HEBEI HAIXING 49.5MW WIND FARM PROJECT

Document Prepared By LGAI Technological Center, S.A. (Applus+ Certification)

Project Title	Hebei Haixing 49.5MW Wind Farm Project
Version	01.1
Report ID	A+SH_SYST_VCS_VER_7822

Report Title	Hebei Haixing 49.5MW Wind Farm Project
Client	Beijing Ruifang Information Technology Co., Ltd
Pages	27
Date of Issue	15/12/2022
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Work Carried Out By	Lead Auditor / Technical Expert: Doris Dai Technical Reviewer: Simon Shen

Summary:

LGAI Technological Center, S.A. (hereafter referred to as "Applus+ Certification") has been commissioned by Beijing Ruifang Information Technology Co., Ltd to perform the verification of greenhouse gas emission reductions of the project activity "Hebei Haixing 49.5MW Wind Farm Project" (VCS Ref. No. 414, hereafter referred to as "the project activity") reported in the monitoring report /1/ during monitoring period 26/11/2021 to 25/05/2022.

The project activity has been validated by TÜV SÜD based on the CDM PDD /3/ version 06 dated 16/02/2009 and reported in the validation report No. 1042271 /4/, version 2, completed on 24/02/2009. The project activity was registered as a CDM project activity on 06/03/2009 and successfully renewed on 25/11/2016 which is available at https://cdm.unfccc.int/Projects/DB/TUEV-SUED1218101320.07/view. A gap validation was performed and the project has been successfully renewed by Applus+ Certification which is available at https://registry.verra.org/app/projectDetail/VCS/414. The registered VCS PD /3/ version 02 dated 11/02/2020 would be the basis for verification.

The project activity is a wind power project located at Haixing County, Cangzhou City, Hebei Province, P. R. China which is to use wind power resource for electricity generation. The installed capacity of the project activity is 49.5 MW, involves the installation of 33 wind turbines with a unit capacity of 1,500 kW. The average annual power delivered to the grid by the project is expected to be 114,999 MWh. The project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants in North China Power Grid (NCPG). It's estimated that the proposed project could achieve GHG emission reductions of 96,650 tCO_2e annually.

The purpose and scope of this verification is to ensure that reported emission reductions are complete and accurate in accordance with applicable VCS standards and relevant UNFCCC requirements in order to be certified. A desk review and a site visit have been conducted to verify the data submitted in the monitoring report /1/. Applus+ Certification confirms the following has been reviewed:

- Monitoring plan included in the registered VCS PD /3/ version 02 dated 11/02/2020;
- Validation report No. 1042271 /4/ version 2, dated 24/02/2009;
- VCS Validation report No. A+SH_SYST_VCS_RCP_0820 /4/ version 01.1, dated 15/02/2020;

- Approved methodology, ACM0002 /7/, version 20.0, dated 28/11/2019;
- VCS standards version 4.3 and guidance version 4.2, as well as relevant UNFCCC requirements;
- All information and references relevant to the project activity's resulting in emission reductions.

During this verification, no finding was identified related to the monitoring, implementation or operations of the project activity in relation to relevant VCS standards, guidance and UNFCCC requirements and relevant host party criteria and the applied baseline and monitoring methodology etc.

- Applus+ Certification confirms that the project is implemented in accordance with the registered PD /3/. The monitoring plan complies with the applied methodology ACM0002 /7/ version 20.0 and the monitoring has been carried out in accordance with the registered PD. The monitoring system is in place and the emission reductions are calculated without material misstatements. The level of assurance of the verification is reasonable. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 50,898 tCO_2e emission reductions during period 26/11/2021 to 25/05/2022.

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1 INTRODUCTION

1.1 Objective

- LGAI Technological Center, S.A. (Applus+ Certification) has been commissioned by Beijing Ruifang Information Technology Co., Ltd to perform the verification of greenhouse gas emission reductions of the project activity "Hebei Haixing 49.5MW Wind Farm Project" (VCS Ref. No. 414) reported in the Monitoring Report /1/ during monitoring period 26/11/2021 to 25/05/2022.
- LGAI Technological Center, S.A. (Applus+ Certification) as the verification body of the project activity has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2020.
- The objective of verification is to have an independent review and ex post determination by a Validation and Verification Body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the registration of VCS project. Certification is the written assurance by the VVB that, during a specific time period, a proposed VCS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.
- The objective of this verification/certification is to verify and certify emission reductions, reported for the "Hebei Haixing 49.5MW Wind Farm Project" in China for the period 26/11/2021 to 25/05/2022.

