



# HEBEI HAIXING 49.5MW WIND FARM PROJECT

Document Prepared by Demeter Venture Uk Limited

|                   |                                                                                                                                                            |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Title     | Hebei Haixing 49.5MW Wind Farm Project                                                                                                                     |
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| Project ID        | 414                                                                                                                                                        |
| Monitoring Period | 26/11/2021 to 25/05/2022 (181 days)                                                                                                                        |
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# 1 PROJECT DETAILS

## 1.1 Summary Description of the Implementation Status of the Project

Hebei Haixing 49.5MW Wind Farm Project (hereafter referred to as the project) is to generate renewable electricity using wind power resources and to sell the generated output to the Hebei Southern Power Grid. The project activity generates greenhouse gas (GHG) emission reductions by avoiding CO<sub>2</sub> emissions from electricity generation by fossil fuel power plants that supply the Hebei Southern Power Grid, which is an integral part of the North China Power Grid.

The project is located on the seashore of Haixing County, Cangzhou City, Hebei Province in North China. It involves the installation of 33 turbines, each of which have a capacity of 1500kW, providing a total installed capacity of 49.5MW. The expected yearly electricity generation in PDD is 114,999 MWh.

The Project started construction on 01/01/2007. The Project started commissioning on 14/04/2008. The project started full operation on 25/04/2008.

The estimated annual emission reductions are expected to be 96,650tCO<sub>2</sub>e during the second crediting period. This monitoring period is from 26/11/2021 to 25/05/2022 (181 days in the second crediting period). The emission reductions in this monitoring period is 50,898 tCO<sub>2</sub>.

## 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

|                   |                                                                                                                |
|-------------------|----------------------------------------------------------------------------------------------------------------|
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## 1.4 Other Entities Involved in the Project

|                            |                                                                               |
|----------------------------|-------------------------------------------------------------------------------|
| <b>Organization name</b>   | Demeter Venture Uk Limited                                                    |
| <b>Role in the Project</b> | Project participant                                                           |
| <b>Contact person</b>      | Teng Haipeng                                                                  |
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## 1.5 Project Start Date

14/04/2008 (operation date, which means the date that started to generate GHG emission reductions).

## 1.6 Project Crediting Period

According to renewed VCS PD, as this project started commission on 14/04/2008 (which means the date started to generate GHG emission reductions), as per the VCS rules, the first crediting period under VCS is from 14/04/2008 to 13/04/2018 (10 years, renewable). Therefore, the total crediting period under VCS would have been from 14/04/2008 to 13/04/2038 (30 years). However, the project was registered under CDM on 06/03/2009. And the total crediting period under CDM is from 06/03/2009 to 05/03/2030 (21years).

As per VCS scheme under which the project was registered, the project crediting period is allowable for 10 years and could be renewed twice. Considering 3\*7 years CDM crediting period, it is reasonable that the total VCS crediting period was determined from 14/04/2008 to 13/04/2029.

Furthermore, given that the lifetime of the project is about 20 years, thus, the VCS crediting period will end on 13/04/2028.

This monitoring period is from 26/11/2021 to 25/05/2022 (181 days), belongs to the second crediting period.

## 1.7 Project Location

The project is located on the seashore of Haixing County, Cangzhou City, Hebei Province in North China. The geographic coordinate of the project site is North Latitude 38° 13'27", East Longitude

117°45'27". The region is about 302 kilometers far away from Shijiazhuang City, the capital city of Hebei Province. The project site is about 12 kilometers far away from Haixing County, and the Haifang road passes through the wind farm.

The location of the project in Hebei province and the location of Hebei province in China are shown in the map of Figure 1.



Figure 1. The location of the project in Hebei Province

## 1.8 Title and Reference of Methodology

The approved methodology applied in the project activity is ACM0002 – Consolidated methodology for grid-connected electricity generation from renewable sources” (version 20.0)<sup>1</sup>.

Related tools are:

- Tool to calculate the emission factor for an electricity system (version 07.0)
- Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (version 03.0).

<sup>1</sup> <https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

## 1.9 Participation under other GHG Programs

This project has been registered as a CDM project on 06/03/2009, for which a renewable crediting period of 3×7 years will be used under the CDM GHG Program. The registration number is 2007. It has issued carbon credits under CDM for five times, for which the monitoring periods are 06/03/2009-25/06/2009, 26/06/2009-25/06/2010, 26/06/2010-25/06/2011, 26/06/2011-25/06/2012, 26/06/2012-31/12/2012.

The credits in this monitoring period (26/11/2021 to 25/05/2022) has not been counted and will not be counted under other kind of GHG programs.

## 1.10 Other Forms of Credit

### Emission Trading Programs and Other Binding Limits

The project proponent Hebei Construction Investment Zhongxing Wind Energy Co., Ltd, as an enterprise for renewable energy investment, is not included in the compliance entity list by China national Emission Trading Scheme (ETS). Also, the project has not been registered as a CCER (Chinese Certified Emission Reductions) project in China, thus it is not eligible for emission reductions transaction under the China's ETS. Therefore, the project is not involved in an emission trading program or any other mechanism that includes GHG allowance trading. Furthermore, as a voluntary emission reduction project, the GHG emission reductions and removals generated by the project will not be enforced to be used for compliance in China.

### Other Forms of Environmental Credit

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

## 1.11 Sustainable Development Contributions

The project makes contribution to the sustainable development as follows:

The project is located on the seashore of Haixing County, Cangzhou City, Hebei Province, P.R.China, involves employing 300 temporary employment during the construction phase and 30 permanent employment including 13 females during the operation phase, and operate 49.5 MW(33\*1500kW) wind turbine units to generate power from clean renewable wind power in Hebei Province.

- The project has supplied 60,561.629 MWh in this monitoring period that otherwise have been produced by thermal power generation projects, and contributes to Chinese renewable energy target<sup>2</sup>.
- During this monitoring period, the project provided about 30 stable work opportunities, including 13 females, 8 of whom are residents of the villages surrounding the project. The project will

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2 Nationally Determined Contribution Goals of renewable energy  
<https://www.ccchina.org.cn/Detail.aspx?newsId=73916&TId=60>

provide more employment opportunities for surrounding residents in the future so as to improve the non-agriculture employment, by sex.

- The emission reduction of the project is 50,898 tCO<sub>2</sub>e in this monitoring period, and contributes to Chinese Climate change target<sup>3</sup>.

