



**Verified Carbon
Standard**

HEBEI CHONGLI COUNTY QINGSANYING SECOND PHASE 49.3MW WIND POWER PROJECT

Document Prepared by Demeter Venture Uk Limited

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

Hebei Chongli County Qingsanying Second Phase 49.3 MW Wind Power Project (hereinafter referred to as the project) is developed by Chongli Construction Investment Huashi Wind Energy Co., Ltd. It is located at the east of Chongli County, Hebei Province, P.R. China. It involves the installation of 58 turbines, each of which has a rated output of 850 kW, providing a total capacity of 49.3 MW. The annual output of the proposed project is estimated to be 109.002 GWh and the electricity will be exported to the North China Power Grid (NCPG).

The scenario existing prior to the start of the implementation of the project is: The same electricity output by the proposed project activity would have otherwise been generated by the operation of NCPG connected power plants and by the addition of new generation sources. That is the same as the baseline scenario.

When the proposed project is operated, the electricity generated will displace part of the electricity from fossil fuel-fired plants connected to the NCPG, and thus greenhouse gas (GHG) generated by coal-fired power plants could be reduced. The estimated annual GHG emission reductions in the first crediting period (from 08/01/2009 to 07/01/2019) are 108,101 tCO₂e/yr, and in the second crediting period (from 08/01/2019 to 07/01/2029) are 91,610 tCO₂e/yr.

The construction of the project began on 10/08/2008, and the first turbine was put into operation on 08/01/2009. And the project was put into full commercial operation on 28/02/2009.

The first crediting period is from 08/01/2009 to 07/01/2019 while the second crediting period is from 08/01/2019 to 07/01/2029. This monitoring period is from 01/11/2016 to 30/11/2021 (1856 days), in which the period from 01/11/2016 to 07/01/2019 (798 days, hereinafter referred as “P1”) belongs to the first crediting period, and the period from 08/01/2019 to 30/11/2021 (1,058 days, hereinafter referred as “P2”) belongs to the second crediting period. The emission reductions in P1 is 259,886 tCO₂, the emission reductions in P2 is 281,438 tCO₂. Hence, the emission reductions in this monitoring period is 541,324 tCO₂.

1.2 Sectoral Scope and Project Type

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

Project type: wind power project.

This project is not grouped project.

1.3 Project Proponent

Organization name	Chongli Construction Investment Huashi Wind Energy Co., Ltd
Contact person	Zhang Ling
Title	Manager
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1.4 Other Entities Involved in the Project

Organization name	Beijing Ruifang Information Technology Co., Ltd.
Role in the Project	Project participant
Contact person	Teng Haipeng
Title	Manager
Address	0105a, building 2, bixingyuan community, Zhichun Road, Haidian District
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1.5 Project Start Date

08/01/2009 (operation date, which means the date that started to generate GHG emission reductions)

1.6 Project Crediting Period

As per the renewed VCS PD, the first crediting period is from 08/01/2009 to 07/01/2019 while the second crediting period is from 08/01/2019 to 07/01/2029.

This monitoring period is from 01/11/2016 to 30/11/2021 (1,856 days), in which the period from 01/11/2016 to 07/01/2019 (798 days, hereinafter referred as “P1”) belongs to the first

crediting period, and the period from 08/01/2019 to 30/11/2021 (1,058 days, hereinafter referred as “P2”) belongs to the second crediting period.

The project is also registered under CDM with registration number of 4123. Therefore, the CDM crediting period will supersede which is 07/07/2011 to 06/07/2032 (21 years total).

1.7 Project Location

The project site is located at the east of Chongli County, Zhangjiakou City of Hebei Province. It is about 27 km from Chongli County and 65 km from Zhangjiakou city. The geographical coordinates of the project are $115^{\circ}16'29''\text{E} \sim 115^{\circ}23'01''\text{E}$, $41^{\circ}8'55''\text{N} \sim 41^{\circ}13'51''\text{N}$, and the central geographical coordinates of the project are $115^{\circ}20.101'\text{E}$, $41^{\circ}12.027'\text{N}$. Figure 1 shows the location of the project.

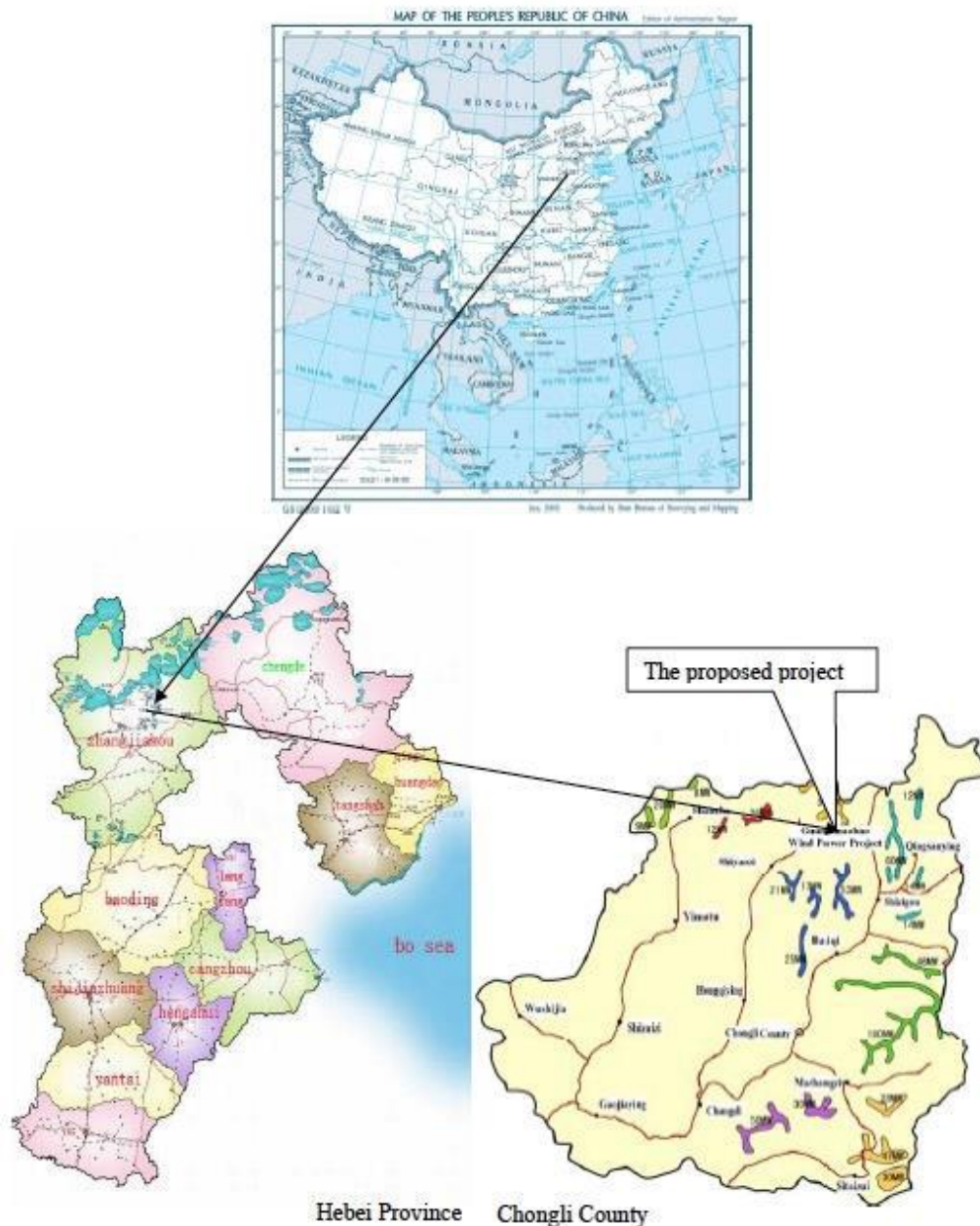


Figure 1. The location of the project

1.8 Title and Reference of Methodology

For P1, the project applies the approved consolidated baseline and monitoring methodology ACM0002 during the first crediting period.