1.2 Scope and Criteria

- The verification scope is defined as an independent and objective review of the registered PD and PDD, the Project's baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS Version 4.3 requirements, UNFCCC rules and associated interpretations.
- The verification is not meant to provide any consulting towards the client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the Project monitoring towards reductions in the GHG emissions..

1.3 Level of Assurance

- The verification report is based on the VCS-PD, the VCS Monitoring Report (MR), supporting evidences made available to the verifier and information collected through performing interviews and during the on-site assessment.
- The verification conclusion is assured a reasonable level of assurance.

1.4 Summary Description of the Project

Project title	Hebei Haixing 49.5MW Wind Farm Project
VCS reference number	414
Project Participants	Hebei Construction Investment Zhongxing Wind Energy Co., Ltd (Project Owner, host country, P. R. China)
Location of the project	Haixing County, Cangzhou City, Hebei Province, P. R. China Geographic coordinates: East longitude: 117°45'27" North latitude: 38°13'27"
Project start date	Construction start date: 01/01/2007 Operation start date: 14/04/2008
Version of VCS PD	Version 02, dated 11/02/2020 (basis for verification)
Monitoring period	26/11/2021 to 25/05/2022
First monitoring report	Version 01, dated 10/10/2022
Final monitoring report	Version 03, dated 15/12/2022
Applied Methodology/Version	ACM0002, version 20.0, dated 28/11/2019
Scope/Technical Area	1/1.2

The project activity is a wind power project located at Haixing County, Cangzhou City, Hebei Province, P. R. China which is to use wind power resource for electricity generation. The installed capacity of the project activity is 49.5 MW, involves the installation of 33 wind turbines with a unit capacity of 1,500 kW. The average annual power delivered to the grid by the project is expected to be 114,999 MWh. The project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants in North China Power Grid (NCPG). It's estimated that the proposed project could achieve GHG emission reductions of 96,650 tCO_2e annually.

The project activity has been validated by TÜV SÜD based on the CDM PDD /3/ version 06 dated 16/02/2009 and reported in the validation report No. 1042271 /4/, version 2, completed on 24/02/2009. The project activity was registered as a CDM project activity on 06/03/2009 and successfully renewed on 25/11/2016 which is available at https://cdm.unfccc.int/Projects/DB/TUEV-SUED1218101320.07/view. A gap validation was performed and the project has been successfully renewed by Applus+ Certification which is available at https://registry.verra.org/app/projectDetail/VCS/414. The registered VCS PD /3/ version 02 dated 11/02/2020 would be the basis for verification.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification was conducted using Applus+ Certification's procedures in line with the requirements specified in the VCS Standard version 4.3, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques.

Applus+ Certification completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report /1/ for the period in question. This involved a site visit and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

The information of the assessment team is included in below:

Assessment team

According to the sectoral scopes / technical area and experiences in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in Applus+ Certification. The composition of assessment team has to be approved by the Applus+ Certification ensuring that the required skills are covered by the team. The four qualification levels for team members that are assigned by formal appointment rules as below:

- Leader Auditor (LA)
- Auditor (A)/ Auditor Trainee (AiT)

- Technical Reviewer (TR)
- Technical Experts (TE)

Name	Qualification	Coverage of scope	Coverage of Technical Area	Host country experience
Doris Dai	LA/TE	Y (1.2)	Y	Y
Simon Shen	TR	Y (1.2)	Y	Y

- **Doris Dai** (Master's Degree in Environmental Sciences, Bachelor's Degree in Environmental Technology) is an Auditor appointed by Applus+ LGAI for the GHG project assessment and auditing. She has more than 6 years of work experience in CDM/VCS project assessment. Before she joined Applus+ LGAI, she has been working for CTI Certification as senior GHG Auditor for 3.5 years.
- **Simon Shen** (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Assessment team and ISO 9001/14001 Lead Auditor for 3.5 years.