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<sup>3</sup> Nationally Determined Contribution Goals of carbon peak in 2030 and carbon neutral in 2060  
<https://www.ccchina.org.cn/Detail.aspx?newsId=73916&TId=60>



Table 1: Sustainable Development Contributions

| Row number | SDG Target | SDG Indicator                                          | Net Impact on SDG Indicator        | Current Project Contributions                                                                                                                                                                                                                   | Contributions Over Project Lifetime                                                                                                                                                                                                         |
|------------|------------|--------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1)         | 7.2        | 7.2.1 Renewable energy share in the total final energy | Implemented activities to increase | The project utilizes wind energy for electricity generation, which could increase the ratio of renewable energy in total energy consumption of China. From 26/11/2021 to 25/05/2022 the electricity supplied from the project is 60,561.629MWh. | From the operation start date of the project to 25/11/2021, the verified electricity generated by this project is 1,424,136.075 MWh (refer to table below for further details).                                                             |
| 2)         | 8.5        | Total number of job opportunities                      | Implemented activities to decrease | During the current monitoring period, the total number of employees is 30(including 13 females), 8 of whom are residents of the villages surrounding the project. And local employees account for about 26.67% of the total staff.              | During the operation time, the project provides about 30 stable work opportunities, including 13 females, 8 of whom are residents of the villages surrounding the project. And local employees account for about 26.67% of the total staff. |
| 3)         | 13.0       | Tonnes of greenhouse gas emissions avoided or removed  | Implemented activities to increase | By utilizing wind for power generation and replaced it from thermal power generation projects from 26/11/2021 to 25/05/2022 the emission reduction from the project is around 50,898tCO <sub>2</sub> e                                          | From the operation start date of the project to 25/11/2021, the verified emission reduction generated by this project is 1,373,416tCO <sub>2</sub> e (refer to table below for further details).                                            |

The electricity and emission reduction that has been verified during the previous monitoring period and will be verified by VVB during this monitoring period are as follows:

| Monitoring period | EG <sub>y</sub> (MWh) | Emission Reductions (tCO <sub>2</sub> e) | Status |
|-------------------|-----------------------|------------------------------------------|--------|
|-------------------|-----------------------|------------------------------------------|--------|

|                       |               |           |                  |
|-----------------------|---------------|-----------|------------------|
| 06/03/2009-25/06/2009 | 35,481.000    | 36,207    | Issued           |
| 26/06/2009-25/06/2010 | 94,497.152    | 96,434    | Issued           |
| 26/06/2010-25/06/2011 | 91,110.696    | 92,977    | Issued           |
| 26/06/2011-25/06/2012 | 70,621.224    | 72,068    | Issued           |
| 26/06/2012-31/12/2012 | 35,718.608    | 36,365    | Issued           |
| 01/01/2013-13/04/2018 | 653,537.148   | 666,905   | Issued under VCS |
| 14/04/2018-25/11/2021 | 443,170.247   | 372,460   | Issued under VCS |
| Total                 | 1,424,136.075 | 1,373,416 |                  |

## 2 SAFEGUARDS

### 2.1 No Net Harm

The EIA Form of the project was approved by Hebei Province Environmental Protection Bureau on 14/07/2006 (Document No. Ji Huan Biao [2006]118). According to the EIA Form, environmental impacts possibly caused by the Project and treatment measures adopted by the Project Owner are analyzed as follows:

#### 2.1.1 Ecological impact

##### Construction Phase

##### 1) Impact on Foliage

Most of the construction areas of the project are brine pan and the others are seashore saline soils. There is no vegetation in the brine pan and little vegetation in the seashore saline soils. Therefore, the impact on foliage of the project during construction phase is insignificant.

##### 2) Impact on birds

##### ① Impact on Migratory Birds

According to the construction schedule of the proposed project, the time of the continuous construction was from June, 2007 to September, 2007. Because the migration of birds commonly occurs in Spring and Autumn, the impact of the project on Migratory Birds would mainly arise during September, 2007. The project owner has taken the following measures to minimize the impact based on the life habit research of the local migratory birds which usually migrate in the morning and dusk: The construction was forbidden in the time-section of 05:00-08:00 and 17:00-20:00.

In the light of the Actuality's Assessment of Ecological Environment, the main home range of the migratory birds in the local area are chiefly including the mudflat wetland of the river estuary, the brine pan, the Mariculture Zone and the reed of the reservoir. The construction areas of the project was far away the main home range. Hence, the noise generated from the construction machine and the activities of the workers will have less impact on the migratory birds.

Therefore, the impact of the project on the migratory birds during the construction phase was negligible.

##### ② Impact on the resident birds

In the light of the Actuality's Assessment of Ecological Environment, the main home ranges of the resident birds in the local area are chiefly including the mudflat wetland of the river estuary, the brine pan, the Mariculture Zone, the reed of the reservoir, the agrarian zone, the alkali flat and the village. The project has not occupied the main home ranges and the breeding ranges of the local resident birds.

There are 6 home ranges of birds in the area, of which, 5 are in the west of the project and 1 is in the northeast of the project. According to the Engineering Analysis, the project adopted the

manner of spot construction. The floor space under construction of single wind turbine will be only 954m<sup>2</sup>. Thus, the project did not influence the shift of birds among the 6 home ranges.

Therefore, the impact of the project on the resident birds during the construction phase was negligible.

### ③ Impact of Anthropogenic Factor on birds

The strict management was adopted to prohibit the workers from all behaviours which will harm the birds.

### 3) Impact on other animals

No big mammal has been found in the local area. There are only small mammals just like hare and mice. The small animals disturbed by the construction (eg. the snail, the angleworm, the ant) migrated the similar habitat conditions nearby due to their strong ability of migration. So, the species diversity and population size in the area was not obviously influenced by the project during the construction phase.

### 4) Impact on Salt Industry

The bases of the wind turbine, the branch road and the trolley wire was disposed in the primary evaporation pond. The silt stirred by the construction was deposited quickly and has not entered into the regulating pond and crystallizing pond. So, the impact on salt industry is minimal.

In a word, the ecological impact of the project during construction phase is insignificant.

## Operation Phase

### 1) Impact on the everglade and birds

#### ① Impact on the seashore everglade biogeocenose

There is no waste gas, waste water or solid waste in the process of wind energy. Thus, the proposed project will not obviously affect the seashore everglade biogeocenose.

#### ② Impact on birds

##### -Impact on Migratory Birds

The Migratory Birds in the local area are mainly large birds, their flying heights are generally 500-600m. The wind turbines are installed in a north-south disposition, the same as the migration direction of the local migratory birds. Furthermore, the max-height of the wind turbine, which is 115.25m, is far lower than the flying height (500-600m) of the migratory birds. Therefore, the wind turbines have no adverse influence on the flying migration.

In the light of the Actuality's Assessment of Ecological Environment, the main home range of the migratory birds in the local area are chiefly including the mudflat wetland of the river estuary, the brine pan, the Mariculture Zone and the reed of the reservoir. And there is almost no activity of birds near the proposed project site. Hence, the noise generated from the operating wind turbines has no bad effect on resting and feeding behavior of birds. The space between wind turbines are 564m and is enough for birds to travel.

The rotor speed of the wind turbines in the project varies between 11.8 and 20 r/m. According to the research of the bird specialists from Holland, the birds can avoid the wind turbine with the

rotor speed mentioned above. Therefore, the birds will not be hurt or killed by the wind turbine blade in general. The birds will stop the migration in the horrible weather by the migration habit. Therefore, the impact of the proposed on the migratory birds during operation phase will be minimal.

