



VCS VERIFICATION REPORT

HEBEI YUXIAN SECOND PHASE 49.5MW WIND POWER PROJECT (VCS PROJECT ID: 814)



Document Prepared By

Shenzhen CTI International Certification Co., Ltd.

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Prepared By	Shenzhen CTI International Certification Co., Ltd
Contact	Address: F8-A CTI Building, No.4 LiuXianSan Road, Xin'an Street, Bao'an District, 518101, Shen Zhen, China Tel: +86 10 65580012 Email: linshunrong@cti-cert.com Website: http://www.cti-cert.org
Approved By	Zhou Lu 
Work Carried Out By	Team Leader: Du Wenjun Technical Reviewer: Lin Shunrong

Summary:

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions reported for the project activity "Hebei Yuxian Second Phase 49.5MW Wind Power Project" (VCS Project ID: 814) for the monitoring period 01/11/2018 to 30/11/2021, to review and determine the monitored reductions in GHG emissions that have occurred as a result of the project activity. These emission reductions are claimed as Verified Carbon Units (VCU) under the Verified Carbon Standard (VCS) version 4.1.

The verification was performed on the basis of VCS Programme Guide version 4.0 and VCS Standard version 4.1 for the VCS projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. The verification was conducted by means of document review, follow-up interviews and site inspections, and the resolution of outstanding issues. The verification team identified 1 CL and 1 CAR, no FAR in this monitoring period.

In CTI's opinion, the GHG emission reductions reported for the project in the monitoring report (version 02 dated 09/12/2021) are fairly stated. The GHG emission reductions of the period from 01/11/2018 to 30/11/2021 were calculated correctly on the basis of approved methodology ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources" version 12.1.0 and version 20.0.

CTI does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and

certified. Request for issuance of VCU's shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to CTI and the engagement conditions detailed in this report. CTI cannot be held liable by any party for decisions made or not made based on this report.

Hence, CTI is able to certify that the emission reductions from the "Hebei Yuxian Second Phase 49.5MW Wind Power Project" during the period amount to 326,091 tCO₂e.

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1 INTRODUCTION

Demeter Venture UK Limited has commissioned Shenzhen CTI International Certification Co., Ltd (CTI) to carry out the verification and certification of emission reductions reported for the “Hebei Yuxian Second Phase 49.5MW Wind Power Project” (the project) for the period 01/11/2018 to 30/11/2021. This report contains the findings from the verification and includes a verification statement for the verified carbon units.

1.1 Objective

Verification is the periodic independent review and ex-post determination by an accredited verification body of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined verification period.

A verification statement is the written assurance by a verification body that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and provide a verification statement of emission reductions reported for the “Hebei Yuxian Second Phase 49.5MW Wind Power Project” for the period 01/11/2018 to 30/11/2021.

1.2 Scope and Criteria

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement;
- To verify that reported GHG emissions data is sufficiently supported by evidence.

The criteria of the verification are:

- VCS Program Guide (version 4.0) /26/
- VCS Standard (version 4.1) /25/ and other relevant requirements defined by Verra;
- The approved methodology ACM0002 (version 12.1.0 and version 20.0) /28/ applied by the project.

The verification shall ensure that reported emission reductions are complete and accurate in order to be verified.

1.3 Level of Assurance

The verification report expresses a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement. CTI applied a materiality threshold of 5% with respect to omission or misstatements concerning reported quantities as per VCS standard.

1.4 Summary Description of the Project

Sectoral Scope and Project Type

According to the VCS Program Guide (version 4.0) /26/, the project is applicable under the following activity categories:

- Sectoral Scope: 1. Energy (Renewable/non-renewable).
- Project type: Wind-power generation project.

According to Annex A of the Kyoto Protocol, the project is applicable under the Sectoral Scope 1: Energy Industries (renewable/ non-renewable sources).

Project Background

Project title:	Hebei Yuxian Second Phase 49.5MW Wind Power Project
Project proponent:	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd (China)
Project location:	the southwest of Yuxian County, Zhangjiakou City of Hebei Province, P.R.China
VCS Project ID:	814
Applied methodology:	ACM0002 version 12.1.0 (the first VCS crediting period) ACM0002 version 20.0 (the second VCS crediting period)
VCS project crediting period:	01/09/2009 to 31/08/2019 (the first VCS crediting period) 01/09/2019 to 31/08/2029 (the second VCS crediting period)
VCU verification period:	01/11/2018 to 30/11/2021 (01/11/2018 to 31/08/2019 belongs to the first crediting period, 01/09/2019 to 30/11/2021 belongs to the second crediting period)

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through means of the following three phases in accordance with the requirement of registered VCS PD and renewed VCS PD, the applied methodology, and the VCS Standard (version 4.1) and other relevant VCS requirements:

- A desk review of the monitoring report and all support documents;
- Follow-up interviews with project stakeholders and site inspection;
- The resolution of outstanding issues and the issuance of the verification report and statement.

The following sections outline each step in more detail.

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

- The emission reduction calculations and the relevant data records;
- The calibration and maintenance records for the monitoring instruments;
- The management systems to support the project operation and monitoring.

2.2 Document Review

Based on the requirements of competency, experience and qualified sectoral scopes, CTI appointed a verification team in accordance with CTI's internal procedures.

Function	Name	Technical competence	Task Performance*
Team Leader	Du Wenjun	1.2	☒ DR ☒ SV ☒ RP ☐ TR
Technical Reviewer	Lin Shunrong	1.2	☒ DR ☐ SV ☐ RP ☒ TR

*DR=Document review; SV=Site visit; RP=Reporting; TR=Technical review

In addition to the VER/VCU monitoring report /1/, renewed VCS PD (version 2.0 dated 18/04/2020) /10/, registered CDM PDD (version 7.0 dated 12/03/2011) /24/, registered VCS PD (version 02 dated 30/01/2012) /11/ and emission reduction calculation spreadsheet /2/, the following documents also were assessed as a part of the verification audit:

- Validation Report of renewed VCS PD /16/;
- Validation Report of registered CDM PDD /17/;
- VCS Monitoring Report of previous monitoring period /22/;
- VCS Verification Report of previous monitoring period /23/;
- Baseline and monitoring methodology ACM0002 applied by the project /28/;

- Relevant decisions, clarifications and guidance from the Verra /25/-/27/; and
- Other information and references relevant to the project activity.