2.2 Document Review

- The VCS monitoring report /1/ version 01 dated 10/10/2022, version 03 dated 15/12/2022 and the emission reduction calculations spreadsheet /2/, were assessed as part of the verification. In addition, the VCS PD /3/ version 02 dated 11/02/2020 in particular the baseline estimations and the monitoring plan, the VCS Validation Report /4/ dated 15/02/2020, as well as relevant documents, were reviewed. A detailed document reviewed are listed in Appendix 1 of the report.

2.3 Interviews

The key personnel interviewed are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Lv Binnan	Project Manager	Hebei Construction Investment Zhongxing Wind Energy Co., Ltd	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement; Calibration of meters and equipment maintenance. Data collection and ER calculation.
Ms. Zhang Ling	Project Manager	Hebei Construction Investment Zhongxing Wind Energy Co., Ltd	
Mr. Song Dong	Project Manager	Hebei Construction Investment Zhongxing Wind Energy Co., Ltd	
Mr. Li Shuai	Manager	Hebei Construction Investment Zhongxing Wind Energy Co., Ltd	
Mr. Jia Xuanyu	Director	Local environmental protection bureau	
Mr. Song Shimin	Local Resident	Haixing County	
Mr. Liu Chang	Local Resident	Haixing County	

2.4 Site Inspections

- The assessment team performed the on-site verification (Haixing County, Cangzhou City, Hebei Province, P. R. China) on 03/11/2022. The interviewed personnel and objective are listed in above table.

2.5 Resolution of Findings

- As an outcome of the verification process, the team can raise different types of findings.
- Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:
- a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- b) Modifications to the implementation, operation and monitoring of the project activity has not been sufficiently documented by the project participants;
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.
- The assessment team shall raise a Clarification Request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.
- All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.
- There is no CARs and CLs raised for this monitoring period for the project.

2.5.1 Forward Action Requests

- None FAR was raised during the verification process. Also there are no remaining from former validation and verification.

2.6 Eligibility for Validation Activities

- Not applicable as LGAI Technological Center, S.A. holds the accreditation for the validation and verification for projects under scope 1.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

- Through reviewing the registered PDD /3/ and validation report /4/, it was validated that the project has been registered as a CDM project with reference No. 2007 first and successfully renewed which is available at https://cdm.unfccc.int/Projects/DB/TUEV-SUED1218101320.07/view. Then the project has been registered as VCS project which is available at https://registry.verra.org/app/projectDetail/VCS/414. The project does not participate in the other emissions trading program by checking public information on Internet, interviewing with project owner and statement issued by project owner.
- During the period from 14/04/2018 to 13/04/2028 as the second VCS crediting period, the project would claim only for VCUs or CERs. But VCUs and CERs will not be claimed in the same period. Also, for period 06/03/2009 to 31/12/2012, the project has applied for the issuance of CERs.
- The project is also registered as a CDM project with a seven year twice renewable project crediting period, which is from 06/03/2009 to 05/03/2030. Therefore, the total length of VCS crediting period should be no more than 21 years which is from 14/04/2008 to 13/04/2029. But considering the lifetime of the project is 20 years, the project may stop operation since 13/04/2028 based on the operation status.
- Therefore, Applus+ Certification consider the project is eligible to participate under the VCS Program as there is no double counting for the emission reduction during any period.

3.2 Methodology Deviations

- Not applicable as no deviation for methodology.

3.3 Project Description Deviations

- The project is registered under VCS Standard version 3, then the first crediting period should be from 14/04/2008 to 13/04/2018 other than from 14/04/2008 to 05/03/2009.
- The assessment team confirm this is in line with the requirement of VCS and it has no impacts on the applicability, additionality or baseline of the project.

3.4 Grouped Project

- Not applicable as not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

- By means of on-site visit, the assessment team confirms that all physical features of the proposed project activity proposed in the registered VCS PD /3/ are in place and the PP has operated the project as per registered VCS PD /3/. The installed capacity of the project is 49.5 MW, involves the installation of 33 wind turbines with a unit capacity of 1,500 kW. The electricity generated is transmitted to the local Power Grid via a newly built transformer station, which was then exported to the NCPG. The project activity was expected to supply 114,999 MWh of electricity to the grid. The construction of the project started on 01/01/2007, the project has been put into operation on 14/04/2008 verified by checking information on the UNFCCC website and site visit. There are no changes on the key equipment and technology since the validation of the project. No special event which would affect the monitoring of the project has been observed during the monitoring period.
- By checking information of other GHG programs such as CDM, GS, GCC, CCER etc., it is able to confirm:
- The project has not participated or been rejected under any other GHG programs since validation or previous verification;
- The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification;
- The GHG emission reductions or removals generated by the project have not become included in an emissions trading program or any other mechanism that includes GHG allowance trading.
- The project would contribute to sustainable development in as below:
- 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 .
- During this monitoring period, the project provided about 30 stable work opportunities to local people, including 13 females. The project will 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_2e in this monitoring period, and contributes to Chinese Climate change target.
- Moreover by checking public information, staff roaster of project /16/, payment slip /17/ and site visit, following information has been confirmed:

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 consumption	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 60,561.629 MWh.	From the operation start date of the project to the end of this monitoring period, the verified electricity generated by this project is 1,484,697.704 MWh.
2	8.3	8.3.1 Proportion of informal employment in non-agriculture employment, by sex	Implemented activities to decrease	During the current monitoring period, there are 30 stable job opportunities provided to local people, including 13 females.	During the operation time, the project provides about 30 stable work opportunities to local people, including 13 females.
3	13	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 50,898 tCO_2e	The credits from the operation start date of the project to the end of this monitoring period, the verified emission reduction generated by this project is 1,424,314 tCO_2e.

- The technical parameters have been verified with the nameplates /9 / as below:

Parameters Name	Unit	Value
Type of Turbine	-	FD77A
Nominal output	kW	1,500
Diameter	m	77
Hub height	m	61.5
Rated voltage	V	690
Nominal wind speed	m/s	12.5

- By comparing the actual ER claimed in this monitoring period with the estimate in the registered PD, the actual emission reductions (50,898 tCO_2e) are 6.20% higher than what is stated in the registered PD (i.e. 47,928 tCO_2e, equals to annual emission reductions, 96,650 tCO_2e multiplied by the actual operational days (181 days) then divided by 365 days). The assessment team consider this variation is acceptable as normal variation, even apply this variation in the IRR calculation, the IRR of the project is still under benchmark.
- Therefore, the assessment team confirmed the ER in this monitoring period is not overestimated.
- The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period.
- All required equipments and procedures are available and implemented in an appropriate manner.
- All necessary monitoring instruments are installed. All required instruments including standby and operating procedures for the same have been implemented in an appropriate manner.
- The project is completely operational and the same has been confirmed on-site. Neither mistakes nor malfunction on main meters have been observed during this monitoring period.

4.2 Safeguards

4.2.1 No Net Harm

- By checking the EIA summary and conclusion provided in the registered PD, it is confirmed that wind power is green power and the impact caused by wind power on the surrounding

ecosystem and residents, water, and atmosphere etc. is very little, there would be no net harm caused due to the project activity. Also, the EIA of the project are approved by the government.

- Also, no potential environment or social economic matter was found during the site visit. The project is renewable energy project and thus no net harm observed in air or water quality on-site.

4.2.2 Local Stakeholder Consultation

- A survey was carried out through the information publication, distributing and collecting responses to questionnaires targeting on local residents, builders and members of the local authorities. The project owner introduced the proposed project, and then a survey was arranged through a one-page questionnaire, which was designed to be easily filled in. The opinions expressed by the stakeholders were recorded and are available on request.
- The stakeholder meeting and the survey showed that the proposed project receives strong support from the local community. They all believe the proposed project will promote local economic development and agree with the project development and construction.
- Communications with Local stakeholders was being carried out at periodic intervals. There are no negative comments received for the project.
- All such conclusion has been verified through site visit and check registered PDD.

4.3 AFOLU-Specific Safeguards

- Not applicable as non-AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

- The monitoring has been carried out in accordance with the monitoring plan contained in the VCS PD /3/. All parameters were monitored and determined as per the monitoring plan which is listed in below table:

Data / Parameter:	$EG_{facility,y}$
Data unit:	MWh
Description:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Purpose of the data:	Calculation of baseline emissions
Parameter value:	60,561.629