#### -Impact on resident birds

In the light of the Actuality's Assessment of Ecological Environment, the main home ranges of the resident birds in the local area are chiefly including the mudflat wetland of the river estuary, the brine pan, the Mariculture Zone, the reed of the reservoir, the agrarian zone, the alkali flat and the village. The project did not occupy the main home ranges and the breeding ranges of the local resident birds. There is almost no activity of birds near the proposed project site. So, the noise generated from the operating wind turbines will not have bad effects on resting and breeding behavior of resident birds.

The space between wind turbines is 564m and will be enough for resident birds to travel. For the resident birds, the local area will add the wind turbine with a max-height of 115.25m as the land mark. The relate materials has shown that it was about a week for the birds to be familiar with new things.

So, the project will have a certain extent impact on the activities of resident birds within a week after the completion of the wind turbines. The impact mainly occurs after the completion of the wind turbines and before the operation of the wind farm. When the birds have been familiar with the wind turbines, the project will not have obviously impact on the resident birds.

Therefore, the impact of the proposed on the resident birds during operation phase will be minimal.

#### -Impact of Anthropoc Factor on birds

The strict management is adopted to prohibit the workers from all behaviors which will harm the birds.

In a word, the impact of the proposed project on the everglade of Haixing County and birds during the operation phase will be negligible.

#### 2) Impact on other propagation

The project is located in seashore saline soils and brine pan. There is no vegetation in brine pan and little vegetation in seashore saline soils. The project covers a land area of 185,500 m<sup>2</sup>. This area only takes 0.6% of the whole wind farm area. Most of the area remains unchanged.

No big mammal has been found in the local area. There are only small mammals just like hare and mice. They may migrate back to the former sites after the completion of the project.

Therefore, the project has less impact on other propagation during the operation phase which is negligible.

#### 3) Impact on the Salt Industry

There are about 1.46×10<sup>8</sup>m<sup>2</sup> brine pan in Haixing County. The area of the brine pan covered by the project only takes 0.1% of the total area of brine pan in Haixing County. And the brine pan

covered by the project are all primary evaporation ponds. So, the impact on salt industry is minimal.

#### 4) Visual Impact

The shortest distance between the project and the Yangcheng Reservoir is 600m, so the wind farm will not have bad effect on the scene of Yangcheng Reservoir.

The wind turbines installed in the brine pan will enhance the visual value of the brine pan and demonstrate the harmonious relation between human and nature.

So, the proposed project has little impact on the local scene.

In summary, the ecological impact of the proposed project during operation phase will be insignificant.

### 2.1.2 Environmental Impact

#### Construction phase

The max impact range of dust generated by construction activities was about in the downwind 300m. The noise pollution generated by construction machine occurred in the range of 300m. The shortest distance between the project site and the village is 500m. So the dust and the noise generated by construction activities had less impact on local residents.

The main solid waste generated from the site were construction waste as well as the household waste from the personnel at the site. The solid waste had been carried to the landfill.

The waste water was the sewage from the workers. The sewage was sprinkled on the site ground. Because of the spot construction manner, the sewage could not be collected. The little sewage would be absorbed into soil or vaporized and would not form the runoff. So the waste water would not damage the water environment.

#### Operation Phase

##### 1) Sewage

The waste water from the project during operation phase will only be sewage. The sewage processed by the biological septic tank will in compliance with the second level standards in the Table 4 of <Integrated Wastewater discharge Standard > and will be discharged into the collecting pond. The processed sewage will be utilize to irrigate plant in the project site without discharge because it will in compliance with the standards of dry land in the Standards for irrigation water quality (GB5084-1992).

Therefore, the sewage from the proposed project during the operation phase will have less impact on the environment.

##### 2) Noise

It is predicted that the noise contribution of the wind turbines is 43db (A) with a distance of 400m to the wind turbines. The project is located in the rural area. So the noise will have less impact on the residents if the distance is over 400m. The shortest distance between the project site and the residents' village is 500m. Hence, the project will have less impact on the residents during the operation phase.

### 3) Solid waste

The solid waste will be mainly composed of the household garbage generated from the workers in the 110kV booster station. The yield of the solid waste will be about 3.0t/a. The solid waste will be carried termly to the landfill nearby. Therefore, impact of solid waste on the environment is considered to be insignificant.

In summary, by means of measures of pollution avoidance and control as well as ecological recovery, the project will not impact the environment.

Therefore, the project does not bring negative environmental and socio-economic impacts.

## 2.2 Local Stakeholder Consultation

The project owner invited the comments by local stakeholders through means of advertising on TV Station and on-site surveys.

A questionnaire has been advertised in the Haixing County TV Station on 07/02/2007 and 08/02/2007, which is the most influential media in the local area, to invite the comments from local stakeholders.

The staff of Hebei Construction Investment Zhongxing Wind Energy Co., Ltd carried out on-site surveys on the local government agencies, local villagers and residents, the representative of investor in Haixing County during December in 2006. The survey was conducted through distributing and collecting responses to a questionnaire which was designed by the project owner.

The questionnaires were designed to be easily filled in the following sections:

1) Project introduction

2) Respondent's basic information and education level

3) Questions on:

- What is their opinion on their living environment?
- What is their opinion on existed wind farm projects?
- Will the Project bring improvements to their livelihoods?
- Will the Project have negative impacts on their livelihoods?
- What special issues should be considered to reduce the negative impacts during construction and operation of the project?
- Which are the most important in all negative effects of the project? Which are the least important?
- Will there be interference with TV reception and culture relic?
- Do they agree with the construction of the Project?
- What other comments and suggestions do the respondents have for the company regarding the Project?

4) Space for the respondents' signature and date.

No comments have been received from the televiewers.

The on-site survey had 82.6% response rate (38 questionnaires returned out of 46) and the following is a summary of the key findings:

- Education level of the respondents: middle level (6), high level (32).
- The status of the respondents: resident (11), investor (2), project owner (4), government representative (21).
- 100% of respondents agreed with the development of the project.
- 64% of respondents believed that they currently lived in a pleasant life condition and surrounding environment.
- 100% of respondents support the development of the project and believe that the project will have overall positive impacts on their livelihoods.
- About the negative impacts mentioned, 2.6% of respondents concern noise pollution and 5.2% of respondents concern cultivated land.
- 42.1% of respondents suggested accelerating the construction of the project.

The survey shows that the project receives strong support from local people, as further evidenced by the related local government support files. All respondents think that local area has bright future to develop wind farm projects because of the rich wind resource and believe that the project will have overall positive impacts on their livelihoods. They consider that the wind turbine rotation presents the harmonious development of human and nature, and it will not spoil the sight there. The main issues concerned are noise and cultivated land destroyed among the negative impacts. However, the environmental impact assessment shows that the noise levels would be within China national standards and no interference is expected, in the meantime, permanent used land for wind generating sets and buildings of the project are not protected cultivated land. The developer promise that they will enforce all measurements to keep a pleasant environment for local people and if any problem occurs, they will find a best way to solved it.