- “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 12.3.0).

The methodology also refers to the following tools:

- Tool to calculate the emission factor for an electricity system (Version 02);
- Tool for the demonstration and assessment of additionality (Version 05.2);
- Guideline on Assessment of Investment Analysis (Version 03).

For P2, the project applies the approved consolidated baseline and monitoring methodology ACM0002 during the second crediting period.

- “Grid-connected electricity generation from renewable sources” (version 20.0)¹.
The methodology also refers to the following tools:

- 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)
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (version 03.0.1)

1.9 Participation under other GHG Programs

The Project has been registered as a CDM project on 07/07/2011 with registration number of 4123. The credits from 07/07/2011 to 31/10/2012 and from 01/01/2013 to 31/10/2016 have been issued under CDM mechanism. The credits from 01/11/2012 to 31/12/2012 are waiting for issuance under CDM.

The credits in this monitoring period (01/11/2016 to 30/11/2021) has not been counted and will not be counted under other kind of GHG programs.

1.10 Other Forms of Credit

The Project has been registered as a CDM project on 07/07/2011 with registration number of 4123. The credits from 07/07/2011 to 31/10/2012 and from 01/01/2013 to 31/10/2016 have

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

been issued under CDM mechanism. The credits from 01/11/2012 to 31/12/2012 are waiting for issuance under CDM.

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

1.11 Sustainable Development

The project makes contribution to the sustainable development as follows:

1. GHG emission reduction

The project will help reduce the greenhouse gas GHG emissions versus the high-growth, coal-dominated business-as-usual scenario in the NCPG by reducing the electricity generation from the fossil-fuel fired power plants.

Thus, the project achieved **SDG 13 Climate Action**².

- Reduction of fossil fuel use and provide clean energy

The Project Activity will reduce reliance on imported fossil fuels, which will contribute to increasing China's energy security, and will also improve local air quality as it reduces the emissions of SO₂, and NO_x associated with fossil fuel use.

Thus, the project achieved **SDG 7 Affordable and Clean Energy**³.

3. Employment opportunities

The conducting of the project will create employment opportunities during the construction phase and operational period.

4. Economic Improvement

The construction of the wind farm will promote local economy by contributing to local government with more tax revenues through selling power generation.

Thus, the project achieved **SDG 8 Decent Work and Economic Growth**⁴.

2 SAFEGUARDS

2.1 No Net Harm

The Environmental Impact Assessment of the proposed project was completed by the Institute of Hydrogeology and Environmental Geology, CAGS and approved by the Environment Protection

2 <https://sdgs.un.org/goals/goal13>

3 <https://sdgs.un.org/goals/goal7>

4 <https://sdgs.un.org/goals/goal8>

Bureau of Hebei Province on 27/09/2007. Main contents of the Environmental Impact Assessment are summarized as follows:

Ecological impact

Construction Phase

1) Impact on Foliage

The area of the buildings stated above will be all the shrub-grassland. There will be some impacts on the local vegetation during the construction period. The main impact will be eradication of local sward and the stack of earth on the lawn. But after the construction period, new trees and grass will be planted again on the site. The vegetation condition of the earth surface will recover very soon. The original ecological system will be recovery from the third year after the construction period.

2) 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 (like the snail, the angleworm, the ant) will migrate the similar habitat conditions nearby due to their strong ability of migration. So, the species diversity and population size in the area will not be obviously influenced by the proposed project during the construction phase.

3) Impact on the residents

The main air pollution sources during the construction period include dust from excavation, blasting and transportation. Since the local residential area is 500m away from the temporary construction site and local atmosphere environment capacity is very large, the impact of construction dust on the local region is light. Some measures will be taken to reduce impact of dust on the construction staff, such as sprinkling, covering and so on.

Noise will be generated by machine equipment during construction. Measures will be taken to reduce the environmental impacts of noise: choosing low-noise machines and technologies, arranging reasonable construction time, and enhancing construction management. In addition, the nearest residential area is 1000m away from the wind farm, the neighbor residents will not be influenced by the noise. So, the dust and the noise generated by construction activities will have less impact on local residents.

Operation Phase

1) Impact on the local biogeocenose

There is no waste gas, waste water and solid waste in the process of wind energy. Thus, the project will not obviously affect the local biogeocenose.

2) Visual Impact

The wind turbines installed in the grassland will enhance the visual value of the grassland and demonstrate the harmonious relation between human and nature. So, the proposed project has little impact on the local scene.

3) Impact on the animals

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 will have less impact on other propagation during the operation phase.

Environmental Impact

Construction phase

The max impact range of dust generated by construction activities is about in the downwind 150 m and the noise pollution generated by construction machine will occur in the range of 300 m. The shortest distance between the project site and the village is 1,000 m. So the dust and the noise generated by construction activities will have less impact on local residents.

The main solid waste generated from the site will be construction waste as well as the household waste from the personnel at the site. The solid waste will be carried to the landfill. And both domestic sewage and the sewage from the worksite will be treated up to the standards before being discharged. So, the waste and waste water generated by construction activities will have less impact on local residents.

Operation Phase

1) Sewage

The waste water from the proposed project during operation phase will only be sewage. The sewage processed by the biological septic tank will in compliance with the second level standards <Integrated Wastewater discharge Standard > and will be discharged into the collecting pond. The processed sewage will be utilized to irrigate plant in the project site without discharge. Therefore, the sewage from the project during the operation phase will have less impact on the environment.

2) Noise

The operating noise level of the 1,500 kW turbine is 103 dB at the height of 10m from the ground.

However, at a distance of 400 m no serious noise impacts are caused, and noise levels at this distance drop down to the national standard 43 dB (A). Furthermore, the resident regions are 1,000 m away from the wind farm, and with the background noise in the area being high, so the noise does not influence the residential districts nearest to the site.

3) Solid waste

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

Conclusion

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

2.2 Local Stakeholder Consultation

The project owner invited the comments of local stakeholders by issuing questionnaires. Chongli Construction Investment Huashi Wind Energy Co., Ltd carried out the survey on the local villagers and residents, the representative of governmental officials and so on during November, 2007. The survey was conducted through distributing and collecting responses to a questionnaire which was designed by project owner.

Questionnaire 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 level do you know about the proposed project?
- Do you know about the Clean Development Mechanism?
- Impacts of the project to local environment;
- Do you think which impact on the environment may be caused by the project?
- Impacts of the project to local economic development;
- Whether to support the construction of the project?

4) Space for the respondents' signature and date.

Questionnaires have been distributed according to the principle of both representation and randomness in order to reflect the public opinions and comments in a fair and real manner.

