9.080	9.080	9.080	0.000	0.000	0.000	4,642.620
2012/12/01 ~2012/12/31	5,228.620	5,228.620	5,228.620	10.200	10.200	10.200	0.000	0.000	0.000	5,218.420
2012Total			**30,451.070**			**57.380**			**0.000**	**30,393.690**
2013/01/01 ~2013/01/31	5,032.851	5,032.851	5,032.851	10.500	10.500	10.500	0.000	0.000	0.000	5,022.351
2013/02/01 ~2013/02/28	4,668.950	4,668.950	4,668.950	3.980	3.980	3.980	0.000	0.000	0.000	4,664.970
2013/03/01 ~2013/03/31	4,871.100	4,871.100	4,871.100	4.860	4.860	4.860	0.000	0.000	0.000	4,866.240
2013/04/01 ~2013/04/30	4,653.450	4,653.450	4,653.450	6.180	6.180	6.180	0.000	0.000	0.000	4,647.270
2013/05/01 ~2013/05/31	5,774.650	5,774.650	5,774.650	5.580	5.580	5.580	0.000	0.000	0.000	5,769.070
2013/06/01 ~2013/06/30	3,974.250	3,974.250	3,974.250	3.970	3.970	3.970	0.000	0.000	0.000	3,970.280
2013/07/01 ~2013/07/31	4,179.003	4,179.003	4,179.003	12.030	12.030	12.030	0.000	0.000	0.000	4,166.973
2013/08/01 ~2013/08/31	4,617.900	4,617.900	4,617.900	6.800	6.800	6.800	0.000	0.000	0.000	4,611.100

2013/09/01 ~2013/09/30	4,661.650	4,661.650	4,661.650	12.200	12.200	12.200	0.000	0.000	0.000	4,649.450
2013/10/01 ~2013/10/31	5,690.200	5,690.200	5,690.200	10.540	10.540	10.540	0.000	0.000	0.000	5,679.660
2013/11/01 ~2013/11/30	5,858.762	5,858.762	5,858.762	12.450	12.450	12.450	0.000	0.000	0.000	5,846.312
2013/12/01 ~2013/12/31	6,558.918	6,558.918	6,558.918	8.430	8.430	8.430	0.000	0.000	0.000	6,550.488
2013Total			**60,541.684**			**97.520**			**0.000**	**60,444.164**
2014/01/01 ~2014/01/31	5,732.210	5,732.210	5,732.210	5.380	5.380	5.380	0.000	0.000	0.000	5,726.830
2014/02/01 ~2014/02/28	5,168.140	5,168.140	5,168.140	16.210	16.210	16.210	0.000	0.000	0.000	5,151.930
2014/03/01 ~2014/03/31	5,871.138	5,871.138	5,871.138	7.290	7.290	7.290	0.000	0.000	0.000	5,863.848
2014/04/01 ~2014/04/30	4,353.120	4,353.120	4,353.120	4.480	4.480	4.480	0.000	0.000	0.000	4,348.640
2014/05/01 ~2014/05/31	4,773.838	4,773.838	4,773.838	6.510	6.510	6.510	0.000	0.000	0.000	4,767.328
2014/06/01 ~2014/06/30	3,974.650	3,974.650	3,974.650	10.220	10.220	10.220	0.000	0.000	0.000	3,964.430
2014/07/01 ~2014/07/31	5,373.800	5,373.800	5,373.800	3.870	3.870	3.870	0.000	0.000	0.000	5,369.930
2014/08/01 ~2014/08/31	4,613.668	4,613.668	4,613.668	10.190	10.190	10.190	0.000	0.000	0.000	4,603.478
2014/09/01 ~2014/09/30	4,461.653	4,461.653	4,461.653	10.620	10.620	10.620	0.000	0.000	0.000	4,451.033
2014/10/01 ~2014/10/31	5,379.260	5,379.260	5,379.260	8.220	8.220	8.220	0.000	0.000	0.000	5,371.040
2014/11/01 ~2014/11/30	5,158.228	5,158.228	5,158.228	12.400	12.400	12.400	0.000	0.000	0.000	5,145.828
2014/12/01 ~2014/12/31	5,551.730	5,551.730	5,551.730	0.400	0.400	0.400	0.000	0.000	0.000	5,551.330
2014Total			**60,411.435**			**95.790**			**0.000**	**60,315.645**
2015/01/01 ~2015/01/31	6,019.220	6,019.220	6,019.220	4.800	4.800	4.800	0.000	0.000	0.000	6,014.420
2015/02/01 ~2015/02/28	4,891.470	4,891.470	4,891.470	3.960	3.960	3.960	0.000	0.000	0.000	4,887.510
2015/03/01 ~2015/03/31	5,713.160	5,713.160	5,713.160	10.210	10.210	10.210	0.000	0.000	0.000	5,702.950
2015/04/01 ~2015/04/30	5,873.180	5,873.180	5,873.180	6.270	6.270	6.270	0.000	0.000	0.000	5,866.910
2015/05/01 ~2015/05/31	3,893.376	3,893.376	3,893.376	8.130	8.130	8.130	0.000	0.000	0.000	3,885.246