During the desk review, CTI has applied standard auditing techniques to assess the quality of information provided. The following activities were performed:

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures; and
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

2.3 Interviews

On 08/12/2021, CTI visited Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. performed on-site assessment. The key personnel of the project were interviewed or assisted the verification team /29/. Main topics of the interview cover implementation of the project construction, applicability of selected methodology, implementation of project monitoring, emission reduction calculation, etc.

The key personnel interviewed /29/ are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Zhao Jianshou	Duty Director	Hebei Construction Investment Yuzhou 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;
Mr. Shen Xiaodong	O&M Staff	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.	
Mr. Song Fei	O&M Staff	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.	
Ms. Zhao Min	O&M Staff	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.	
Mr. Xu Donglai	Financial Staff	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.	
Mr. Wu Dong	Local resident	Local Village	The impact of the project activity; The complaint by local stakeholders; The stakeholder consultation during the operation of the project activity.
Ms. Liang Yin			
Mr. Luo Peng			
Mr. Li Jie	Staff	Local Environment Protection Bureau	Data collection and ER calculation.
Mr. Cao Wanpeng	Project Manager	Hebei Construction Investment Yuzhou Wind Energy Co., Ltd	

2.4 Site Inspections

The verification team performed the on-site verification (the southwest of Yuxian County, Zhangjiakou City of Hebei Province, P.R.China) on 08/12/2021. The interviewed personnel and objective are listed in above table. During the on-site assessment, CTI has applied standard auditing techniques to assess the quality of information provided. The following aspects of the project activity have been verified:

- An assessment of the implementation and operation of the registered project activity is as per the registered VCS PD and renewed VCS PD of the project activity;
- A review of information flows for generating, aggregating and reporting the monitoring parameters; and
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in registered VCS PD and renewed VCS PD;
- A cross-check between information provided in the monitoring report and data from other sources such as plant logbooks and electricity sale receipts;

- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the monitoring plan in registered VCS PD and renewed VCS PD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions; and
- An identification that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The data presented in the monitoring report were assessed by review of the detailed project documentation and production records, as well as by interviews with personnel from the project developer Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results, to verify the correct application of the approved monitoring methodology and the determination of the emission reductions.

In addition all parameters required by the monitoring methodology ACM0002 (version 12.1.0 and version 20.0), and the management system were assessed during the site visit.

2.5 Resolution of Findings

A corrective action request (CAR) shall be raised, where:

- i. Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- ii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- iii. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project proponents.

A clarification request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

The verification team identified 1 CL and 1 CAR in this monitoring period.

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period.

CTI confirmed that there was no FAR identified in previous verification /23/, and no FAR was raised during this verification.

2.6 Eligibility for Validation Activities

The renewed VCS PD of the project activity was validated by LGAI Technological Center, S.A. (Applus+ Certification) on 18/04/2020 /16/, the registered CDM PDD and registered VCS PD was validated by

TÜV Rheinland Japan Ltd. on 12/03/2011 /17/. The previous VCS verification was carried out by LGAI Technological Center, S.A. (Applus+ Certification) on 20/03/2020 /23/. 3 periodic verifications were carried out by Bureau Veritas Certification Holding SAS on 28/08/2012, 19/11/2012 and 02/02/2013 respectively under CDM scheme. The proposed VCS monitoring period 01/11/2018 to 30/11/2021 is 3th VCS verification, CTI just undertook verification activities for the project according to the VCS Program Guide. This section is thus not applicable.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The registered CDM PDD and registered VCS PD of the project activity was validated by TÜV Rheinland Japan Ltd. on 12/03/2011 /17/. The renewed VCS PD of the project activity was validated by LGAI Technological Center, S.A. (Applus+ Certification) on 18/04/2020 /16/ under VCS scheme. CTI only performed verification activities on the proposed monitoring period for the project under VCS scheme according to VCS Program Guide.

3.2 Methodology Deviations

The validation process /16/ /17/ has assessed all factors and issues that constitute the basis for emission reductions from the project according to the applicable CDM methodology ACM0002 (version 12.1.0 and version 20.0) /28/. Therefore, it is confirmed that there was no deviation for methodology.

3.3 Project Description Deviations

The project was registered under CDM scheme on 01/06/2011 (UNFCCC ID. 4789). By checking UNFCCC website (<https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1305258656.92/view>), the verification team confirmed that for the project activity, the first CDM crediting period is from 01/06/2011 - 31/05/2018. As per relevant CDM standard, the crediting period of the project could be renewed twice.

The project was registered under VCS version 3. In the Verification Report of previous monitoring period, it was mentioned that the project started operation since 01/09/2009. By checking UNFCCC website, it was confirmed that the project activity was registered as CDM project activity on 01/06/2011. Therefore, the VCS crediting period was determined as 01/09/2009 to 31/05/2011.

As per VCS scheme under which the project was registered, the project crediting period is allowable for 10 years and could be renewed twice. Considering 3*7 years CDM crediting period started from 01/06/2011, it is reasonable that the total VCS crediting period was determined from 01/09/2009 to 31/05/2032, of which the first VCS crediting period is from 01/09/2009 to 31/08/2019 and the

second VCS crediting period is from 01/09/2019 to 31/08/2029. The same has been described in the renewed VCS PD and justified in the Validation Report (version 01.0 dated 18/04/2020).

This deviation has no impact on the applicability of the methodology, additionality or the appropriateness of the baseline scenario and meet all appropriate rules and requirements of VCS standard.

3.4 Grouped Project

The project was not a grouped project; hence this clause is not applicable.

4 VERIFICATION FINDINGS

This section summarizes the findings from the verification of the emission reductions reported for the “Hebei Yuxian Second Phase 49.5MW Wind Power Project” for the period 01/11/2018 to 30/11/2021.

4.1 Project Implementation Status

Project Implementation in accordance with the approved project design document

The project is a grid-connected wind power plant, which is located in the southwest of Yuxian County, Zhangjiakou City of Hebei Province, P.R.China. The project activity installed 33 sets of 1500 kW wind turbine-generator with a total installed capacity 49.5 MW.

The average annual power delivered to the grid by the project is expected to be 112,170 MWh. The actual implementation of the project during this monitoring period was verified in terms of name plate capacities of each wind turbine and monitoring equipment. The details of the wind turbines with respect to installation and capacity have been verified to be consistent with description indicated in the registered VCS PD and renewed VCS PD. The first wind turbine was put into operation on 01/09/2009 and all the wind turbines started operation on 31/10/2009, which was verified by site visit interview, checking verification report of previous monitoring period /23/. The electricity generated by the project activity was supplied to the North China Power Grid (NCPG), which can be confirmed by the Power Purchase Agreement (PPA) signed between Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. and State Grid Hebei Electric Power Company /3/.