The investigated stakeholders include the individuals from the construction site and the nearby Chongli County. The stakeholders also include the group from the government and association. The investigation has taken full account into the public advice of different ages, education levels and occupations.

In addition, public comments were invited by a poster on 08/10/2007 in all the villages within 5-kilometer of the project site, including No. 5 Village, No. 6 Village. Besides the content mentioned above, the following question was added in the Notice.

- What other comments and suggestions do the respondents have for the company regarding the Project?

- What impacts on your life may be caused by the project?

Survey results:

86 valid responses from 86 questionnaires were collected and the following is a summary of the key findings:

Comments from the questionnaires show that 100% of the investigated stakeholders agree with the project construction, and none of them objects.

72.09% of the investigated stakeholders know something about the project while 27.91% of the investigated stakeholders know very well about the project; 29.07% of them know about CDM; 97.67% of them don't think it impacting their livelihoods environment while 2.33% of them think it takes little impact of the local environment; The fields of environmental protection the public concerned mainly include noise of the construction(13.95%) , noise of the operation (3.49%), impact of dust on air quality (6.98%), use of land (19.77%), soil and water conservation(17.44%), construction waste(4.65%), impact on traffic (5.81%); 100% of them think it will promote the local economy; And the stakeholders are all supportive of this project.

No comments of the villagers who had seen the Notice have been received from October 8th, 2007 to November 8th, 2007.

In conclusion, the stakeholders are supportive of this project.

In order for on-going communicate with local stakeholders, the project owner put a grievance notebook in the company office. Anyone can put their comments on the book. Since this project has been operated for several years, all local stakeholders know the telephone of the office. When people have comments on the project, he or she can phone the project owner directly and leave message.

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 belongs to the East Asian continental monsoon climate in the sub-temperate dry regions where the wind resource is plentiful, and the average wind speed is relatively high.

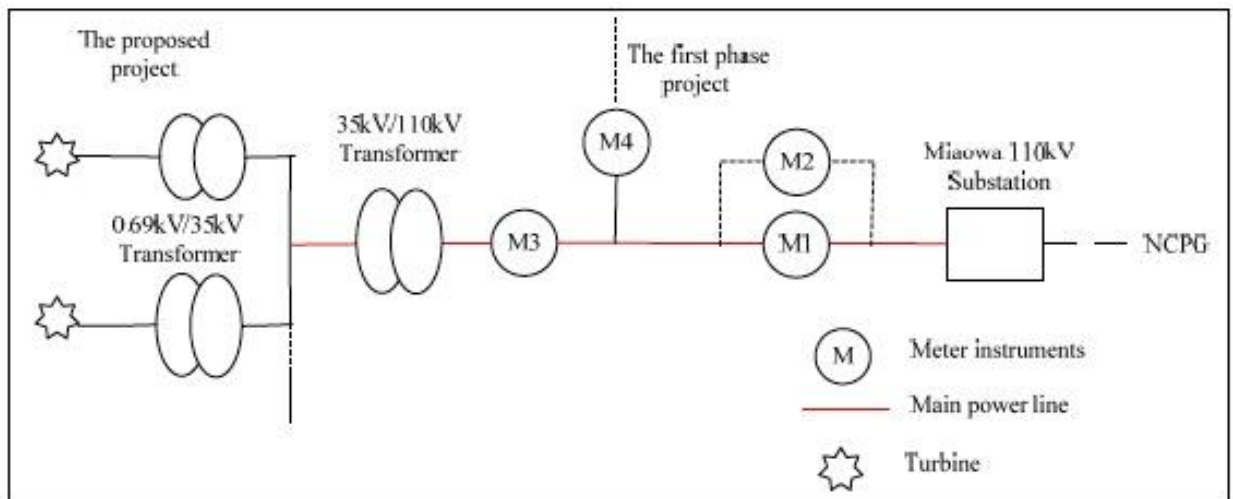
The project involves the installation of 58 wind turbines with each capacity of 850 kW, and totals up an installed capacity of 49.3 MW. All of 58 wind turbines were supplied by Vestas Wind

Technology (China) Co., Ltd. On average, the project activity is expected to operate 2,211 hours per year, which corresponds to output power of 109.002 GWh to NCPG annually. The plant load factor (PLF) is 25.24% which is consistent with the officially approved FSR compiled by an independent engineering company with national first-level qualification certification. The main technical parameters are shown in the following table 1.

Table 1. Parameters of equipment

Parameters Name	Unit	Value
Type of Turbine	/	V52-850
Nominal output	kW	850
Diameter	m	52
Hub height	m	55
Rated voltage	V	690
Nominal wind speed	m/s	16
The year of Production	/	2007
Lifetime	years	20

Each turbine will have a 0.69 kV/35 kV transformer. The electricity output will be transmitted by 35 kV transmission lines to the 35 kV/110 kV transformer station which is in wind farm site, and then to NCPG by 110 kV transmission lines. According to the Feasibility Study Report and the Environmental Impact Assessment Report of the project, the technology employed by the proposed project has been widely used in China and is environmentally safe. The simplified flow diagram is shown in the following figure 2:



The construction of the project began on 10/08/2008, and the first turbine was put into operation on 08/01/2009. And the project was put into full commercial operation on 28/02/2009.

During this monitoring period (01/11/2016 to 30/11/2021), the project operated normally. No equipment is overhauled or replaced in this monitoring period. No emergencies which may impact the methodology application and monitoring occurred during the monitoring period.

3.2 Deviations

3.2.1 Methodology Deviations

There is no methodology deviation in this monitoring period.

3.2.2 Project Description Deviations

The project was registered under VCS version 3. In the Verification Report of initial VCS monitoring period, it was mentioned that the project started operation since 08/01/2009. As per UNFCCC website, it was confirmed that the project activity was registered as CDM project activity on 07/07/2011. Therefore, the VCS crediting period was determined as 08/01/2009 to 07/07/2011. As per VCS scheme under which the project was registered, the project crediting period is allowable for 10 years and could be renewed twice. Therefore, the total VCS crediting period was determined from 08/01/2009-07/01/2030, of which the first crediting period is from 08/01/2009 to 07/01/2019, while the second crediting period is from 08/01/2019 to 07/01/2029. 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

For monitoring period belongs to the first crediting period:

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO _{2e} /MWh
Description	Baseline emission factor: the combined emission factor of the project grid system in year y.
Source of data	registered CDM PDD
Value applied	0.99174
Justification of choice of data or description of	$EF_{grid,CM,y}$ was not directly available at validation but calculated based on other parameters in the CDM PDD available at validation,

measurement methods and procedures applied	therefore in the MR, only $EF_{grid,CM,y}$ is included and the rest of the parameters used to calculate $EF_{grid,CM,y}$ are used in the MR.
Purpose of Data	<i>Calculation of baseline emissions</i>
Comments	The emission factor of the Project was ex-ante determined and is fixed during the first crediting period. All data and parameters had been determined at registration.