No negative comments have been received on the project. Moreover, the local community possesses strong positive comments on the effects that the proposed project will make on the local economy and infrastructure. Therefore there has been no reason to modify the project in the aspect of design, construction and operation due to comments received.

For continuous communication with local stakeholders, the project owner public its office telephone to local people and put a guest's book in the office of the company. Anyone who have comments on the project could write on the book or leave messages by phone. And after these years' operation, no negative comments were received from local people.

## 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 started construction on 01/01/2007. The first wind turbine of the Project started commissioning on 14/04/2008. The Project was put into full operation on 25/04/2008.

It involves the installation of 33 turbines, each of which have a capacity of 1500kW, providing a total installed capacity of 49.5MW. Electricity generated by the Project is supplied to North China Grid via a 110 kV transmission line. The wind generator supplier company is Dongfang Steam Turbine Works, which is a domestic manufacturer. The type of wind generator is determined as FD77A. Key technical specifications of FD77A turbines are listed as Table 1 below.

Table 1. Main technical parameters of key equipment in the Project

| Item               | Technical parameters | Unit |
|--------------------|----------------------|------|
| Type of Turbine    | FD77A                |      |
| Nominal output     | 1500                 | kW   |
| Diameter           | 77                   | m    |
| Hub height         | 61.5                 | m    |
| Rated voltage      | 690                  | V    |
| Nominal wind speed | 12.5                 | m/s  |

During this monitoring period (26/11/2021 to 25/05/2022), the project monitoring activities were implemented in line with the monitoring plan.

The wind farm operated normally. No equipment is overhauled or replaced in this monitoring period. No emergencies which may impact the methodology application and monitoring occurred during this monitoring period.

### 3.2 Deviations

#### 3.2.1 Methodology Deviations

There is no methodology deviation in this monitoring period.

#### 3.2.2 Project Description Deviations

There is a crediting period deviation in this monitoring period.

The project was registered under VCS scheme in 2011. The project started operation since 14/04/2008. According to renewed VCS PD, as this project started commission on 14/04/2008 (which means the date started to generate GHG emission reductions), as per the VCS rules, the first crediting period under VCS is from 14/04/2008 to 13/04/2018 (10 years, renewable). Therefore, the total crediting period under VCS would have been from 14/04/2008 to 13/04/2038 (30 years). However, the project was registered under CDM on 06/03/2009. And the total crediting period under CDM is from 06/03/2009 to 05/03/2030 (21years).

As per VCS scheme under which the project was registered, the project crediting period is allowable for 10 years and could be renewed twice. Considering 3\*7 years CDM crediting period, it is reasonable that the total VCS crediting period was determined from 14/04/2008 to 13/04/2029.

Furthermore, given that the lifetime of the project is about 20 years, thus, the VCS crediting period will end on 13/04/2028. The same has been described in the renewed VCS PD.

### 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 <sub>grid,OM,y</sub>                                                                             |
| Data unit                                                                                    | tCO <sub>2</sub> /MWh                                                                               |
| Description                                                                                  | Simple operating margin CO <sub>2</sub> emission factor in year y                                   |
| Source of data                                                                               | "2017 Baseline Emission Factors for Regional Power Grids in China" issued by China DNA <sup>4</sup> |
| Value applied                                                                                | 0.9680                                                                                              |
| Justification of choice of data or description of measurement methods and procedures applied | Official public data from MEE                                                                       |
| Purpose of Data                                                                              | Calculation of baseline emissions                                                                   |
| Comments                                                                                     | /                                                                                                   |

|                  |                                                                   |
|------------------|-------------------------------------------------------------------|
| Data / Parameter | EF <sub>grid,BM,y</sub>                                           |
| Data unit        | tCO <sub>2</sub> /MWh                                             |
| Description      | Simple operating margin CO <sub>2</sub> emission factor in year y |

<sup>4</sup> <http://www.mee.gov.cn/ywgz/ydqhbh/wsqtzk/201812/P020181220579925103092.pdf>

|                                                                                              |                                                                                                     |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Source of data                                                                               | "2017 Baseline Emission Factors for Regional Power Grids in China" issued by China DNA <sup>5</sup> |
| Value applied                                                                                | 0.4578                                                                                              |
| Justification of choice of data or description of measurement methods and procedures applied | Official public data from MEE                                                                       |
| Purpose of Data                                                                              | Calculation of baseline emissions                                                                   |
| Comments                                                                                     | /                                                                                                   |

|                                                                                              |                                                                                                               |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                                             | <b>WOM</b>                                                                                                    |
| Data unit                                                                                    | %                                                                                                             |
| Description                                                                                  | Weighting of operating margin emissions factor                                                                |
| Source of data                                                                               | "Tool to calculate the emission factor for an electricity system" (Version 07.0)                              |
| Value applied                                                                                | 75                                                                                                            |
| Justification of choice of data or description of measurement methods and procedures applied | Based on the requirements of "Tool to calculate the emission factor for an electricity system" (Version 07.0) |
| Purpose of Data                                                                              | Calculation of baseline emissions                                                                             |
| Comments                                                                                     | /                                                                                                             |

|                                                   |                                                                                                               |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                  | <b>WBM</b>                                                                                                    |
| Data unit                                         | %                                                                                                             |
| Description                                       | Weighting of operating margin emissions factor                                                                |
| Source of data                                    | "Tool to calculate the emission factor for an electricity system" (Version 07.0)                              |
| Value applied                                     | 25                                                                                                            |
| Justification of choice of data or description of | Based on the requirements of "Tool to calculate the emission factor for an electricity system" (Version 07.0) |

<sup>5</sup> <http://www.mee.gov.cn/ywgz/ydqhbh/wsqtz/201812/P020181220579925103092.pdf>

|                                            |                                   |
|--------------------------------------------|-----------------------------------|
| measurement methods and procedures applied |                                   |
| Purpose of Data                            | Calculation of baseline emissions |
| Comments                                   | /                                 |

## 4.2 Data and Parameters Monitored

The net electricity supplied to the grid by the project will not be measured directly, it is the difference of  $EG_{\text{facility},y}$ ,  $EG_{s,y}$ ,  $EG_{c,y}$  and  $EG_{\text{backupline},y}$  which have been listed in the following tables.