The project start date was identified as 01/09/2009 when the project activity started to operate and began generating GHG emission reductions. The first crediting period is from 01/09/2009 to 31/08/2019 while the second crediting period is from 01/09/2019 to 31/08/2029. This monitoring period is from 01/11/2018 to 30/11/2021, in which the period from 01/11/2018 to 31/08/2019 belongs to the first crediting period, and the period from 01/09/2019 to 30/11/2021 belongs to the second crediting period

All the monitoring system in operation period is consistent with registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020). The control system at the power plant is automated and assures continuous operation, including monitoring on malfunction of equipment. By checking the Operation Log /6/, CTI was able to confirm that no serious malfunction happened and the plant was under a normal operation as expected in this monitoring period.

On-site training for the related procedures including monitoring, recording and reporting was verified to be in place /5/ and their implementation was confirmed by interview with the key operators /29/ and observing the operation.

Except the deviation mentioned above, CTI confirmed during site visit that the project implementation is in accordance with registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020). And the verification team confirmed through visual inspection and document

review that all physical features of the proposed project activity including data collection systems and storage systems have been implemented in accordance with registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020).

Compliance of monitoring plan with monitoring methodology

The verification team is able to confirm that the monitoring plan in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12.1.0 and version 20.0). Therefore, the verification team is able to confirm that the monitoring plan is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12.1.0 and version 20.0).

Compliance of monitoring with the monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020). CTI confirms that all parameters stated in the monitoring plan are monitored and reported appropriately. All parameters required to be monitored by the monitoring plan as per the monitoring methodology ACM0002 (version 12.1.0 and version 20.0) and the management system were assessed during the site visit. The monitoring report lists each parameter required by the monitoring plan and the information flow (i.e. from data generation, aggregation, recording, calculation and reporting) for these parameters is provided. The information flow for the each parameter is further verified in the following sections.

Parameters monitored

According to the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020), parameters monitored for the project activity were justified as follows:

Quantity of net electricity generation supplied by the project plant to the grid in year y ($EG_{\text{facility},y}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{facility},y}$ is calculated using equation:

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

Where:

$EG_{\text{export},y}$: Annual electricity exported to the grid

$EG_{\text{import},y}$: Annual electricity imported from the grid

$EG_{\text{backupline},y}$: Electricity delivered to the project through the backup line

Annual electricity exported to the grid ($EG_{\text{export},y}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{export},y}$ is calculated using equation:

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

Where:

$EG_{\text{export},y,1}$: Annual electricity exported to the grid by the project and the third phase project which will be measured by M1

$EG_{\text{export},y,3}$: Annual electricity exported to the grid by the project which will be measured by M3

$EG_{\text{export},y,4}$: Annual electricity exported to the grid by the third phase project which will be measured by M4

Annual electricity exported to the grid by the project and the third phase project which will be measured by M1 ($EG_{\text{export},y,1}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{export},y,1}$ is continuously measured by bi-directional meter M1 (main meter) and M2 (backup meter) installed at the higher voltage side of 35kV/110kV Transformer Station. When main meter M1 is not working, meter reading from M2 will be used as reference for ER calculation. By checking operation log /6/, it is confirmed that the meter M1 is working well during this monitoring period. The meter reading was recorded monthly and archived electronically. In this monitoring period, the cut-off time was 24:00 hr of last day of each month. At the cut-off time, the staff from project developer and the grid company read the electricity meter together. The project developer record electricity meter readings and form Monthly Reading Records (MRRs) /7/. The staff from power grid company record electricity meter readings and then transcribes the data into Electricity Receipts /8/. $EG_{\text{export},y,1}$ was sourced from Meter Reading Records (MRRs) /7/ issued by the project developer, and Electricity Receipts /8/ issued by power grid company covering monitoring period.

Annual electricity exported to the grid by the project which will be measured by M3 ($EG_{\text{export},y,3}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{export},y,3}$ is continuously measured by bi-directional meter M3 installed at the outlet of the project. By checking operation log /6/, it is confirmed that the meter M3 is working well during this monitoring period. The meter reading was recorded monthly and archived electronically. In this monitoring period, at 24:00 hr of last day of each month, the staff from project developer read the electricity meter and form Monthly Reading Records (MRRs) /7/. $EG_{\text{export},y,3}$ was sourced from Meter Reading Records (MRRs) /7/ issued by the project developer covering monitoring period.

Annual electricity exported to the grid by the third phase project which will be measured by M4 ($EG_{\text{export},y,4}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{export},y,4}$ is continuously measured by bi-directional meter M4 installed at the outlet of the third phase project. By checking operation log /6/, it is confirmed that the meter M4 is working well during this monitoring period. The meter reading was recorded monthly and archived electronically. In this monitoring period, at 24:00 hr of last day of each month, the staff from project developer read the electricity meter and form Monthly Reading Records (MRRs) /7/. $EG_{\text{export},y,4}$ was sourced from Meter Reading Records (MRRs) /7/ issued by the project developer covering monitoring period.

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{export},y}$ is calculated using equation:

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

Where:

$EG_{\text{import},y,1}$: Annual electricity imported from the grid by the project and the third phase project which will be measured by M1

$EG_{\text{import},y,3}$: Annual electricity imported from the grid by the project which will be measured by M3

$EG_{\text{import},y,4}$: Annual electricity imported from the grid by the third phase project which will be measured by M4

Annual electricity imported from the grid by the project and the third phase project which will be measured by M1 ($EG_{\text{import},y,1}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{\text{import},y,1}$ is continuously measured by bi-directional meter M1 (main meter) and M2 (backup meter) installed at the higher voltage side of 35kV/110kV Transformer Station. When main meter M1 is not working, meter reading from M2 will be used as reference for ER calculation. By checking operation log /6/, it is confirmed that the meter M1 is working well during this monitoring period. The meter reading was recorded monthly and archived electronically. In this monitoring period, the cut-off time was 24:00 hr of last day of each month. At the cut-off time, the staff from project developer and the grid company read the electricity meter together. The project developer record electricity meter readings and form Monthly Reading Records (MRRs) /7/. The staff from power grid company record electricity meter readings and then transcribes the data into Electricity Receipts /8/. $EG_{\text{import},y,1}$ was sourced from Meter Reading Records (MRRs) /7/ issued by the project developer, and Electricity Receipts /8/ issued by power grid company covering monitoring period.