For monitoring period belongs to the second crediting period:

Data / Parameter	$EF_{grid,OM,y}$
Data unit	tCO ₂ /MWh
Description	Simple operating margin CO ₂ emission factor in year y
Source of data	“2017 Baseline Emission Factors for Regional Power Grids in China” issued by China DNA ⁵
Value applied	0.9680
Justification of choice of data or description of measurement methods and procedures applied	Official public data from NDRC
Purpose of Data	Calculation of baseline emissions
Comments	/

Data / Parameter	$EF_{grid,BM,y}$
Data unit	tCO ₂ /MWh
Description	Simple operating margin CO ₂ emission factor in year y
Source of data	“2017 Baseline Emission Factors for Regional Power Grids in China” issued by China DNA ⁶
Value applied	0.4578
Justification of choice of data or description of measurement methods and procedures applied	Official public data from NDRC
Purpose of Data	Calculation of baseline emissions
Comments	/

Data / Parameter	Wom
Data unit	%

⁵ <http://www.mee.gov.cn/ywgz/xdqhbh/wsqtkz/201812/P020181220579925103092.pdf>

⁶ <http://www.mee.gov.cn/ywgz/xdqhbh/wsqtkz/201812/P020181220579925103092.pdf>

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	WBM
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 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	/

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{\text{facility},y}$
Data unit	MWh
Description	For P1: $EG_{\text{facility},y}$ is quantity of net electricity generation supplied by the project plant to the grid in year y For P2: $EG_{\text{facility},y}$ is quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data	Measured by electricity meter and it is calculated as the difference of exported electricity to the grid ($EG_{\text{export},y}$); and the imported electricity from the grid ($EG_{\text{import},y}$). $EG_{\text{export},y} = EG_{\text{export},y,1} \times (EG_{\text{export},y,3} / (EG_{\text{export},y,3} + EG_{\text{export},y,4}));$

	$EG_{import,y} = EG_{import,y,1} \times (EG_{import,y,3} / (EG_{import,y,3} + EG_{import,y,4}));$
Description of measurement methods and procedures to be applied	It is continuously measured by the bi-directional meters (M1, M2, M3 and M4). M1 is the main meter and M2 is the backup meter, which are both managed, operated and maintained by the NCPG. M3 is installed for the project and M4 is installed for the first phase project. The project owner will monitor M3, M4 and will read and record the them monthly. The accuracy of the meters is 0.2S.
Frequency of monitoring/recording	The cut-off time of recording of all meters is at 24:00 on the end of each month.
Value applied	Measured continuously and recorded monthly.
Monitoring equipment	For P1: 262,051.886 MWh For P2: 334,867.055 MWh
QA/QC procedures to be applied	The electricity is monitored by electricity meter with national standards.
Purpose of data	The meter will be annually calibrated according to national standard. The electricity record will be cross checked with sales receipts.
Calculation method	<i>Calculation of baseline emissions</i>
Comments	$EG_{facility,y} = EG_{export,y} - EG_{import,y}$ $EG_{export,y} = EG_{export,y,1} \times (EG_{export,y,3} / (EG_{export,y,3} + EG_{export,y,4}));$ $EG_{import,y} = EG_{import,y,1} \times (EG_{import,y,3} / (EG_{import,y,3} + EG_{import,y,4}));$
	/
Data / Parameter	$EG_{export,y,1}$; $EG_{export,y,3}$; $EG_{export,y,4}$
Data unit	MWh
Description	Annual Electricity exported to the grid.
Source of data	Measured by electricity meter (M1, M3, M4).
	M1 is the main meter and M2 is the backup meter, which are both managed, operated and maintained by the NCPG. M3 and M4 are the monitoring meters, which are respectively managed, operated and maintained by the project owner and NCPG. The project owner will read and record the main (M3) and backup (M4) instruments monthly. The accuracy of the meters is 0.2S.
	The cut-off time of recording of all meters is at 24:00 on the end of each month.
Description of measurement methods	Measured continuously and recorded monthly. $EG_{export,y} = EG_{export,y,1} \times (EG_{export,y,3} / (EG_{export,y,3} + EG_{export,y,4}))$

and procedures to be applied	EG_{export,y,1}, EG_{export,y,3}, EG_{export,y,4} are the electricity exported to the grid through the main power line metered by M1, M3, M4. EG_{export,y,1}: Annual electricity exported to the grid by the project and the first phase project which measured by meter M1; EG_{export,y,3}: Annual electricity exported to the grid by the project which measured by meter M3; EG_{export,y,4}: Annual electricity exported to the grid by the first phase project which measured by meter M4.																																																
Frequency of monitoring/recording	Measured continuously and recorded monthly.																																																
Value applied	For P1: 526,514.781 (M1), 270,115.693 (M4), 267,932.669 (M3) For P2: 670,974.862 (M1), 338,332.908 (M4), 337,574.041 (M3)																																																
Monitoring equipment	The electricity is monitored by electricity meter with national standard.																																																
QA/QC procedures to be applied	The meter will be annually calibrated according to national standard. the electricity record will be cross checked with sales receipts. M2 is the backup meter of M1 with accuracy of 0.2S. <table><tr><th>Name</th><th>Type</th><th>Serial No.</th><th>Accuracy</th><th>Calibration Date and valid date</th></tr><tr><td rowspan="7">M1</td><td rowspan="7">DTSD546</td><td rowspan="7">070813147254</td><td rowspan="7">0.2S</td><td>13/07/2016-12/07/2017</td></tr><tr><td>13/07/2017-12/07/2018</td></tr><tr><td>13/07/2018-12/07/2019</td></tr><tr><td>13/07/2019-12/07/2020</td></tr><tr><td>13/07/2020-12/07/2021</td></tr><tr><td>13/07/2021-12/07/2022</td></tr><tr><td></td></tr><tr><td rowspan="7">M2</td><td rowspan="7">DTSD546</td><td rowspan="7">070813147253</td><td rowspan="7">0.2S</td><td>13/07/2016-12/07/2017</td></tr><tr><td>13/07/2017-12/07/2018</td></tr><tr><td>13/07/2018-12/07/2019</td></tr><tr><td>13/07/2019-12/07/2020</td></tr><tr><td>13/07/2020-12/07/2021</td></tr><tr><td>13/07/2021-12/07/2022</td></tr><tr><td></td></tr><tr><td rowspan="7">M3</td><td rowspan="7">DTSD341</td><td rowspan="7">2008106104003</td><td rowspan="7">0.2S</td><td>13/07/2016-12/07/2017</td></tr><tr><td>13/07/2017-12/07/2018</td></tr><tr><td>13/07/2018-12/07/2019</td></tr><tr><td>13/07/2019-12/07/2020</td></tr><tr><td>13/07/2020-12/07/2021</td></tr><tr><td>13/07/2021-12/07/2022</td></tr><tr><td></td></tr><tr><td rowspan="2">M4</td><td rowspan="2">DTSD341</td><td rowspan="2">2008106104002</td><td rowspan="2">0.2S</td><td>13/07/2016-12/07/2017</td></tr><tr><td></td></tr></table>					Name	Type	Serial No.	Accuracy	Calibration Date and valid date	M1	DTSD546	070813147254	0.2S	13/07/2016-12/07/2017	13/07/2017-12/07/2018	13/07/2018-12/07/2019	13/07/2019-12/07/2020	13/07/2020-12/07/2021	13/07/2021-12/07/2022		M2	DTSD546	070813147253	0.2S	13/07/2016-12/07/2017	13/07/2017-12/07/2018	13/07/2018-12/07/2019	13/07/2019-12/07/2020	13/07/2020-12/07/2021	13/07/2021-12/07/2022		M3	DTSD341	2008106104003	0.2S	13/07/2016-12/07/2017	13/07/2017-12/07/2018	13/07/2018-12/07/2019	13/07/2019-12/07/2020	13/07/2020-12/07/2021	13/07/2021-12/07/2022		M4	DTSD341	2008106104002	0.2S	13/07/2016-12/07/2017	
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					13/07/2020-12/07/2021
					13/07/2021-12/07/2022
Purpose of data	Calculation of baseline emissions				
Calculation method	/				
Comments	/				
Data / Parameter	$EG_{import,y,1}$; $EG_{import,y,3}$; $EG_{import,y,4}$				
Data unit	MWh				
Description	Annual Electricity exported to the grid.				
Source of data	Measured by electricity meter (M1, M3, M4).				
Description of measurement methods and procedures to be applied	M1 is the main meter and M2 is the backup meter, which are both managed, operated and maintained by the NCPG. M3 and M4 are the monitoring meters, which are respectively managed, operated and maintained by the project owner and NCPG. The project owner will read and record the main (M3) and backup (M4) instruments monthly. The accuracy of the meters is 0.2S. The cut-off time of recording of all meters is at 24:00 on the end of each month.				
	Measured continuously and recorded monthly. $EG_{import,y} = EG_{import,y,1} \times (EG_{import,y,3} / (EG_{import,y,3} + EG_{import,y,4}))$ $EG_{import,y,1}$, $EG_{import,y,3}$, $EG_{import,y,4}$ are the electricity imported from the grid through the main power line metered by M1, M3, M4. $EG_{import,y,1}$: Annual electricity imported from the grid by the project and the first phase project which measured by meter M1; $EG_{import,y,3}$: Annual electricity imported from the grid by the project which measured by meter M3; $EG_{import,y,4}$: Annual electricity imported from the grid by the first phase project which measured by meter M4.				
Frequency of monitoring/recording	Measured continuously and recorded monthly.				
Value applied	For P1:				