Source of data used:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{facility,y}$) is determined by electricity supplied to the grid by the project ($EG_{s,y}$), electricity consumed from the grid by the project ($EG_{c,y}$) and electricity consumed by the project through the backup line ($EG_{backupline,y}$) as below formula: $EG_{facility,y} = EG_{s,y} - EG_{c,y} - EG_{backupline,y}$
Information flow:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{facility,y}$) is determined by electricity supplied to the grid by the project ($EG_{s,y}$), electricity consumed from the grid by the project ($EG_{c,y}$) and electricity consumed by the project through the backup line ($EG_{backupline,y}$) as below formula: $EG_{facility,y} = EG_{s,y} - EG_{c,y} - EG_{backupline,y}$
Monitoring method, frequency and equipments:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{facility,y}$) is determined by electricity supplied to the grid by the project ($EG_{s,y}$), electricity consumed from the grid by the project ($EG_{c,y}$) and electricity consumed by the project through the backup line ($EG_{backupline,y}$) as below formula: $EG_{facility,y} = EG_{s,y} - EG_{c,y} - EG_{backupline,y}$
Calibration:	Not applicable
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Means of verification:	Not applicable

Data / Parameter:	$EG_{s,y}$
Data unit:	MWh
Description:	Electricity supplied to the grid by the project
Purpose of the data:	Calculation of baseline emissions
Parameter value:	60,653.479
Source of data used:	Electricity supplied to the grid by the project ($EG_{s,y}$) are all sourced from Meter Reading Record (MRRs) /10/ issued by the project owner and, Electricity Transaction Notes (ETNs) /11/ issued by power grid company and Statement issued by power grid company /18/ covering monitoring period.
Information flow:	2 bi-directional electricity meters (M1 as main, M2 as backup) installed at the output of the 110 kV substation were measured continuously, recorded

<table>
<tr><td></td><td>monthly and archived electronically. At 24:00 hr of 25th day of each month, the staff from project owner will record main meter's readings and form Meter Reading Records (MRRs). The staff from power grid company will record the meter readings of main meter (M1) then transcribes the data into Electricity Transaction Notes (ETNs).
For data of 01/01/2022, it is determined by Meter Reading Records (MRRs) and Statement issued by power grid company.
The data for MRRs, ETNs and Statement issued by power grid company have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.</td></tr>
<tr><td>Monitoring method, frequency and equipments:</td><td>The parameter was measured continuously and recorded monthly by 2 bi-directional electricity meters (M1 as main, M2 as backup) installed at the output of the 110 kV substation during the monitoring period verified by site visit.
See below for the information of 2 bi-directional electricity meters verified by site visit and checking calibration certificates /12/:
<table>
<tr><th>Meter</th><th>Type</th><th>Serial Number</th><th>Accuracy</th></tr>
<tr><td>M1</td><td>ZMD402CT</td><td>93982944</td><td>0.2s</td></tr>
<tr><td>M2</td><td>ZMD402CT</td><td>93982945</td><td>0.2s</td></tr>
</table>
The type, serial number and accuracy have been confirmed by site visit.</td></tr>
<tr><td>Calibration:</td><td>The calibration information is shown as below /12/:
<table>
<tr><th>Meter</th><th>Calibration date</th><th>Valid until</th></tr>
<tr><td>M1</td><td>29/09/2021</td><td>28/09/2022</td></tr>
<tr><td>M2</td><td>29/09/2021</td><td>28/09/2022</td></tr>
</table>
The calibration was conducted by accredited third parties which is Metering Center of State Grid Jibei Electric Power Co., Ltd. was accredited by Quality and Hebei Administration for Market Regulation /13/.</td></tr>
<tr><td>QA/QC procedure:</td><td>Data record will be archived for a period of 2 years after the crediting period to which the records pertain.</td></tr>
<tr><td>Means of verification:</td><td>Data of the parameter was verified by checking MRRs, ETNs and Statement issued by power grid company. All data is in line with MRRs, ETNs and Statement issued by power grid company;
Information flow was verified by checking MRRs, ETNs and Statement issued by power grid company, and all information are consistent;</td></tr>
</table>

	Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD; Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.