Annual electricity imported from the grid by the project which will be measured by M3 ($EG_{\text{import},y,3}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI

confirmed $EG_{import,y,3}$ is continuously measured by bi-directional meter M3 installed at the outlet of the project. By checking operation log /6/, it is confirmed that the meter M3 is working well during this monitoring period. The meter reading was recorded monthly and archived electronically. In this monitoring period, at 24:00 hr of last day of each month, the staff from project developer read the electricity meter and form Monthly Reading Records (MRRs) /7/. $EG_{import,y,3}$ was sourced from Meter Reading Records (MRRs) /7/ issued by the project developer covering monitoring period.

Annual electricity imported from the grid by the third phase project which will be measured by M4 ($EG_{import,y,4}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{import,y,4}$ is continuously measured by bi-directional meter M4 installed at the outlet of the third phase project. By checking operation log /6/, it is confirmed that the meter M4 is working well during this monitoring period. The meter reading was recorded monthly and archived electronically. In this monitoring period, at 24:00 hr of last day of each month, the staff from project developer read the electricity meter and form Monthly Reading Records (MRRs) /7/. $EG_{import,y,4}$ was sourced from Meter Reading Records (MRRs) /7/ issued by the project developer covering monitoring period.

Electricity delivered to the project through the backup line, which will be measured by M5 (single-directional) ($EG_{backupline,y}$)

By site interview and checking the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and verification reports, CTI confirmed $EG_{backupline,y}$ is continuously measured meter M5 installed on the backup line. The meter reading was recorded monthly and archived electronically. By checking operation log /6/ and Monthly Reading Records (MRRs) /7/, it is confirmed that in this monitoring period no electricity was imported by the project via the backup line.

As described above, the meters have been installed in accordance with VCS Program rules and meet all appropriate rules and requirements of VCS standard. CTI has on-site checked the location of the meters against the diagram of power connection system and found them to be consistent.

Data in the monthly reading records were used to the report, through a cross check with Electricity Receipts. The conservative values were used for the monitoring report and ERs calculation spreadsheet, which has been verified by the verification team. Supporting references and data required to determine the quantity of net electricity generation supplied by the project is found to be complete and transparent.

Monitoring equipment and calibration

The meters have been calibrated periodically as per the relevant industrial standard by the qualified third party to ensure the monitoring equipments' accuracy and in good conditions. The relevant information of meters' calibration is listed as below.

Item	Type	Serial No.	Accuracy	Calibration date	Validity
M1	ZMD402C	94827520	0.2S	11/04/2018	10/04/2019
				11/04/2019	10/04/2020
				11/04/2020	10/04/2021
				11/04/2021	10/04/2022
M2	ZMD402C	94827519	0.2S	11/04/2018	10/04/2019
				11/04/2019	10/04/2020
				11/04/2020	10/04/2021
				11/04/2021	10/04/2022
M3	ZFD402C	94316768	0.2S	22/12/2017	21/12/2018
				22/12/2018	21/12/2019
				22/12/2019	21/12/2020
				22/12/2020	21/12/2021
M4	ZFD402C	94316769	0.2S	22/12/2017	21/12/2018
				22/12/2018	21/12/2019
				22/12/2019	21/12/2020
				22/12/2020	21/12/2021
M5	DSSD331	20070130 030114	0.5S	11/04/2018	10/04/2019
				11/04/2019	10/04/2020
				11/04/2020	10/04/2021
				11/04/2021	10/04/2022

The meters were calibrated by Measurement Center of State Grid Yibei Electric Power Co., Ltd.. Calibration records and accreditation certificates /12//13/ have been verified by the verification team. The accuracy of all meters are comply with that in the monitoring plan of the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020). By checking the industrial metering configuration standard “Technical Administrative Code of Electric Energy Metering (DL/T 448-2016)” /15/, CTI can confirm that the accuracy level of all meters meet the requirement stipulated in this standard. In conclusion, the verification team can confirm that the accuracy of the meters is in line with monitoring plan of the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and relevant industry standard.

In the monitoring plan of the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020), it stated that the meters will be calibrated and checked annually for accuracy. By checking the calibration reports, the verification team found the calibration frequency of these meters is annual, which is in line with the calibrating standard “Technical Administrative Code of Electric Energy Metering /15/. Hence, the verification team can confirm that the meters’ calibration frequency is in line with monitoring plan of the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) and relevant industry standard, and the calibrations of meters are verified to be valid for the whole reporting period.

Data management and control

Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. is responsible for operation and routine maintenance of power plant under the project activity. The quality assurance and quality control procedures have been addressed in the VER project management and monitoring manual /4/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interview with the staff /29/ and check records /4/-/6/ during on-site visit, it can be confirmed that the monitoring management system is implemented following the project management and monitoring manual.

All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of measurement. Calibration records of instruments used in measurements were made available during the verification visit and found to be valid for the entire period of the verification. Competence and training records of in-plant personnel engaged in measurement of plant parameters were presented during verification and found to be in order.

By checking UNFCCC website (<https://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1305258656.92/view>), it is confirmed by CTI that the project has been registered as CDM project activity on 01/06/2011 with reference No. 4789. GHG emission reductions have been issued as CERs from 01/06/2011 to 24/03/2012, from 25/03/2012 to 24/10/2012, and from 25 Oct 2012 - 31/12/2012 under CDM scheme. There are no CDM issuance during this monitoring period. Furthermore, CTI checked public information from the REC Mechanism database of China, Chinese Emission Trading System, Gold Standard Registry and interviewed with project owner during site visit, it is confirmed that except CDM and VCS scheme, the project has not been participated or been rejected under any other GHG programs since validation or previous verification.

Therefore, the verification team confirmed that the project only applies CERs and VCU under CDM and VCS, and no rejection from CDM and VCS occurs, there are no other forms of environmental credits applied or issued for the project activity, the emission reduction resulted from the project during this monitoring period would only apply for VCUs.