Monitoring equipment	343.277 (M1), 176.299 (M4), 150.032 (M3)																																																					
	For P2:																																																					
	450.639 (M1), 239.394 (M4), 189.585 (M3)																																																					
	The electricity is monitored by electricity meter with national standard.																																																					
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Purpose of data	Calculation of baseline emissions																																																					

Calculation method	/
Comments	/

4.3 Monitoring Plan

1. Monitoring data

The following parameters were measured directly by the onsite meters while the net electricity ($EG_{\text{facility},y}$) supplied to the grid by the project will be calculated from the following parameters.

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

Where

$$EG_{\text{export},y} = EG_{\text{export},y,1} \times (EG_{\text{export},y,3} / (EG_{\text{export},y,3} + EG_{\text{export},y,4}));$$

$$EG_{\text{import},y} = EG_{\text{import},y,1} \times (EG_{\text{import},y,3} / (EG_{\text{import},y,3} + EG_{\text{import},y,4}));$$

$EG_{\text{export},y,1}$, $EG_{\text{export},y,3}$, $EG_{\text{export},y,4}$ are the electricity exported to the grid through the main power line metered by M1, M3, M4;

$EG_{\text{import},y,1}$, $EG_{\text{import},y,3}$, $EG_{\text{import},y,4}$ are the electricity imported from the grid through the main power line metered by M1, M3, M4.

2. Organization Chart

This monitoring plan will be implemented by Chongli Construction Investment Huashi Wind Energy Co., Ltd, the project owner, and consultant appointed by the project owner. The project manager is responsible for the implementation and monitoring of the monitoring activity. There are 2 departments organized for data report, quality control. There is 1 manager responsible for data report and quality control department by 1 of each. The manager will take charge of the employment administration, as well as the operation implementation and monitoring; staffs will carry on the concrete assignment based on the guide of their manager. The monitoring system flowchart of this project is shown in following figure.

The relevant training will be implemented by the project owner and the equipment manufacturer before operation of the project.

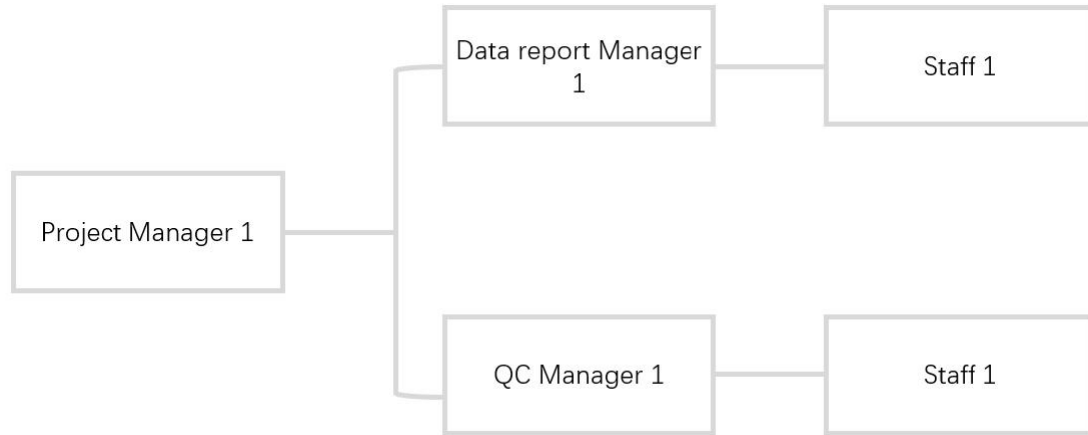


Figure 3. Monitoring structure

3. Metering System

The electricity generated by the project and the third phase project will be transmitted to an on-site 35kV/110kV transformer station that increase the voltage to 110kV, and then be delivered to Laiyuan Substation by main transmission line. The simplified electrical grid connection diagram is shown in the following figure 4:

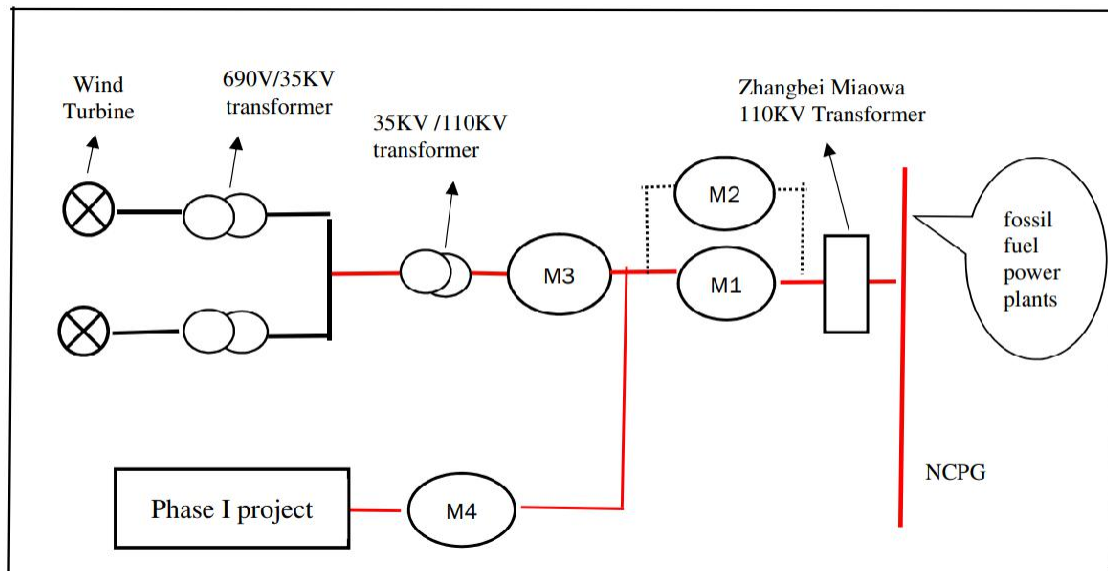


Figure 4. Simplified electrical grid connection diagram

The power line could not only supply electric power to the grid, but also could deliver power from the grid to the wind farm in case of emergencies. The metering equipment runs in two directions and will record two readings, i.e. electricity exported to the grid ($EG_{\text{export},y}$) and electricity imported from the grid ($EG_{\text{import},y}$).