|                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Data / Parameter                                                | $EG_{\text{facility},y}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Data unit                                                       | MWh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description                                                     | Quantity of net electricity generation supplied by the project plant/unit to the grid in year y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Source of data                                                  | <p>Measured by electricity meters and it is calculated through Electricity supplied to the grid by the project (<math>EG_{s,y}</math>), Electricity consumed from the grid by the project (<math>EG_{c,y}</math>) and Electricity consumed by the project through the backup line (<math>EG_{\text{backupline},y}</math>).</p> $EG_{\text{facility},y} = EG_{s,y} - EG_{c,y} - EG_{\text{backupline},y}$                                                                                                                                                                                                                                                                                                                                                                              |
| Description of measurement methods and procedures to be applied | <p>Both the main meter M1 and backup meter M2 have been installed on the 110kV transmission line as described in the section B4.3. Both are bi-directional meters, which are both managed, operated, maintained and monthly recorded by the project owner.</p> <p>The meter (M3) is installed on the backup line on site as described in the section B4.3. It is a bi-directional meter, which is operated by the grid company but can also be read by the project owner. The project owner records the readings in electronic and manual form. The project owner will receive electricity receipts from the grid company which serve as a cross-check of monthly meter reading records.</p> <p>Data records will be archived for a period of 2 years after the crediting period.</p> |
| Frequency of monitoring/recording                               | Measured continuously and recorded monthly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Value monitored                                                 | 60,561.629                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Monitoring equipment                                            | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                                |                                                                                                                                                                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QA/QC procedures to be applied | <p>The meters will be annually calibrated according to “Technical administrative code of electric energy metering (DL/T448 – 2016)”.</p> <p>The data from the electricity meters can be cross-checked with electricity receipts.</p> |
| Purpose of the data            | Calculation of baseline emissions                                                                                                                                                                                                    |
| Calculation method             | $EG_{\text{facility},y} = EG_{\text{s},y} - EG_{\text{c},y} - EG_{\text{backupline},y}$                                                                                                                                              |
| Comments                       | /                                                                                                                                                                                                                                    |

|                                                                 |                                                                                                                                                                                                                                                                                                                                                   |            |           |          |                  |                             |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|----------|------------------|-----------------------------|
| Data / Parameter                                                | $EG_{\text{s},y}$                                                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |
| Data unit                                                       | MWh                                                                                                                                                                                                                                                                                                                                               |            |           |          |                  |                             |
| Description                                                     | Electricity supplied to the grid by the project                                                                                                                                                                                                                                                                                                   |            |           |          |                  |                             |
| Source of data                                                  | Measured by main meter (M1) and backup meter (M2)                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |
| Description of measurement methods and procedures to be applied | <p>Both the main meter and backup meter have been installed on the 110kV transmission line as described in the section B4.3. Both are bi-directional meters, which are both managed, operated, maintained and monthly recorded by the project owner.</p> <p>Data records will be archived for a period of 2 years after the crediting period.</p> |            |           |          |                  |                             |
| Frequency of monitoring/recording                               | Measured continuously and recorded monthly                                                                                                                                                                                                                                                                                                        |            |           |          |                  |                             |
| Value monitored                                                 | 60,653.479                                                                                                                                                                                                                                                                                                                                        |            |           |          |                  |                             |
| Monitoring equipment                                            |                                                                                                                                                                                                                                                                                                                                                   | Serial No. | Type      | Accuracy | Calibration date | Validity of the Calibration |
|                                                                 | Main meter M1                                                                                                                                                                                                                                                                                                                                     | 93982944   | ZMD4 02CT | 0.2s     | 29/09/2021       | 28/09/2022                  |
|                                                                 | Backup meter M2                                                                                                                                                                                                                                                                                                                                   | 93982945   | ZMD4 02CT | 0.2s     | 29/09/2021       | 28/09/2022                  |
| QA/QC procedures to be applied                                  | <p>The meters will be annually calibrated according to “Technical administrative code of electric energy metering (DL/T448 – 2016)”.</p> <p>The data from the electricity meters can be cross-checked with electricity receipts for the electricity.</p>                                                                                          |            |           |          |                  |                             |

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

|                                                                 |                                                                                                                                                                                                                                                                                                                                                   |            |           |          |                  |                             |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|----------|------------------|-----------------------------|
| Data / Parameter                                                | EG <sub>c,y</sub>                                                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |
| Data unit                                                       | MWh                                                                                                                                                                                                                                                                                                                                               |            |           |          |                  |                             |
| Description                                                     | Electricity consumed from the grid by the project.                                                                                                                                                                                                                                                                                                |            |           |          |                  |                             |
| Source of data                                                  | Measured by main meter (M1) and backup meter (M2)                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |
| Description of measurement methods and procedures to be applied | <p>Both the main meter and backup meter have been installed on the 110kV transmission line as described in the section B4.3. Both are bi-directional meters, which are both managed, operated, maintained and monthly recorded by the project owner.</p> <p>Data records will be archived for a period of 2 years after the crediting period.</p> |            |           |          |                  |                             |
| Frequency of monitoring/recording                               | Measured continuously and recorded monthly                                                                                                                                                                                                                                                                                                        |            |           |          |                  |                             |
| Value monitored                                                 | 91.850                                                                                                                                                                                                                                                                                                                                            |            |           |          |                  |                             |
| Monitoring equipment                                            |                                                                                                                                                                                                                                                                                                                                                   | Serial No. | Type      | Accuracy | Calibration date | Validity of the Calibration |
|                                                                 | Main meter M1                                                                                                                                                                                                                                                                                                                                     | 93982944   | ZMD4 02CT | 0.2s     | 29/09/2021       | 28/09/2022                  |
|                                                                 | Backup meter M2                                                                                                                                                                                                                                                                                                                                   | 93982945   | ZMD4 02CT | 0.2s     | 29/09/2021       | 28/09/2022                  |
| QA/QC procedures to be applied                                  | <p>The meters will be annually calibrated according to “Technical administrative code of electric energy metering (DL/T448 - 2016)”.</p> <p>The data from the electricity meters can be cross-checked with electricity receipts.</p>                                                                                                              |            |           |          |                  |                             |
| Purpose of the data                                             | Calculation of baseline emissions                                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |
| Calculation method                                              | /                                                                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |
| Comments                                                        | /                                                                                                                                                                                                                                                                                                                                                 |            |           |          |                  |                             |

|                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------|------------------|-----------------------------|--|--|------------|------|----------|------------------|-----------------------------|----------|--------------|-------|------|------------|------------|
| Data / Parameter                                                | EG <sub>backupline,y</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Data unit                                                       | MWh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Description                                                     | Electricity consumed by the project through the backup line                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Source of data                                                  | Measured by electricity meter (M3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Description of measurement methods and procedures to be applied | <p>The meter (M3) is installed on the backup line on site as described in the section B4.3. It is a bi-directional meter, which is operated by the grid company but can also be read by the project owner. The project owner records the readings in electronic and manual form. The project owner will receive electricity receipts from the grid company which serve as a cross-check of monthly meter reading records.</p> <p>Data records will be archived for a period of 2 years after the crediting period.</p> |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Frequency of monitoring/recording                               | Measured continuously and recorded monthly                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Value monitored                                                 | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Monitoring equipment                                            | <table><tr><td></td><td>Serial No.</td><td>Type</td><td>Accuracy</td><td>Calibration date</td><td>Validity of the Calibration</td></tr><tr><td>Meter M3</td><td>070809002686</td><td>DS862</td><td>0.5s</td><td>29/09/2021</td><td>28/09/2022</td></tr></table>                                                                                                                                                                                                                                                        |       |          |                  |                             |  |  | Serial No. | Type | Accuracy | Calibration date | Validity of the Calibration | Meter M3 | 070809002686 | DS862 | 0.5s | 29/09/2021 | 28/09/2022 |
|                                                                 | Serial No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Type  | Accuracy | Calibration date | Validity of the Calibration |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Meter M3                                                        | 070809002686                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DS862 | 0.5s     | 29/09/2021       | 28/09/2022                  |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| QA/QC procedures to be applied                                  | <p>The meter will be annually calibrated according to “Technical administrative code of electric energy metering (DL/T448 - 2016)”.</p> <p>The data from the electricity meter can be cross-checked with the Electricity receipts.</p>                                                                                                                                                                                                                                                                                 |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Purpose of the data                                             | Calculation of baseline emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Calculation method                                              | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |
| Comments                                                        | /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |          |                  |                             |  |  |            |      |          |                  |                             |          |              |       |      |            |            |