By checking the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020), China's National Plan on Implementation of the 2030 Agenda for Sustainable Development and 17 SDGs defined by UNDP, and interviewing with stakeholders during site visit, the verification team confirmed that the project would contribute to sustainable development in as below:

- SDG 13: Reducing greenhouse gas emissions compared to a business-as-usual scenario;
- SDG 7: Providing clean and renewable energy source and displacing the power generation of fossil fuel power plants, reducing pollution emissions caused by coal burning significantly, thus mitigating the air pollution and its adverse impacts on human health, promoting sustainable economic development in local area;
- SDG 8: Providing direct and indirect employment opportunities during construction and operation period and increasing power supply to alleviate power shortage in China, which promotes sustained, inclusive and sustainable economic growth, full and productive employment and decent work for local residents. The technical parameters have been verified with the nameplates /14/ as below:

Items	Value	
Turbine type	FD70B	FD77B
Rated Power (kW)	1500	1500
Cut-in Wind Speed (m/s)	3.5	3.0
Rotor Diameter (m)	70	77
Rated Wind Speed (m/s)	13	12
Tower Height (m)	65	61.5
Rated Voltage (V)	690	690
Generator Type	double-fed asynchronous motor	double-fed asynchronous motor
Lifetime (years)	20	20

The verification team confirmed that there is no proposed or actual change to monitoring plan of the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020) 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 registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020), it is confirmed that wind power is green power and the impact caused by wind power on the surrounding ecosystem and residents, wastewater, solid waste 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

The local stakeholder 's meeting was held in Guoshipen Village, Choushuipen Village and Chadao Village around project in November 2007. 80 participants attended the meeting including 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.

For continuous communication with local stakeholders, the project owner public its office telephone to local people and put a grievance book /21/ in the office of the company. Via checking the grievance book, It is confirmed by the verification team that no comments were received. Through interviewing with staff from local environmental protection bureau and local residents during the site visit, it is confirmed by the verification team that during the implementation stage of this monitoring period, local authority has conducted spot checks on the implementation of the project periodically as per the request from the local governments' regulations, no negative comments and issues from the local stakeholders during this monitoring period were identified and the project passed all the periodic spot checks by local government.

All such conclusion has been verified through site visit and checking registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020).

4.3 AFOLU-Specific Safeguards

For non-AFOLU projects, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

CTI confirms that appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed, and the assumptions, emission factors and default values that are applied in the calculation have been justified.

According to the applied methodology, the emission reductions are determined as the difference between the baseline emissions, project emissions and leakage:

$$ER_y = BE_y - PE_y$$

Baseline emissions

Baseline reductions are determined as multiplying Quantity of net electricity generation supplied by the project plant to the grid in year y ($EG_{facility,y}$) by the validated ex-ante fixed grid emission factor ($EF_{grid,CM,y}$).

$$\begin{aligned} BE_y &= EG_{facility,y} \times EF_{grid,CM,y} \\ &= (EG_{export,y} - EG_{import,y} - EG_{backupline,y}) \times EF_{grid,CM,y} \end{aligned}$$

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

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

Grid emission factor ($EF_{grid,CM,y}$)

EF is the grid emission factor of the which has been verified ex-ante in the validation stage in the registered VCS PD (version 02 dated 30/01/2012) as 0.99174¹ tCO₂e/MWh for the 1st crediting period, and has been verified ex-ante in the validation stage in the renewed VCS PD (version 2.0 dated 18/04/2020) as 0.84045 tCO₂e/MWh for the 2nd crediting period.

Quantity of net electricity generation supplied by the project plant to the grid in year y (EG_{facility,y})

EG_{facility,y} is calculated by following formula:

$$\begin{aligned} \text{EG}_{\text{facility},y} &= \text{EG}_{\text{export},y} - \text{EG}_{\text{import},y} - \text{EG}_{\text{backupline},y} \\ &= \frac{\text{EG}_{\text{export},y,1} \times \text{EG}_{\text{export},y,3}}{(\text{EG}_{\text{export},y,3} + \text{EG}_{\text{export},y,4})} - \frac{\text{EG}_{\text{import},y,1} \times \text{EG}_{\text{import},y,3}}{(\text{EG}_{\text{import},y,3} + \text{EG}_{\text{import},y,4})} - \text{EG}_{\text{backupline},y} \end{aligned}$$

Data in the Monthly Reading Records (MRRs) and Electricity receipts are used to calculate EG_{facility,y} as follows:

¹ EF_{grid,CM,y} is not directly available in the approved PDD but calculated based on the ex-ante data fixed in the registered VCS PD.

Period	EGexport y,3 (MWh)	EGexport y,4 (MWh)	EGexport,y,1		Conserv ative value of EGexport y,1	EGexport y (MWh)	EGimpor t,y,3 (MWh)	EGimpor t,y,4 (MWh)	EGimport,y,1 (MWh)		Conserv ative value of EGimpor t,y,1	EGimport y (MWh)	EGbacku pl ine,y (MWh)	EGfacilit y,y (MWh)
	Monthly Meter reading Records	Monthly Meter reading Records	Monthly Meter reading Records (MWh)	Electricit y Receipts (MWh)			Meter readings	Meter readings	Mont hly Meter readi ng Recor ds (MWh)	Electri city Recep ts (MWh)				
	A	B	C	D			G	H	I	J				
01/11/2018- 30/11/2018	13904.9 40	11,902. 730	24526.8 40	24526.8 40	24526.8 40	13214.8 40	4.870	25.160	30.65 2	30.65 2	30.652	4.971	0.000	13209.8 69
01/12/2018- 31/12/2018	9680.58 0	11,238. 265	18876.2 40	18876.2 40	18876.2 40	8735.32 7	13.660	16.840	31.88 0	31.88 0	31.880	14.278	0.000	8721.04 9
Total in 2018 (the 1st crediting period)	23585.5 20	23140.9 95	43403.0 80	43403.0 80	43403.0 80	21950.1 67	18.530	42.000	62.53 2	62.53 2	62.532	19.249	0.000	21930.9 18
01/01/2019- 31/01/2019	13805.6 40	10,288. 760	23874.9 50	23874.9 50	23874.9 50	13679.8 99	8.650	10.290	22.62 0	22.62 0	22.620	10.331	0.000	13669.5 69
01/02/2019- 28/02/2019	13632.4 70	9,965.3 70	23468.5 30	23468.5 30	23468.5 30	13557.7 68	19.040	15.620	38.20 0	38.20 0	38.200	20.985	0.000	13536.7 83
01/03/2019- 31/03/2019	10832.6 60	9,980.6 42	20514.8 70	20514.8 70	20514.8 70	10677.3 36	9.040	11.830	23.96 0	23.96 0	23.960	10.378	0.000	10666.9 57
01/04/2019- 30/04/2019	10534.2 70	8,650.8 30	19076.2 60	19076.2 60	19076.2 60	10474.5 07	10.210	9.840	24.06 0	24.06 0	24.060	12.252	0.000	10462.2 55
01/05/2019- 31/05/2019	6808.18 0	7,745.2 90	14028.0 90	14028.0 90	14028.0 90	6562.40 5	12.080	16.790	30.21 0	30.21 0	30.210	12.641	0.000	6549.76 4
01/06/2019- 30/06/2019	6019.24 0	8,890.1 65	14209.7 60	14209.7 60	14209.7 60	5736.77 9	5.870	18.210	25.26 0	25.26 0	25.260	6.158	0.000	5730.62 1
01/07/2019- 31/07/2019	11403.2 28	7,137.1 92	18534.9 00	18534.9 00	18534.9 00	11399.8 33	9.920	7.860	19.47 0	19.47 0	19.470	10.863	0.000	11388.9 70
01/08/2019- 31/08/2019	8903.67 0	8,943.7 63	17065.3 00	17065.3 00	17065.3 00	8513.48 2	15.630	10.150	26.18 0	26.18 0	26.180	15.873	0.000	8497.60 9
Total in 2019 (the 1st crediting period)	81939.3 58	71602.0 12	150772. 660	150772. 660	150772. 660	80602.0 08	90.440	100.590	209.9 60	209.9 60	209.960	99.480	0.000	80502.5 29
01/09/2019- 30/09/2019	4509.43 0	9,903.1 27	13635.8 20	13635.8 20	13635.8 20	4266.40 3	13.990	13.210	28.19 0	28.19 0	28.190	14.499	0.000	4251.90 4
01/10/2019- 31/10/2019	5735.69 0	10,327. 880	15168.0 20	15168.0 20	15168.0 20	5415.92 3	20.180	16.990	40.04 0	40.04 0	40.040	21.738	0.000	5394.18 5
01/11/2019- 30/11/2019	10097.5 50	11,903. 764	21887.4 30	21887.4 30	21887.4 30	10045.2 83	6.940	17.840	26.30 0	26.30 0	26.300	7.366	0.000	10037.9 17
01/12/2019- 31/12/2019	11032.6 40	12,382. 724	22890.6 80	22890.6 80	22890.6 80	10785.4 24	9.930	10.370	21.81 0	21.81 0	21.810	10.669	0.000	10774.7 55
Total in 2019 (the 2nd crediting period)	31375.3 10	44517.4 95	73581.9 50	73581.9 50	73581.9 50	30513.0 33	51.040	58.410	116.3 40	116.3 40	116.340	54.272	0.000	30458.7 61