In Figure 4, M1 is the main meter and M2 is the backup meter, which are both managed, operated and maintained by the NCPG. M3 and M4 are the monitoring meters, which are respectively managed, operated and maintained by the project owner and NCPG. The project owner will read and record the main (M3) and backup (M4) instruments monthly.

Net electricity supplied to the grid by the project is calculated on a monthly basis as:

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

Where

$$EG_{\text{export},y} = EG_{\text{export},y,1} \times (EG_{\text{export},y,3} / (EG_{\text{export},y,3} + EG_{\text{export},y,4}));$$

$$EG_{\text{import},y} = EG_{\text{import},y,1} \times (EG_{\text{import},y,3} / (EG_{\text{import},y,3} + EG_{\text{import},y,4}));$$

$EG_{\text{expor},y,1}$, $EG_{\text{expor},y,3}$, $EG_{\text{expor},y,4}$ are the electricity exported to the grid through the main power line metered by M1, M3, M4;

$EG_{\text{import},y,1}$, $EG_{\text{import},y,3}$, $EG_{\text{import},y,4}$ are the electricity imported from the grid through the main power line metered by M1, M3, M4.

4. Internal audit and QA/QC

The metering equipments will be properly calibrated and checked annually by an independent third party according to relevant national standard to ensure its accuracy.

The measurement of the whole production data is conducted by the monitoring plan and reviewed by the project manager. The project manager would check and make sure that all the staff would conduct monitoring activities according to the monitoring plan. All the data are recorded correctly. The meter records would be crosschecked with the sales receipts.

All physical documents including the readings in electronic and manual form of the Meters will be stored by the project owner and kept one copy in order to facilitate the verification of DOE.

The monthly records of power supplied to the grid and received from the grid, relevant accounting documents, the results of calibration shall be collected by the project owner. All data collected as part of monitoring will be kept at least for 2 years after the end of the last crediting period by the project owner.

5. Procedure in case of damaged metering equipment

Damages to metering equipment:

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

1) In case the main meter is damaged:

By reading the backup meter.

2) In case both the main meter and the backup are damaged:

- The project owner and the grid company will jointly calculate a conservative estimate of power supplied to the grid. A statement will be prepared indicating the background to the damage to metering equipment
- The project entity will furthermore document all efforts taken to restore normal monitoring procedures.

6. Procedures for handling non-conformances with the validated monitoring plan.

In case of emergencies, the project entity will not claim emission reductions due to the project activity for the duration of the emergency. The project entity will follow the following procedure for declaring the emergency period to be over:

- 1) The project entity will ensure that all requirements for monitoring of emission reductions have been re-established.
- 2) The monitoring officer and the head of operations of the wind farm will both sign a statement declaring the emergency situation to have ended and normal operations to have resumed.

7. Monitoring Report

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

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

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

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

Where:

BE_y is the baseline emissions (tCO₂e)

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

$EF_{\text{grid},CM,y}$ is the CO₂ emission factor of the NCPG, which is fixed in the first crediting period (tCO₂e/MWh)

The combined margin emission factor is calculated, and are fixed ex-ante for the duration of the **first crediting period** as 0.99174 tCO₂/MWh.

On the basis of these weights for the second crediting period, the combined margin emission factor is calculated, and are fixed ex-ante for the duration of the **second crediting period** as follows:

	CO ₂ emission factor (tCO ₂ /MWh)	Weighting
Simple operating Margin Emissions Factor (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 are listed in following table 2.

Table 2. Baseline emissions

Period	EG _{export,y} (MWh)	EG _{import,y} (MWh)	EG _{facility,y} (MWh)	EF _{grid,CM,y} (tCO ₂ /yr)	Baseline Emissions (tCO _{2e})
01/11/2016- 31/12/2016 (P1)	20,694.94097	9.419285735	20,685.522	0.99174	20,514
01/01/2017- 31/12/2017 (P1)	117,448.2591	74.4113946	117,373.848	0.99174	116,404
01/01/2018- 31/12/2018 (P1)	120,970.509	73.70801847	120,896.801	0.99174	119,898
01/01/2019- 07/01/2019 ⁷ (P1)	3,096.107	0.391	3,095.716	0.99174	3,070
08/01/2019- 31/12/2019 (P2)	118,140.746	52.701	118,088.045	0.84045	99,247
01/01/2020- 31/12/2020 (P2)	123,250.946	67.394	123,183.552	0.84045	103,529

⁷ According to Electric Quantity Confirmation issued by the Grid Company, Electricity supplied to the grid and Electricity imported from the grid recorded by meter M1, M3 and M4 is 6,171.096MWh, 3,153.092MWh and 3,131.585MWh, respectively, during 01/01/2019 to 07/01/2019, and Electricity supplied to the grid and Electricity imported from the grid recorded by meter M1, M3 and M4 is 0.846MWh, 0.360MWh and 0.419MWh, respectively, during 01/01/2019 to 07/01/2019.

Thus, the result of the EG_{export,y} and EG_{import,y} is 3,096.107MWh and 0.391MWh by calculation during 01/01/2019 to 07/01/2019.

01/01/2021-30/11/2021 (P2)	93,674.778	79.321	93,595.457	0.84045	78,662
Total in this monitoring period	597,276.286	357.345	596,918.941		541,324

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. $PE_y=0$.

5.3 Leakage

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

5.4 Net GHG Emission Reductions and Removals

In according with the registered PD

$$ER_y = BE_y - PE_y$$

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01/11/2016-31/12/2016 (P1)	20,514	0	0	20,514
01/01/2017-31/12/2017 (P1)	116,404	0	0	116,404
01/01/2018-31/12/2018 (P1)	119,898	0	0	119,898
01/01/2019-07/01/2019 (P1)	3,070	0	0	3,070
08/01/2019-31/12/2019 (P2)	99,247	0	0	99,247
01/01/2020-31/12/2020 (P2)	103,529	0	0	103,529
01/01/2021-30/11/2021 (P2)	78,662	0	0	78,662
Total	541,324	0	0	541,324

The estimated annual GHG emission reductions in the first crediting period are 108,101 tCO₂e/yr, and the 91,610 tCO₂e/yr during the second crediting period. This monitoring period is from 01/11/2016 to 30/11/2021 (1,856 days, 798 days in the first crediting period and 1058 days in the second crediting period), covers the first crediting period and the second crediting period.