2015/06/01 ~2015/06/30	3,813.260	3,813.260	3,813.260	4.730	4.730	4.730	0.000	0.000	0.000	3,808.530
2015/07/01 ~2015/07/31	5,531.580	5,531.580	5,531.580	12.050	12.050	12.050	0.000	0.000	0.000	5,519.530
2015/08/01 ~2015/08/31	4,839.179	4,839.179	4,839.179	3.320	3.320	3.320	0.000	0.000	0.000	4,835.859
2015/09/01 ~2015/09/30	3,399.680	3,399.680	3,399.680	8.280	8.280	8.280	0.000	0.000	0.000	3,391.400
2015/10/01 ~2015/10/31	5,419.411	5,419.411	5,419.411	10.900	10.900	10.900	0.000	0.000	0.000	5,408.511
2015/11/01 ~2015/11/30	5,673.190	5,673.190	5,673.190	0.980	0.980	0.980	0.000	0.000	0.000	5,672.210
2015/12/01 ~2015/12/31	5,579.310	5,579.310	5,579.310	5.580	5.580	5.580	0.000	0.000	0.000	5,573.730
2015Total			**60,646.016**			**79.210**			**0.000**	**60,566.806**
2016/01/01 ~2016/01/31	5,819.286	5,819.286	5,819.286	7.930	7.930	7.930	0.000	0.000	0.000	5,811.356
2016/02/01 ~2016/02/29	5,983.290	5,983.290	5,983.290	10.210	10.210	10.210	0.000	0.000	0.000	5,973.080
2016/03/01 ~2016/03/31	5,728.561	5,728.561	5,728.561	4.790	4.790	4.790	0.000	0.000	0.000	5,723.771
2016/04/01 ~2016/04/30	4,790.280	4,790.280	4,790.280	3.370	3.370	3.370	0.000	0.000	0.000	4,786.910
2016/05/01 ~2016/05/31	4,801.733	4,801.733	4,801.733	5.690	5.690	5.690	0.000	0.000	0.000	4,796.043
2016/06/01 ~2016/06/31	3,303.384	3,303.384	3,303.384	4.900	4.900	4.900	0.000	0.000	0.000	3,298.484
2016/07/01 ~2016/07/31	2,681.276	2,681.276	2,681.276	6.000	6.000	6.000	0.000	0.000	0.000	2,675.276
2016/08/01 ~2016/08/31	4,904.932	4,904.932	4,904.932	2.290	2.290	2.290	0.000	0.000	0.000	4,904.932
2016/09/01 ~2016/09/29[2]	6,880.370	7117.624	6,880.370	5.710	5.710	5.710	0.000	0.000	0.000	6,880.370
2016Total			**44,893.112**			**50.890**			**0.000**	**44,850.222**
Total			**256,943.317**			**380.790**				**256,570.527**

[2] According to Electricity sales receipts, the electricity between 2016/09/01~2016/09/30 was 7117.624MWh. Thus, the electricity between 2016/09/01~2016/09/29 is calculated as 7117.624MWh*29/30=6880.370MWh.