01/01/2020-31/01/2020	11320.640	11,027.923	22093.170	22093.170	22093.170	11191.271	12.930	16.330	30.170	30.170	30.170	13.332	0.000	11177.939
01/02/2020-29/02/2020	11923.140	10,283.675	21987.260	21987.260	21987.260	11805.258	9.050	13.260	23.810	23.810	23.810	9.658	0.000	11795.599
01/03/2020-31/03/2020	11790.370	9,023.870	20118.050	20118.050	20118.050	11396.008	4.830	8.740	13.600	13.600	13.600	4.841	0.000	11391.168
01/04/2020-30/04/2020	9703.240	8,893.160	18397.040	18397.040	18397.040	9599.218	6.680	9.950	18.040	18.040	18.040	7.246	0.000	9591.971
01/05/2020-31/05/2020	8387.160	8,043.190	16108.730	16108.730	16108.730	8222.983	10.050	10.230	21.360	21.360	21.360	10.585	0.000	8212.398
01/06/2020-30/06/2020	8340.400	8,675.180	16703.700	16703.700	16703.700	8187.528	11.320	20.710	33.030	33.030	33.030	11.673	0.000	8175.855
01/07/2020-31/07/2020	7530.240	7,693.720	14803.660	14803.660	14803.660	7322.347	10.920	18.040	29.700	29.700	29.700	11.199	0.000	7311.148
01/08/2020-31/08/2020	7021.530	9,908.790	16109.300	16109.300	16109.300	6681.027	13.930	8.750	24.620	24.620	24.620	15.122	0.000	6665.906
01/09/2020-30/09/2020	9310.520	9,823.463	18973.780	18973.780	18973.780	9232.566	9.400	9.380	19.230	19.230	19.230	9.625	0.000	9222.941
01/10/2020-31/10/2020	9404.350	8,593.240	17760.260	17760.260	17760.260	9280.337	6.380	10.330	17.810	17.810	17.810	6.800	0.000	9273.537
01/11/2020-30/11/2020	12905.290	10,320.460	22830.820	22830.820	22830.820	12685.849	9.210	10.210	22.830	22.830	22.830	10.827	0.000	12675.022
01/12/2020-31/12/2020	13223.800	10013.278	23108.450	23108.450	23108.450	13150.600	10.480	5.720	18.010	18.010	18.010	11.651	0.000	13138.949
Total in 2020 (the 2nd crediting period)	120860.680	112299.949	228994.220	228994.220	228994.220	118754.993	115.180	141.650	272.210	272.210	272.210	122.560	0.000	118632.432
01/01/2021-31/01/2021	11083.160	11,924.278	22730.270	22730.270	22730.270	10949.642	8.840	8.940	22.310	22.310	22.310	11.092	0.000	10938.550
01/02/2021-28/02/2021	12092.820	10,437.884	22189.540	22189.540	22189.540	11909.708	10.370	10.250	23.100	23.100	23.100	11.617	0.000	11898.091
01/03/2021-31/03/2021	12208.110	8,213.163	20316.620	20316.620	20316.620	12145.547	12.940	13.830	27.160	27.160	27.160	13.129	0.000	12132.419
01/04/2021-30/04/2021	11903.790	7,058.740	18672.930	18672.930	18672.930	11721.993	7.920	18.640	28.960	28.960	28.960	8.636	0.000	11713.357
01/05/2021-31/05/2021	11206.250	7,790.160	18306.050	18306.050	18306.050	10798.997	10.850	8.870	22.720	22.720	22.720	12.501	0.000	10786.496
01/06/2021-30/06/2021	9903.210	8,034.650	17782.940	17782.940	17782.940	9817.681	8.530	12.350	21.190	21.190	21.190	8.657	0.000	9809.024
01/07/2021-31/07/2021	9355.060	8,043.190	17451.880	17451.880	17451.880	9383.897	10.120	10.920	23.260	23.260	23.260	11.188	0.000	9372.709
01/08/2021-31/08/2021	8832.740	9,247.185	17459.030	17459.030	17459.030	8529.409	9.360	18.220	29.480	29.480	29.480	10.005	0.000	8519.404
01/09/2021-30/09/2021	12321.700	9,036.250	21094.870	21094.870	21094.870	12169.925	10.370	9.040	20.170	20.170	20.170	10.776	0.000	12159.149
01/10/2021-31/10/2021	11583.280	10,392.175	21468.380	21468.380	21468.380	11316.000	5.480	10.530	18.270	18.270	18.270	6.254	0.000	11309.747
01/11/2021-30/11/2021	9349.470	11,894.588	21370.260	21370.260	21370.260	9405.011	8.210	11.840	22.310	22.310	22.310	9.135	0.000	9395.876
Total in 2021	119839.	102072.	218842.	218842.	218842.	118147.	102.990	133.430	258.9	258.9	258.930	112.989	0.000	118034.