The emission reductions claimed are 541,324 tCO₂e in this monitoring period (i.e. 1,856 days). Compared with expected emission reductions 501,885 tCO₂e (calculated as $108,101/365 \times 798 + 91,610/365 \times 1,058$) in the registered VCS PD and renewed VCS PD, the reported emission reductions in this monitoring period are 7.86% 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 19.1% 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: < MONTHLY AND YEARLY ELECTRICITY SUPPLY>

Period	EGexport,y,1			EGexport,y,4	EGexport,y,3	EGexport,y	EGimport,y,1			EGimport,y,4	EGexport,y,3	EGimport,y	EGfacility,y
	Electricity from meter readings (MWh)	Values from receipts (MWh)	Conservative value (MWh)	Electricity from meter readings (MWh)		Calculated data for ER calculation (MWh)	Electricity from meter reading (MWh)	Values from receipt (MWh)	Conservative value (MWh)	Electricity from meter readings (MWh)		Calculated data for ER calculation (MWh)	Amount of net electricity delivered by the project to the grid (MWh)
	A	B	C=min(A,B)	D	E	$F=C \times E / (D+E)$	A	B	C=max(A,B)	B1	C1	$D1=A1 \times C1 / (B1+C1)$	
2016/11/01~2016/11/30	19,793.087	19,793.087	19,793.087	10213.211	9881.876	9,733.366	10.725	10.725	10.725	7.823	2.402	2.519	9,730.846
2016/12/01~2016/12/31	20,983.286	20,983.286	20,983.286	10089.053	11035.233	10,961.575	15.893	15.893	15.893	8.880	6.813	6.900	10,954.675
2016Total	40,776.373	40,776.373	40,776.373	20,302.264	20,917.109	20,694.941	26.618	26.618	26.618	16.703	9.215	9.419	20,685.522
2017/01/01~2017/01/31	26,865.303	26,865.303	26,865.303	13985.692	13661.611	13,275.194	11.023	11.023	11.023	4.825	5.998	6.109	13,269.085
2017/02/01~2017/02/28	16,874.527	16,874.527	16,874.527	8949.527	8527.000	8,233.277	9.417	9.417	9.417	3.885	4.892	5.249	8,228.029
2017/03/01~2017/03/31	25,303.391	25,303.391	25,303.391	13404.253	12201.138	12,057.233	11.922	11.922	11.922	8.850	2.672	2.765	12,054.468
2017/04/01~2017/04/30	18,752.511	18,752.511	18,752.511	8978.330	9976.181	9,869.864	3.275	3.275	3.275	2.556	0.580	0.606	9,869.258
2017/05/01~2017/05/31	19,256.788	19,256.788	19,256.788	10026.115	9534.673	9,386.492	12.114	12.114	12.114	6.225	5.289	5.565	9,380.927
2017/06/01~2017/06/30	15,702.693	15,702.693	15,702.693	8255.577	7848.116	7,652.689	17.758	17.758	17.758	6.975	9.783	10.367	7,642.322
2017/07/01~2017/07/31	15,722.197	15,722.197	15,722.197	8259.388	7963.809	7,717.873	16.978	16.978	16.978	8.686	7.892	8.082	7,709.791
2017/08/01~2017/08/31	16,333.968	16,333.968	16,333.968	8339.944	8197.024	8,096.401	10.207	10.207	10.207	4.978	4.829	5.026	8,091.375
2017/09/01~2017/09/30	15,795.490	15,795.490	15,795.490	8025.891	7871.599	7,821.094	20.139	20.139	20.139	9.889	9.250	9.733	7,811.361
2017/10/01~2017/10/31	18,850.789	18,850.789	18,850.789	9919.199	9682.590	9,311.623	17.298	17.298	17.298	9.823	6.475	6.872	9,304.750
2017/11/01~2017/11/30	24,193.087	24,193.087	24,193.087	12614.211	12581.876	12,081.020	7.425	7.425	7.425	0.000	6.825	7.425	12,073.595
2017/12/01~2017/12/31	24,013.286	24,013.286	24,013.286	12219.053	12095.233	11,945.499	16.012	16.012	16.012	8.812	6.200	6.613	11,938.886
2017Total	237,664.030	237,664.030	237,664.030	122,977.180	120,140.850	117,448.259	153.568	153.568	153.568	75.504	70.685	74.411	117,373.848
2018/01/01~2018/01/31	26,742.673	26,742.673	26,742.673	13379.981	13663.692	13,511.613	13.899	13.899	13.899	7.608	4.891	5.439	13,506.174
2018/02/01~2018/02/28	17,035.414	17,035.414	17,035.414	8689.887	8847.527	8,594.271	9.692	9.692	9.692	5.489	3.903	4.028	8,590.243
2018/03/01~2018/03/31	26,370.833	26,370.833	26,370.833	13627.675	13145.158	12,947.781	18.010	18.010	18.010	10.007	7.003	7.415	12,940.366
2018/04/01~2018/04/30	17,885.118	17,885.118	17,885.118	9010.880	8976.238	8,925.336	12.004	12.004	12.004	9.004	2.000	2.182	8,923.154
2018/05/01~2018/05/31	18,290.352	18,290.352	18,290.352	9569.125	9722.227	9,217.755	9.917	9.917	9.917	4.525	5.092	5.251	9,212.504
2018/06/01~2018/06/30	17,509.473	17,509.473	17,509.473	8857.383	9654.090	9,131.528	13.940	13.940	13.940	8.336	4.904	5.163	9,126.364
2018/07/01~2018/07/31	17,899.613	17,899.613	17,899.613	8847.225	9254.388	9,151.116	16.037	16.037	16.037	8.191	7.546	7.690	9,143.426
2018/08/01~2018/08/31	16,034.604	16,034.604	16,034.604	8099.660	8136.944	8,035.712	15.904	15.904	15.904	8.002	7.502	7.696	8,028.017
2018/09/01~2018/09/30	18,405.228	18,405.228	18,405.228	9183.337	9423.891	9,321.585	12.940	12.940	12.940	6.034	5.906	6.401	9,315.185