## 4.3 Monitoring Plan

### 4.3.1 Data monitored

Quantity of net electricity generation supplied by the project ( $EG_{\text{facility},y}$ ) supplied to the grid by the project is not measured directly. It is calculated by monitoring data of  $EG_{s,y}$ ,  $EG_{c,y}$  and  $EG_{\text{backupline},y}$  sourced from direct measurement. The aforesaid parameters are defined as bellow:

- 1)  $EG_{s,y}$  is the electricity supplied to the Grid by the project
- 2)  $EG_{c,y}$  is the electricity consumed from the grid by the project through the main power line.
- 3)  $EG_{\text{backupline},y}$  is the electricity delivered to the project through the backup line.

### 4.3.2 Monitoring organization

This monitoring plan has been implemented by the project owner, Hebei Construction Investment Zhongxing Wind Energy Co., Ltd.

The monitoring activity involves eight employees which include one project manager. The project manager is responsible for the implementation and monitoring of the monitoring activity. There are three departments organized for data report, quality control and training. There are two managers responsible for data report and quality control department by one of each. There are also four staff working in these two departments by two of each. The manager will take charge of the employment administration, as well as the operation implementation and monitoring; and the staff will carry on the concrete assignment based on the guide of their manager. The training department has one manager who is responsible for the entire training process of the project. The monitoring system flowchart of this project is shown in figure 2.

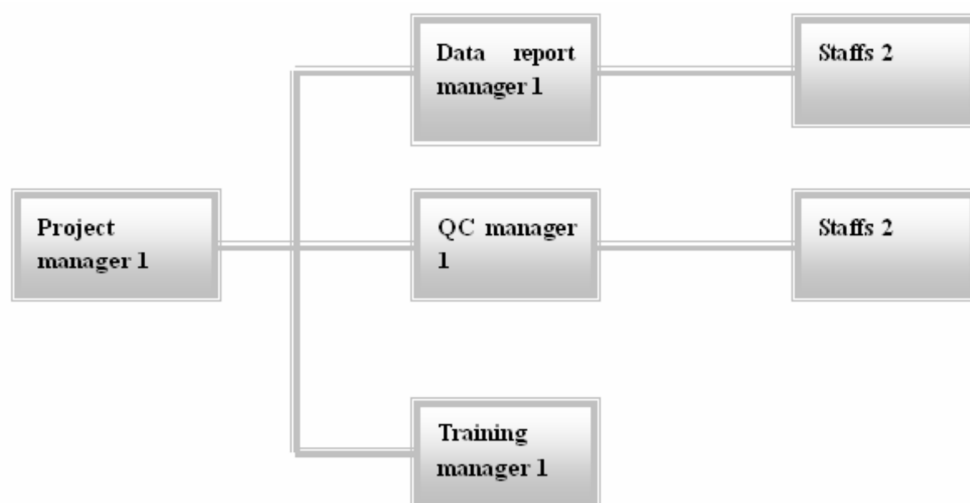




Figure 2. Monitoring system flow chart of the proposed project

#### 4.3.3 Roles and responsibilities

The person with overall responsibility for monitoring activity is Mr Zhao Yongchao. The responsibility for electricity data management reporting and the accuracy of metering equipment in the whole stage is Mr. Zhang Guofeng. Mr. Zhang Kai and Mr. Wu Weiqiang are responsible for recording, management and storing electronic data. The electricity receipt of electricity supplied by the grid will also be kept by them. The responsibility for the calibration and maintenance of the metering equipments is Mr. Zhang Guofeng, Mr. Wang Qingliang and Mr. Li Jie.

#### 4.3.4 Metering System

The electricity generated by the project has been transmitted to an on-site transformer station that increases the voltage to 110 kV, and then be delivered to Gangcheng transformer station which connected to the Hebei Southern Power Grid. The simplified electrical grid connection diagram is shown in the following figure3.

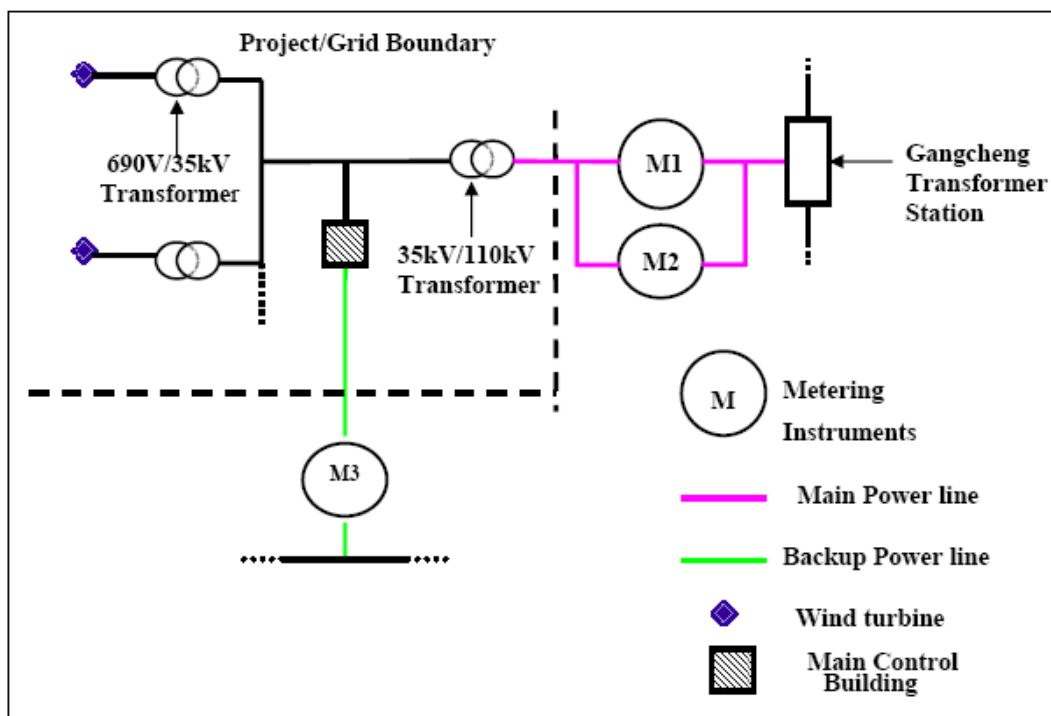


Figure 3. Simplified electrical grid connection diagram

The power line supplying electric power to the grid can also deliver power from the grid to the wind farm in case of emergencies and when the wind farm does not produce enough power for auxiliary power use. The metering equipment runs in two directions and could record two

readings, i.e. Electricity supplied to the grid by the project ( $EG_{s,y}$ ) and Electricity consumed from the grid by the project ( $EG_{c,y}$ ).