Data / Parameter:	$EG_{c,y}$
Data unit:	MWh
Description:	Electricity consumed from the grid by the project
Purpose of the data:	Calculation of baseline emissions
Parameter value:	91.850
Source of data used:	Electricity supplied to the grid by the project ($EG_{s,y}$) are all sourced from Meter Reading Record (MRRs) /10/ issued by the project owner and, Electricity Transaction Notes (ETNs) /11/ issued by power grid company and Statement issued by power grid company /18/ covering monitoring period.
Information flow:	2 bi-directional electricity meters (M1 as main, M2 as backup) installed at the output of the 110 kV substation were measured continuously, recorded monthly and archived electronically. At 24:00 hr of 25th day of each month, the staff from project owner will record main meter's readings and form Meter Reading Records (MRRs). The staff from power grid company will record the meter readings of main meter (M1) then transcribes the data into Electricity Transaction Notes (ETNs). For data of 01/01/2022, it is determined by Meter Reading Records (MRRs) and Statement issued by power grid company. The data for MRRs, ETNs and Statement issued by power grid company have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.
Monitoring method, frequency and equipments:	The parameter was measured continuously and recorded monthly by 2 bi-directional electricity meters (M1 as main, M2 as backup) installed at the output of the 110 kV substation during the monitoring period verified by site visit. See below for the information of 2 bi-directional electricity meters verified by site visit and checking calibration certificates /12/:

Meter	Type	Serial Number	Accuracy
M1	ZMD402CT	93982944	0.2s

	<table><tr><td>M2</td><td>ZMD402CT</td><td>93982945</td><td>0.2s</td></tr></table> The type, serial number and accuracy have been confirmed by site visit.
Calibration:	The calibration information is shown as below /12/: <table><tr><th>Meter</th><th>Calibration date</th><th>Valid until</th></tr><tr><td>M1</td><td>29/09/2021</td><td>28/09/2022</td></tr><tr><td>M2</td><td>29/09/2021</td><td>28/09/2022</td></tr></table> The calibration was conducted by accredited third parties which is Metering Center of State Grid Jibei Electric Power Co., Ltd. was accredited by Quality and Hebei Administration for Market Regulation /13/.
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.
Means of verification:	Data of the parameter was verified by checking MRRs, ETNs and Statement issued by power grid company. All data is in line with MRRs, ETNs and Statement issued by power grid company; Information flow was verified by checking MRRs, ETNs and Statement issued by power grid company, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD; Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.

Data / Parameter:	$EG_{backupline,y}$
Data unit:	MWh
Description:	Electricity consumed by the project through the backup line
Purpose of the data:	Calculation of baseline emissions
Parameter value:	0
Source of data used:	Electricity consumed by the project through the backup line ($EG_{backupline,y}$) are all sourced from Meter Reading Record (MRRs) /10/ issued by the project owner and Electricity Transaction Notes (ETNs) /11/ issued by power grid company covering monitoring period.
Information flow:	1 electricity meter (M3) installed at the backup line was measured continuously, recorded monthly and archived electronically. At 24:00 hr of

<table>
<tr><td></td><td>25th day of each month, the staff from project owner will record meter's readings and form Meter Reading Records (MRRs). The staff from power grid company will record the meter readings of meter (M3) then transcribes the data into Electricity Transaction Notes (ETNs).
The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.</td></tr>
<tr><td>Monitoring method, frequency and equipments:</td><td>The parameter was measured continuously and recorded monthly by 1 electricity meter (M3) installed at the backup line during the monitoring period verified by site visit.
See below for the information of 1 electricity meter verified by site visit and checking calibration certificates /12/:
<table>
<tr><th>Meter</th><th>Type</th><th>Serial Number</th><th>Accuracy</th></tr>
<tr><td>M3</td><td>DS862</td><td>070809002686</td><td>0.5s</td></tr>
</table>
The type, serial number and accuracy have been confirmed by site visit.</td></tr>
<tr><td>Calibration:</td><td>The calibration information is shown as below /12/:
<table>
<tr><th>Meter</th><th>Calibration date</th><th>Valid until</th></tr>
<tr><td>M3</td><td>29/09/2021</td><td>28/09/2022</td></tr>
</table>
The calibration was conducted by accredited third parties which is Metering Center of State Grid Jibei Electric Power Co., Ltd. was accredited by Quality and Hebei Administration for Market Regulation /13/.</td></tr>
<tr><td>QA/QC procedure:</td><td>Data record will be archived for a period of 2 years after the crediting period to which the records pertain.</td></tr>
<tr><td>Means of verification:</td><td>Data of the parameter was verified by checking MRRs and ETNs. All data is in line with MRRs and ETNs;
Information flow was verified by checking MRRs and ETNs, and all information are consistent;
Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD;
Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.</td></tr>
</table>

- Parameters available at validation stage:
- Below data has been verified against the data sources and the PD.