(the 2 nd crediting period)	590	263	770	770	770	811			30	30				823
Total	377600.458	353632.714	715594.680	715594.680	715594.680	369968.013	378.180	476.080	919.972	919.972	919.972	408.549	0.000	369559.464

Based on the values of monitored parameters in the above table, the emission reductions are calculated as follows:

Period	EG _{facility,y} (MWh)	EF _{grid,CM,y} (tCO ₂ /yr)	Baseline Emissions (tCO ₂ e)
01/11/2018-31/12/2018 (the 1 st crediting period)	21930.918	0.99174	21,749
01/01/2019-31/08/2019 (the 1 st crediting period)	80502.529		79,837
01/09/2019-31/12/2019 (the 2 nd crediting period)	30458.761	0.84045	25,599
01/01/2020-31/12/2020 (the 2 nd crediting period)	118632.432		99,704
01/01/2021-30/11/2021 (the 2 nd crediting period)	118034.823		99,202
Total in this monitoring period	369559.464	/	326,091

Hence, the corresponding baseline emission reductions are calculated as:

For the period 01/11/2018 - 31/08/2019 that belongs to 1st crediting period,

$$BE_y = EG_{\text{facility},y} \times EF_{\text{grid},CM,y} = 102,433.447 \times 0.99174 = 101,586 \text{ tCO}_2\text{e}$$

For the period 01/09/2019 - 30/11/2021 that belongs to 2nd crediting period,

$$BE_y = EG_{\text{facility},y} \times EF_{\text{grid},CM,y} = 267,126.016 \times 0.84045 = 224,505 \text{ tCO}_2\text{e}$$

Project emissions

As statement in the registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020), for the wind power activities, the project emissions from the project is zero. Hence, PE_y during the monitoring period from Hebei Yuxian Second Phase 49.5MW Wind Power Project is zero.

Leakages

Leakage does not need to be accounted for this project as per the renewed VCS PD.

Emission reductions

The emission reductions for this monitoring period was calculated as:

Monitoring period	GHG emission reductions or removals (tCO ₂ e)
01/11/2018-31/12/2018	21,749
01/01/2019-31/12/2019	105,436
01/01/2020-31/12/2020	99,704
01/01/2021-30/11/2021	99,202
Total ERs claimed (in 1126 days)	326,091

Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in the registered VCS PD and renewed VCS PD

The estimated annual GHG emission reductions in the first crediting period are 111,243 tCO₂e/yr, and are 94,273 tCO₂e/yr during the second crediting period. The emission reductions claimed are 326,091 tCO₂e in this monitoring period (i.e. 1126 days). Compared with expected emission reductions 304,960 tCO₂e (calculated as $111,243/365d \times 304d + 94,273/365d \times 822d$) in the registered VCS PD and renewed VCS PD, the reported emission reductions in this monitoring period are 6.93% larger than the expected, which is considered to be in the reasonable variation range. By checking the registered VCS PD /24/, it is confirmed that when considering actual electricity generation and emission reductions of this monitoring period in the financial analysis, the IRR of the project is still under the benchmark.

Therefore, CTI is able to confirm that the actual power supply and also emission reductions reported in this monitoring period are reasonable and appropriate. CTI verified the input data for calculating emission reductions and the calculating process, and confirmed the result were complete and transparent.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

All necessary documentations are collected, referenced and aggregated, which is easily accessible in hard-copy or electronic format. Measurements are performed by calibrated equipment, and the key data can also be cross-checked via other sources, such as records, receipts and inventory data. No assumptions are used that have any material influence on reported emission reductions.

CTI concludes that during this monitoring period, the evidences for determination of emission reductions are sufficient and reasonable, and the calculation of emission reductions is reliable.

4.6 Non-Permanence Risk Analysis

The project is not AFOLU project, and thus non-permanence risk analysis is not applicable for the project.

5 VERIFICATION CONCLUSION

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions that have been reported for the project activity “Hebei Yuxian Second Phase 49.5MW Wind Power Project” in China (VCS Project ID: 814) for the period 01/11/2018 to 30/11/2021.

The verification is based on the baseline and monitoring methodology ACM0002 (version 12.1.0 and version 20.0), registered VCS PD (version 02 dated 30/01/2012) and renewed VCS PD (version 2.0 dated 18/04/2020). The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification and certification report.

The project proponents are responsible for the collection, calculation and determination of the GHG data in accordance with the monitoring plan and the reporting of GHG emission reductions on the basis set out within the project monitoring report.

Our verification approach was based on the requirements as defined under the applicable VCS Version 4.1 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 VCS PD and the renewed VCS PD;
- the monitoring plan in registered renewed VCS PD is as per the applied methodology;
- the monitoring complies with the monitoring plan in the registered VCS PD and the renewed VCS PD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Version 4.1 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.

It is CTI's responsibility to provide an independent verification statement on the reported GHG emission reductions for the project. Based on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these, CTI planned and performed our work to obtain the information and explanations that we considered necessary to provide reasonable assurance that reported GHG emission reductions are fairly stated.

CTI does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to CTI and the engagement conditions detailed in this report. CTI cannot be held liable by any party for decisions made or not made based on this report.

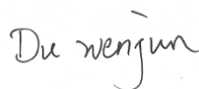
In CTI's opinion the GHG emissions reductions of the "Hebei Yuxian Second Phase 49.5MW Wind Power Project" for the period 01/11/2018 to 30/11/2021 are fairly stated in the monitoring report (version 02 dated 09/12/2021). The GHG emission reductions were calculated correctly on the basis of the approved methodology ACM0002 (version 12.1.0 and version 20.0) and the monitoring plan contained in the registered VCS PD (version 02 dated 30/01/2012) and the renewed VCS PD (version 2.0 dated 18/04/2020).