The metering system indicated by the meter instruments at M1 in Figure 3 is the main meter, the metering system indicated by the meter instruments at M2 in Figure 3 is the backup meter, which are both managed, operated and maintained by the project owner. Both of them can measure the bi-directional electricity flows including exported to and imported from the grid via 110kV line.

The readings at 24:00 of the main meters were read and recorded by the project owner and grid company on the 25th of each month. The invoice, billing receipts and accounting vouchers for receipt of payment for power supplied to the grid serve as a cross-check. The main (M1) and backup (M2) instruments are read by the project owner hourly and records monthly.

$EG_{\text{backupline},y}$  is monitored by M3 in Figure 3 and conducted by grid company and the project owner. The cut-off time is at 24:00 on the 25th of each month. In case blackout in the main power line, the project will consume the electricity through the backup power line. Electricity consumed by the project through the backup line ( $EG_{\text{backupline},y}$ ) is metered by instruments at M3 in figure3 which are operated by the grid company but can also be read by the project owner. The project owner records the readings in electronic and manual form. The project owner will receive monthly billing receipts from the grid company which serve as a cross-check of the accuracy of the record of the readings of meter M3.

Quantity of net electricity generation supplied by the project is calculated on a monthly basis as:

$$EG_{\text{facility},y} = EG_{s,y} - EG_{c,y} - EG_{\text{backupline},y}$$

With:

$EG_{s,y}$  electricity supplied by the project through the main power line metered by the instruments at M1.

$EG_{c,y}$  electricity consumed by the project through the main power line metered by the instruments at M1.

$EG_{\text{backupline},y}$  electricity delivered to the project through the backup line metered by the instruments at M3.

#### 4.3.5 Emergency procedures

In case the main meter is damaged only the readings the backup meter will be used. In case both the main meter and backup meter are out of order, it shall be inspected, repaired, or replaced immediately by the professional staff and quantity of net electricity generation supplied by the Project to the grid shall be jointly determined by the Project Owner and the power grid company. In case of emergencies, the project entity will not claim emission reductions due to the project

activity for the duration of the emergency. In this monitoring period, the wind farm ran smoothly and no emergency happened.

#### 4.3.6 Quality Assurance and Quality Control Procedure

Particular QC staff will be appointed by the Project Owner to take the overall responsibility of calibrating monitoring equipment, managing and processing the monitored data.

The metering equipments will be properly calibrated and checked annually by qualified entity according to national standard (DL/T448-2016) to ensure its accuracy. The metering equipment shall have sufficient accuracy so that any error resulting from such equipment shall not exceed 0.5% of full-scale rating. The copies of the qualification certificates have been sent to VVB during verification.

## 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

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

Where:

$BE_y$  is the baseline emissions in year  $y$  (tCO<sub>2</sub>e/y)

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

$EF_{grid,CM,y}$  is the CO<sub>2</sub> emission factor of the NCPG, which is fixed in the first and second crediting period (tCO<sub>2</sub>e/MWh)

On the basis of these weights for the second crediting period, the combined margin emission factor ( $EF_{CM,y}$ ) is calculated, and are fixed as 0.84045 tCO<sub>2</sub>/MWh.

|                                                                          | CO <sub>2</sub> emission factor<br>(tCO <sub>2</sub> /MWh) | Weighting |
|--------------------------------------------------------------------------|------------------------------------------------------------|-----------|
| Simple operating Margin Emissions Factor<br>( $EF_{grid,OM\ simple,y}$ ) | 0.9680                                                     | 0.75      |
| Build Margin Emissions Factor ( $EF_{grid,BM,y}$ )                       | 0.4578                                                     | 0.25      |
| Baseline Emissions Factor ( $EF_{grid,CM,y}$ )                           | 0.84045                                                    |           |

The yearly electricity volume and baseline emissions during this monitoring period are listed in following table 2.

Table 2. Baseline emissions

| Period                                 | EG <sub>s,y</sub><br>(MWh) | EG <sub>c,y</sub><br>(MWh) | EG <sub>backuptline,y</sub><br>(MWh) | EG <sub>facility,y</sub><br>(MWh) | EF <sub>y</sub><br>(tCO <sub>2</sub> /MWh) | BE <sub>y</sub><br>(tCO <sub>2</sub> e) |
|----------------------------------------|----------------------------|----------------------------|--------------------------------------|-----------------------------------|--------------------------------------------|-----------------------------------------|
| 26/11/2021-25/12/2021                  | 10,920.281                 | 19.330                     | 0                                    | 10,900.951                        | 0.84045                                    | 9,161                                   |
| 26/12/2021-31/12/2021 <sup>6</sup>     | 1,978.349                  | 2.957                      | 0                                    | 1,975.392                         | 0.84045                                    | 1,660                                   |
| <b>Total in 2021</b>                   | <b>12,898.630</b>          | <b>22.287</b>              | <b>0</b>                             | <b>12,876.343</b>                 | <b>0.84045</b>                             | <b>10,821</b>                           |
| 01/01/2022-25/01/2022 <sup>7</sup>     | 8,243.123                  | 12.323                     | 0                                    | 8,230.800                         | 0.84045                                    | 6,918                                   |
| 26/01/2022-25/02/2022                  | 10,323.558                 | 10.910                     | 0                                    | 10,312.648                        | 0.84045                                    | 8,667                                   |
| 26/02/2022-25/03/2022                  | 10,803.022                 | 18.350                     | 0                                    | 10,784.672                        | 0.84045                                    | 9,064                                   |
| 26/03/2022-25/04/2022                  | 8,808.717                  | 13.270                     | 0                                    | 8,795.447                         | 0.84045                                    | 7,392                                   |
| 26/04/2022-25/05/2022                  | 9,576.429                  | 14.710                     | 0                                    | 9,561.719                         | 0.84045                                    | 8,036                                   |
| <b>Total in 2022</b>                   | <b>47,754.849</b>          | <b>69.563</b>              | <b>0</b>                             | <b>47,685.286</b>                 | <b>0.84045</b>                             | <b>40,077</b>                           |
| <b>Total in this monitoring period</b> | <b>60,653.479</b>          | <b>91.850</b>              | <b>0</b>                             | <b>60,561.629</b>                 |                                            | <b>50,898</b>                           |

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. PE<sub>y</sub>=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 renewal VCS PD,  $ER_y = BE_y - PE_y$

| Year | Baseline emissions or removals | Project emissions or | Leakage emissions (tCO <sub>2</sub> e) | Net GHG emission |
|------|--------------------------------|----------------------|----------------------------------------|------------------|
|------|--------------------------------|----------------------|----------------------------------------|------------------|

<sup>6</sup> \*The grid company issued the confirmation of electricity supplied by the project from the grid (EG<sub>s,y</sub>) and electricity consumed by the project (EG<sub>c,y</sub>) covering the period from 26/12/2021-31/12/2021.