2018/10/01~2018/10/31	16,705.085	16,705.085	16,705.085	9538.886	8168.199	7,705.981	12.914	12.914	12.914	4.209	7.805	8.390	7,697.591
2018/11/01~2018/11/30	24,898.644	24,898.644	24,898.644	12589.433	12611.211	12,460.081	15.041	15.041	15.041	8.003	6.538	6.763	12,453.318
2018/12/01~2018/12/31	24,126.245	24,126.245	24,126.245	12311.192	12118.053	11,967.751	11.947	11.947	11.947	4.265	6.682	7.292	11,960.458
2018Total (P1)	241,903.282	241,903.282	241,903.282	123,704.664	123,721.618	120,970.509	162.245	162.245	162.245	83.673	69.772	73.708	120,896.801
2019/01/01~2019/01/07	6,171.096	6,171.096	6,171.096	3,131.585	3,153.092	3,096.107	0.846	0.846	0.846	0.419	0.360	0.391	3,095.716
2019Total (P1)	6,171.096	6,171.096	6,171.096	3,131.585	3,153.092	3,096.107	0.846	0.846	0.846	0.419	0.360	0.391	3,095.716
2019/01/08~2019/01/31	21,158.042	21,158.042	21,158.042	10,736.861	10,810.600	10,615.224	2.901	2.901	2.901	1.437	1.236	1.341	10,613.883
2019/02/01~2019/02/28	21,669.403	21,669.403	21,669.403	11325.876	11347.527	10,845.048	6.353	6.353	6.353	3.225	3.008	3.066	10,841.982
2019/03/01~2019/03/31	26,222.295	26,222.295	26,222.295	13624.112	13102.183	12,855.104	18.021	18.021	18.021	12.020	5.801	5.866	12,849.238
2019/04/01~2019/04/30	17,244.688	17,244.688	17,244.688	8471.450	8976.238	8,871.801	2.552	2.552	2.552	2.422	0.000	0.000	8,871.801
2019/05/01~2019/05/31	19,616.217	19,616.217	19,616.217	9897.990	9922.227	9,820.102	6.635	6.635	6.635	3.770	2.685	2.760	9,817.342
2019/06/01~2019/06/30	17,986.495	17,986.495	17,986.495	9223.153	9168.342	8,966.445	14.283	14.283	14.283	5.966	7.217	7.819	8,958.626
2019/07/01~2019/07/31	17,302.024	17,302.024	17,302.024	8981.945	8623.879	8,475.068	21.406	21.406	21.406	12.078	8.706	8.967	8,466.102
2019/08/01~2019/08/31	15,522.088	15,522.088	15,522.088	7988.927	7738.161	7,637.295	14.702	14.702	14.702	8.063	5.839	6.175	7,631.120
2019/09/01~2019/09/30	13,706.510	13,706.510	13,706.510	7291.837	6718.273	6,572.688	10.426	10.426	10.426	7.124	2.892	3.010	6,569.677
2019/10/01~2019/10/31	17,759.527	17,759.527	17,759.527	9841.356	8523.171	8,242.384	13.020	13.020	13.020	7.372	5.348	5.474	8,236.910
2019/11/01~2019/11/30	25,868.335	25,868.335	25,868.335	13132.622	13042.713	12,889.740	16.726	16.726	16.726	10.719	5.007	5.325	12,884.415
2019/12/01~2019/12/31	25,800.524	25,800.524	25,800.524	13921.756	12782.368	12,349.845	10.365	10.365	10.365	7.180	2.785	2.897	12,346.948
2019Total (P2)	239,856.148	239,856.148	239,856.148	124,437.885	120,755.682	118,140.746	137.390	137.390	137.390	81.376	50.524	52.701	118,088.045
2020/01/01~2020/01/31	24,073.216	24,073.216	24,073.216	12388.114	11987.102	11,838.586	8.544	8.544	8.544	4.438	4.006	4.053	11,834.533
2020/02/01~2020/02/29	22,929.782	22,929.782	22,929.782	11367.882	11763.900	11,661.171	8.215	8.215	8.215	4.075	3.540	3.819	11,657.352
2020/03/01~2020/03/31	24,020.835	24,020.835	24,020.835	10241.167	14781.668	14,189.759	15.273	15.273	15.273	6.780	7.493	8.018	14,181.741
2020/04/01~2020/04/30	17,495.410	17,495.410	17,495.410	9106.886	8690.524	8,543.057	19.023	19.023	19.023	9.086	9.037	9.486	8,533.571
2020/05/01~2020/05/31	19,445.544	19,445.544	19,445.544	9537.881	9970.663	9,938.464	7.354	7.354	7.354	3.291	3.963	4.018	9,934.447
2020/06/01~2020/06/30	17,114.275	17,114.275	17,114.275	7237.273	9929.002	9,898.925	6.991	6.991	6.991	3.657	2.894	3.088	9,895.837
2020/07/01~2020/07/31	17,268.130	17,268.130	17,268.130	8580.889	8989.241	8,834.732	16.567	16.567	16.567	10.003	5.564	5.921	8,828.810
2020/08/01~2020/08/31	16,117.791	16,117.791	16,117.791	7785.682	8634.109	8,475.307	11.852	11.852	11.852	4.897	6.055	6.553	8,468.754
2020/09/01~2020/09/30	19,176.020	19,176.020	19,176.020	9548.259	9829.761	9,727.294	19.188	19.188	19.188	10.093	8.095	8.540	9,718.754
2020/10/01~2020/10/31	19,480.111	19,480.111	19,480.111	11147.562	8634.549	8,502.731	11.607	11.607	11.607	7.803	3.504	3.597	8,499.134
2020/11/01~2020/11/30	23,928.152	23,928.152	23,928.152	12022.584	12008.568	11,957.098	14.107	14.107	14.107	5.689	7.018	7.791	11,949.307
2020/12/01~2020/12/31	22,325.544	22,325.544	22,325.544	12869.352	9858.192	9,683.822	9.413	9.413	9.413	6.610	2.403	2.510	9,681.313
2020Total (P2)	243,374.810	243,374.810	243,374.810	121,833.531	125,077.279	123,250.946	148.134	148.134	148.134	76.422	63.572	67.394	123,183.552
2021/01/01~2021/01/31	20,880.612	20,880.612	20,880.612	10338.250	10713.660	10,626.484	10.243	10.243	10.243	4.619	5.113	5.381	10,621.102
2021/02/01~2021/02/29	18,913.260	18,913.260	18,913.260	9582.660	8633.910	8,964.113	12.850	12.850	12.850	6.075	5.540	6.129	8,957.984
2021/03/01~2021/03/31	15,123.880	15,123.880	15,123.880	7238.520	6802.310	7,327.011	16.777	16.777	16.777	7.780	8.135	8.576	7,318.436

2021/04/01~2021/04/30	16,486.350	16,486.350	16,486.350	8424.812	8538.270	8,298.310	18.035	18.035	18.035	8.125	9.632	9.783	8,288.527
2021/05/01~2021/05/31	16,287.550	16,287.550	16,287.550	7527.280	8029.570	8,406.716	10.330	10.330	10.330	4.291	4.963	5.540	8,401.176
2021/06/01~2021/06/30	15,024.740	15,024.740	15,024.740	7819.350	7124.720	7,163.180	16.500	16.500	16.500	9.657	6.102	6.389	7,156.791
2021/07/01~2021/07/31	16,023.680	16,023.680	16,023.680	7563.910	8110.360	8,291.156	20.180	20.180	20.180	10.225	8.731	9.295	8,281.861
2021/08/01~2021/08/31	16,124.800	16,124.800	16,124.800	7810.370	8491.450	8,399.242	22.000	22.000	22.000	14.283	6.815	7.106	8,392.136
2021/09/01~2021/09/30	15,425.370	15,425.370	15,425.370	7720.180	7025.480	7,349.324	12.350	12.350	12.350	5.220	6.830	7.000	7,342.324
2021/10/01~2021/10/31	18,405.770	18,405.770	18,405.770	9009.820	9026.170	9,211.228	15.680	15.680	15.680	7.129	8.042	8.312	9,202.916
2021/11/01~2021/11/30	19,047.892	19,047.892	19,047.892	9026.340	9245.180	9,638.015	10.170	10.170	10.170	4.192	5.586	5.810	9,632.205
2021Total (P2)	187,743.904	187,743.904	187,743.904	92,061.492	91,741.080	93,674.778	165.115	165.115	165.115	81.596	75.489	79.321	93,595.457
Total	1,197,489.643	1,197,489.643	1,197,489.643	608,448.601	605,506.710	597,276.286	793.916	793.916	793.916	415.693	339.617	357.345	596,918.941