Parameter title	Description	Data	Source
$EF_{grid,OM,y}$	Simple operating margin CO_2 emission factor in year y	0.9419	2019 Baseline Emission Factors for Regional Power Grids in China, issued by China DNA on 29/12/2020 /14/.
$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year y	0.4819	2019 Baseline Emission Factors for Regional Power Grids in China, issued by China DNA on 29/12/2020 /14/.
W_{OM}	Weighting of operating margin emissions factor	75	Tool to calculate the emission factor for an electricity system, version 07.0.0
w_{BM}	Weighting of build margin emissions factor	25	Tool to calculate the emission factor for an electricity system, version 07.0.0

- In conclusion, the assessment team confirmed GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

- The monitoring has been carried out in accordance with VCS PD /3/ dated 11/02/2020.
- As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the MR Report and ER Calculation Spreadsheet /2/ and are consistent with the applied methodology ACM0002 version 20.0 and the monitoring plan. The parameters are complete in this monitoring period.
- By checking the original record, crosscheck with the supporting evidence issued from other party than project owner, checking calibration related documents and interview with project owner through the site visit, the VVB is able to confirm there are no transposition errors between data sets. All data are consistent in all data sets.
- After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the ER

Calculation Spreadsheet and the MR Report. The verification process for the same has been clearly described above in section 4.4 of the report.

4.6 Non-Permanence Risk Analysis

- Not applicable as a renewable project.

5 VERIFICATION CONCLUSION

- Applus+ Certification has been commissioned by Beijing Ruifang Information Technology Co., Ltd to perform the verification of greenhouse gas emission reductions of the project activity “Hebei Haixing 49.5MW Wind Farm Project” (VCS Ref. No. 414).
- The management of Hebei Construction Investment Zhongxing Wind Energy Co., Ltd is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project’s Monitoring Plan in the VCS PD /3/ dated 11/02/2020.
- Our verification approach was based on the requirements as defined under the applicable VCS standards and relevant UNFCCC requirements. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:
- the project is implemented and operated as per the registered PD;
- the monitoring plan in the registered PD is as per the applied methodology;
- the monitoring complies with the registered PD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.
- In our opinion, the GHG emission reductions for “Hebei Haixing 49.5MW Wind Farm Project” during the monitoring period 26/11/2021 to 25/05/2022 as reported in Monitoring Report, prepared on the basis of the project’s Monitoring Plan are fairly stated. Based on the information we have seen and evaluated, we confirm the following statement:
- Verification period: From 26/11/2021 to 25/05/2022 (divided into 2 vintage periods). Verified GHG emission reductions or removals in the above reporting period:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
26/11/2021-31/12/2021	10,821	0	0	10,821
01/01/2022-25/05/2022	40,077	0	0	40,077
Total	50,898	0	0	50,898

APPENDIX 1: REFERENCE LIST

1. Monitoring report, version 01, dated 10/10/2022; version 03, dated 15/12/2022

2. ER calculation spreadsheet

3. Registered CDM PDD, version 06, dated 16/02/2009

   VCS PD, versioned 3.0, dated 11/02/2020

4. Validation report, No. 1042271, version 2, completed by TÜV SÜD

   VCS Verification report, No. CTINB-2021-1110~1116, version 02.0, complete on 08/02/2022 by CTI

   VCS Validation report, No. A+SH_SYST_VCS_RCP_0820, version 01.1, completed by Applus+ Certification

5. VCS standard version 4.3, dated on 22/06/2022

6. Statement issued by project owner

7 Approved methodology ACM0002, version 20.0, dated 28/11/2019

8 CDM Monitoring procedure

9 Nameplate of the equipment

10 Meter Reading Record (MRRs) for Meters

11 Electricity Transaction Notes covering the monitoring period

12 Calibration certificates of meters covering the whole monitoring period issued by Metering Center of State Grid Jibei Electric Power Co., Ltd.

13 Accreditation certificates for Metering Center of State Grid Jibei Electric Power Co., Ltd. issued by Quality and Hebei Administration for Market Regulation

14 2019 Baseline Emission Factors for Regional Power Grids in China issued by China DNA on 29/12/2020

15 Tool to calculate the emission factor for an electricity system, version 07.0.0

16 Staff roaster of project

17 Payment slip

18 Statement issued by power grid company