<sup>7</sup> \*The grid company issued the confirmation of electricity supplied by the project from the grid (EG<sub>s,y</sub>) and electricity consumed by the project (EG<sub>c,y</sub>) covering the period from 01/01/2022-25/01/2022.

|                          | (tCO <sub>2</sub> e) | removals<br>(tCO <sub>2</sub> e) |          | reductions or<br>removals<br>(tCO <sub>2</sub> e) |
|--------------------------|----------------------|----------------------------------|----------|---------------------------------------------------|
| 26/11/2021 to 31/12/2022 | 10,821               | 0                                | 0        | 10,821                                            |
| 01/01/2022 to 25/05/2022 | 40,077               | 0                                | 0        | 40,077                                            |
| <b>Total</b>             | <b>50,898</b>        | <b>0</b>                         | <b>0</b> | <b>50,898</b>                                     |

This monitoring period is from 26/11/2021 to 25/05/2022 (181 days). The estimated annual GHG emission reductions during the second crediting period (from 14/04/2018 to 13/04/2028) are 96,650 tCO<sub>2</sub>e/yr.

The emission reductions claimed are 50,898 tCO<sub>2</sub>e in this monitoring period (i.e. 181 days). Compared with expected emission reductions 47,928tCO<sub>2</sub>e (calculated as 96,650/365\*181) in the renewal VCS PD, the reported emission reductions in this monitoring period are 6.20% larger than the expected, which is considered to be in the reasonable variation range.

This will not impact the additionally of the project activity as the sensitivity analysis of the project activity shows that the IRR will not exceeds benchmark until an 9.5% increase in Grid-connected electricity. The main reason for the electricity generation increase is that the wind flow in this monitoring period are larger than the designing value in the FSR, the management skills of the plant improves gradually and the wind power accommodation capacity of the grid is increasing.

## APPENDIX 1: < MONTHLY AND YEARLY ELECTRICITY SUPPLY >

| Year         | Period                | EG <sub>s,y</sub> (MWh)                              |                                    |                               | EG <sub>c,y</sub> (MWh)                              |                                    |                               | EG <sub>backuptline,y</sub> (MWh) | EG <sub>facility,y</sub> (MWh) |
|--------------|-----------------------|------------------------------------------------------|------------------------------------|-------------------------------|------------------------------------------------------|------------------------------------|-------------------------------|-----------------------------------|--------------------------------|
|              |                       | Data from monthly meter reading records (MRRs) (MWh) | Data on electricity receipts (MWh) | Data for ER calculation (MWh) | Data from monthly meter reading records (MRRs) (MWh) | Data on electricity receipts (MWh) | Data for ER calculation (MWh) | Data for ER calculation (MWh)     |                                |
|              |                       | A                                                    | B                                  | C=Min(A,B)                    | D                                                    | E                                  | F=Max(D,E)                    | G                                 |                                |
| 2021         | 26/11/2021-25/12/2021 | 10,920.281                                           | 10,920.281                         | 10,920.281                    | 19.330                                               | 19.330                             | 19.330                        | 0.000                             | 10,900.951                     |
|              | 26/12/2021-31/12/2021 | 1,978.349                                            | 1,978.349                          | 1,978.349                     | 2.957                                                | 2.957                              | 2.957                         | 0.000                             | 1,975.392                      |
|              | <b>Subtotal</b>       | <b>12,898.630</b>                                    | <b>12,898.630</b>                  | <b>12,898.630</b>             | <b>22.287</b>                                        | <b>22.287</b>                      | <b>22.287</b>                 | <b>0.000</b>                      | <b>12,876.343</b>              |
| 2022         | 01/01/2022-25/01/2022 | 8,243.123                                            | 8,243.123                          | 8,243.123                     | 12.323                                               | 12.323                             | 12.323                        | 0.000                             | 8,230.800                      |
|              | 26/01/2022-25/02/2022 | 10,323.558                                           | 10,323.558                         | 10,323.558                    | 10.910                                               | 10.910                             | 10.910                        | 0.000                             | 10,312.648                     |
|              | 26/02/2022-25/03/2022 | 10,803.022                                           | 10,803.022                         | 10,803.022                    | 18.350                                               | 18.350                             | 18.350                        | 0.000                             | 10,784.672                     |
|              | 26/03/2022-25/04/2022 | 8,808.717                                            | 8,808.717                          | 8,808.717                     | 13.270                                               | 13.270                             | 13.270                        | 0.000                             | 8,795.447                      |
|              | 26/04/2022-25/05/2022 | 9,576.429                                            | 9,576.429                          | 9,576.429                     | 14.710                                               | 14.710                             | 14.710                        | 0.000                             | 9,561.719                      |
|              | <b>Subtotal</b>       | <b>47,754.849</b>                                    | <b>47,754.849</b>                  | <b>47,754.849</b>             | <b>69.563</b>                                        | <b>69.563</b>                      | <b>69.563</b>                 | <b>0.000</b>                      | <b>47,685.286</b>              |
| <b>Total</b> |                       | <b>/</b>                                             |                                    | <b>60,653.479</b>             | <b>/</b>                                             |                                    | <b>91.850</b>                 | <b>0.000</b>                      | <b>60,561.629</b>              |

## APPENDIX 2: < DESCRIPTION OF EMPLOYMENT AND SALARY>

Evidence for SDG7.2, 8.5 and 13.0

The electricity supplied during this monitoring period between 26/11/2021 to 25/05/2022 is 60,561.629 MWh. The emission reduction generated from the project during this monitoring period is 50,898tCO<sub>2</sub>e as mentioned in section 5.4 above, which is calculated from meter(s) readings and Sales receipts provided by the project owner, which will be verified by VVB.

The list of employees of the project activity is shown as below.

## 说 明

河北海兴 49.5MW 风电项目，建设阶段为当地提供了超过 300 个工作岗位，并在项目运营期间提供 30 个永久工作岗位。截至目前，员工人数共计 30 人，女员工 13 人，其中 8 名女员工为项目周边村庄居民。

本项目严格遵守国家政策规定和公司薪资管理制度，2022 年人均税后工资为 5000 元/月。下一步，项目公司还将增设更多岗位，帮助周边村民实现就近就地就业。

特此说明！

河北建投中兴风能有限公司

2022 年 9 月 7 日

Hebei Haixing 49.5MW Wind Farm Project has provided more than 300 local jobs during the construction phase and 30 permanent jobs during the project operation. Up to now, the total number of employees is 30, including 13 female employees, 8 of whom are residents of the villages surrounding the project.

The project company strictly complies with national policies and regulations and the company's salary management system. In 2022, the per capita after-tax salary is 5,000 Yuan RMB/month. In the next step, the project company will add more jobs to help villagers find jobs nearby.

Hebei Construction Investment Zhongxing Wind Energy Co., Ltd

September 7, 2022