CTI can confirm that the GHG emission reductions are calculated without material misstatements. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTI confirms the following statement:

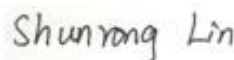
Verification period: From 01/11/2018 to 30/11/2021

Verified GHG emission reductions and removals in the above verification period:

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)
01/11/2018-31/12/2018	21,749	0	0	21,749
01/01/2019-31/12/2019	105,436	0	0	105,436
01/01/2020-31/12/2020	99,704	0	0	99,704
01/01/2021-30/11/2021	99,202	0	0	99,202
Total	326,091	0	0	326,091



Mr. Du Wenjun
Team Leader
15/12/2021



Ms. Lin Shunrong
Technical Reviewer
15/12/2021

APPENDIX A: ABBREVIATIONS

CAR	Corrective Action Request
CER	Certified Emission Reduction(s)
CL	Clarification request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CTI	Shenzhen CTI International Certification Co., Ltd
DOE	Designated Operational Entity
EF	Emission Factor
ER	Emission Reduction
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
MP	MONITORING REPORT
MR	Monitoring Report
NCPG	North China Power Grid
PD	Project Description
PP	Project Proponent
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit

APPENDIX B: REFERENCES

Documentation used to verify the information provided by the project proponents

- /1/ Demeter Venture UK Limited: VER/VCU Monitoring Report for Hebei Yuxian Second Phase 49.5MW Wind Power Project, version 1.0 dated 06/12/2021, version 02 dated 09/12/2021
- /2/ Demeter Venture UK Limited: Emission reduction calculation spreadsheet for Hebei Yuxian Second Phase 49.5MW Wind Power Project
- /3/ Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. and State Grid Hebei Electric Power Company: Power Purchase Agreement for Hebei Yuxian Second Phase 49.5MW Wind Power Project.
- /4/ Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.: VER monitoring manual and management procedure.
- /5/ Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.: Records of training for on-site staff.
- /6/ Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.: Operation log sheets, from 01/11/2018 to 30/11/2021.
- /7/ Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.: Monthly reading records (MRRs) of Hebei Yuxian Second Phase 49.5MW Wind Power Project from 01/11/2018 to 30/11/2021.
- /8/ Gansu Power Grid Company: Electricity Receipts of Annual electricity exported to the grid from 01/11/2018 to 30/11/2021.
- /9/ Gansu Power Grid Company: Electricity Receipts of Annual electricity imported from the grid from 01/11/2018 to 30/11/2021.
- /10/ Demeter Venture UK Limited: the renewed VCS PD, version 2.0 dated 18/04/2020.
- /11/ VERRA Website: Registered VCS PD version 02 dated 30/01/2012.
- /12/ Hebei Provincial Market Supervision Administration: Accreditation certificate of Measurement Center of State Grid Yibei Electric Power Co., Ltd. valid till 29/11/2023.
- /13/ Measurement Center of State Grid Yibei Electric Power Co., Ltd.: Calibration certificates for meters covering this monitoring period.
- /14/ Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.: nameplate of the equipment
- /15/ State Economic and Trade Commission: Technical administrative code of electric energy metering (DL/T 448-2016).

- /16/ LGAI Technological Center, S.A. (Applus+ Certification): Validation Report of Renewed VCS PD, version 01.0 dated 18/04/2020.
- /17/ TÜV Rheinland Japan Ltd.: the Validation Report of registered CDM PDD, Version 7.0 dated 12/03/2011
- /18/ UNFCCC website: CDM Monitoring Reports for Hebei Yuxian Second Phase 49.5MW Wind Power Project of previous monitoring periods
- /19/ UNFCCC website: CDM Verification Reports for Hebei Yuxian Second Phase 49.5MW Wind Power Project of previous monitoring periods
- /20/ Business License of Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
- /21/ Photo of grievance book to collect comments about project implementation from local stakeholders
- /22/ VERRA website: VCS Monitoring Report for Hebei Yuxian Second Phase 49.5MW Wind Power Project of previous monitoring period
- /23/ VERRA website: VCS Verification Report for Hebei Yuxian Second Phase 49.5MW Wind Power Project of previous monitoring period
- /24/ UNFCCC website: registered CDM PDD, version 7.0 dated 12/03/2011

Methodologies, tools and other guidance

- /25/ Verified Carbon Standard: VCS Standard, version 4.1.
- /26/ Verified Carbon Standard: VCS Program Guide, version 4.0.
- /27/ Verified Carbon Standard: Registration and Issuance Process, version 4.0.
- /28/ UNFCCC EB: Approved methodology, ACM0002, version 12.1.0 and version 20.0

Persons interviewed

- /29/ Mr. Zhao Jianshou, Duty Director, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
- Mr. Shen Xiaodong, O&M Staff, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
- Mr. Song Fei, O&M Staff, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
- Ms. Zhao Min, O&M Staff, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
- Mr. Xu Qiang, O&M Staff, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
- Mr. Xu Donglai, Financial Staff, Hebei Construction Investment Yuzhou Wind Energy Co.,

Ltd.

Mr. Wu Dong, local resident, Local Village

Ms. Liang Yin, local resident, Local Village

Mr. Luo Peng, local resident, Local Village

Mr. Li Jie, Staff, Local Environment Protection Bureau

Mr. Cao Wanpeng, Project Manager, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd

APPENDIX C: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Table 1: Corrective Action Requests

CAR ID	Corrective Action Request	Response by Project Proponent	Verification Team Assessment
01	The emission factor of 1 st crediting period used in the initial version MR is not consistent with that in the registered VCS PD. PP is requested to update the emission factor of 1 st crediting period and recalculate emission reductions accordingly.	The emission factor and emission reduction of 1 st crediting period has been updated and recalculated in the MR (version 02 dated 09/12/2021).	By checking MR (version 02 dated 09/12/2021), it is confirmed the emission factor of 1 st crediting period has been updated to be consistent with that in the registered VCS PD. The emission reductions have been recalculated, which is confirmed to be correct. Therefore, CAR 01 was closed.

Table 2: Clarification Requests

CL ID	Clarification Request	Response by Project Proponent	Verification Team Assessment
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01	As per “VCS Monitoring Report Template”, Specify breakdown of GHG emission reductions and removals by vintages where the intent is to issue each vintage separately in the VCS registry system, Therefore, the emission reductions in section 5.4 of the MR should be listed in different vintages.	The emission reductions in the MR has been listed for different vintages from 2018 to 2021.	By checking MR (version 02 dated 09/12/2021), it is confirmed that the emission reductions of this monitoring period has been listed in vintages from 2018 and 2021 and confirmed by the verification team to be correct. Therefore, CL01 was closed.
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Table 3: Forward Action Requests

FAR ID	Forward Action Request	Response by Project Proponent	Verification Team Assessment
NA	NA	NA	NA