



VERIFICATION REPORT FOR GANSU GUAZHOU BEIDAQIAO WIND POWER PROJECT



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Summary:

China Testing & Certification International Group Co., Ltd (CTC), commissioned by Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., has performed the first periodic verification of the 2nd crediting period of Gansu Guazhou Beidaqiao Wind Power Project (hereafter referred to as “the Project”) covering the monitoring period from 22/01/2021 to 31/12/2022, on the basis of requirements of VCS Version 4.

The project is located in Guazhou County, Jiuquan City, Gansu Province, P. R. China. It is developed and operated by Longyuan (Jiuquan) Wind Power Co., Ltd. Totally 134 sets of 1,500kW wind turbines have been installed, providing a total capacity of 201MW. The purpose of the project is to generate electricity using zero- emission wind resources and supply it to Northwest China Power Grid. Prior to the implementation of the project, the equivalent electricity supplied by the project was sourced from the Northwest China Power Grid.

According to the updated VCS PD for crediting period renewal with Version 03 dated 24/10/2022, the first renewable crediting period of the project has been updated from 22/01/2011~04/07/2011 to 22/01/2011~21/01/2021 and the second crediting period is 22/01/2021~21/01/2031. The estimated emissions reductions of the project are 374,627 tCO₂e annually during the second crediting period.

The purpose and scope of 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 the reported GHG emissions data are sufficiently supported by evidence.

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using CTC internal procedures. CTC verified the project against the requirements set in VCS /5//6//7//8//9/, and other relevant VCS requirements.

The verification process includes three phases:

- 1) Desk review of documents;
- 2) On-site assessment and follow-up interviews;
- 3) Issuance of the final verification report and opinion.

CTC appointed a qualified verification team in accordance with internal procedures to perform the verification.

In the course of the verification, two Corrective Action Requests (CAR) and one Forward Action Request (FAR) were raised.

As a result of this verification, the verification team confirms that:

-All operations of the Project are implemented and installed as planned and described in the validated Project Description;

-The registered monitoring plan is in accordance with the applied approved CDM methodology ACM0002 (version 20.0) – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

-The implementation of monitoring is in compliance with the registered monitoring plan.

-The monitoring system is in place and functional;

-The installed equipment for measuring parameters required for calculating emission reductions are calibrated appropriately.

Based on the information observed and evaluated, the verification team confirms that the emission reductions are correctly calculated in the Monitoring Report (Version 02 dated 23/04/2023).

In conclusion, it is CTC’s opinion that the project as described in the Monitoring Report (Version 02), meets all relevant requirements for VCS and all relevant host Party criteria. Hence, CTC is able to certify that the emission reductions from the Project during the monitoring period from 22/01/2021 to 31/12/2022 amount to 570,569tCO₂e, and requests issuance of the equivalent VCUs.

The emission reductions of the Project in the separated years are listed below,

Year	BE _y (tCO ₂ e)	PE _y (tCO ₂ e)	LE _y (tCO ₂ e)	ERs (tCO ₂ e)
2021 (22/01/2021- 31/12/2021)	287,683	0	0	287,683
2022 (22/01/2022- 31/12/2022)	282,886	0	0	282,886

Total	570,569	0	0	570,569
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1 INTRODUCTION

1.1 Objective

Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd. has commissioned CTC to verify and provide a verification statement of the emission reductions of the Gansu Guazhou Beidaqiao Wind Power Project (hereafter referred to as “the Project”) which is located in Guazhou County, Jiuquan City, Gansu Province, P. R. China. This monitoring period is the first monitoring period of the 2nd crediting period from 22/01/2021 to 31/12/2022, on the basis of requirement of VCS Standard (Version 4.4) /5/ as well as criteria to provide for consistent project operations, monitoring and reporting.

CTC as the VCS validation/verification body (VVB) of the Project has been accredited as a CDM-DOE by UNFCCC/10/.

Verification of emission reductions from a project activity is the independent review and ex post determination by VVB of the monitored reductions in GHG emissions during the reported monitoring period. The objectives of verification are to:

- a) Ensure that the project activity has been implemented and operated as per the registered/updated VCS project description (VCS-PD) /3/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- b) Ensure that the monitoring report and other supporting documents provided are complete in accordance with the latest applicable version of Registration and Issuance Process /9/ and in accordance with the additional requirements stated by VERRA;
- c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology /9/;
- d) Evaluate the data recorded and stored as per the monitoring methodology /9/, and the correctness of the calculation of emission reductions for the monitoring period.

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 the reported GHG emissions data are sufficiently supported by evidence.

The criteria of the verification are: VCS Program Guide (version 4.3) /6/, VCS Standard (version 4.4) /5/ and other relevant requirements, the approved methodology ACM0002 (version 20.0) /9/.

1.3 Level of Assurance

CTC has undertaken a reasonable assurance engagement in accordance with VCS Standard (Version 4.4) /5/. It requires a reasonable level of assurance in verification that GHG assertions are free of material errors, omissions and misrepresentations. The verification conclusion is based on the VCS-PD /3/, VCS-MR /1/, and supporting evidences made available to the verifier and information collected through performing interviews and during the on-site inspection.

1.4 Summary Description of the Project

Gansu Guazhou Beidaqiao Wind Power Project is located in Guazhou County, Jiuquan City, Gansu Province, P. R. China. It is constructed and operated by Longyuan (Jiuquan) Wind Power Co., Ltd. Totally 134 sets of 1,500kW wind turbines have been installed, providing a total capacity of 201MW. The purpose of the project is to generate electricity using zero-emission wind resources and supply it to Northwest China Power Grid. Prior to the implementation of the project, the equivalent electricity supplied by the project was sourced from the Northwest China Power Grid. The estimated emissions reductions of the project are 374,627 tCO₂e annually during the second crediting period.

- The project has been registered as VCS project with Ref. VCS 873 and the current verification has been finalized for monitoring period from 22/01/2021 to 31/12/2022. This is the first monitoring period of 2nd crediting period. The total emission reductions achieved in this monitoring period (22/01/2021 ~ 31/12/2022) are 570,569 tCO₂e.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using CTC internal procedures. CTC verified the project against the requirements set in VCS /5//6//7//8//9/, and other relevant VCS requirements. The required evidences include previous PDs, MRs, validation reports and verification reports publicly available on GHG programmes' websites and China DNA, as well as all supporting documents to the Monitoring Report for this verification period. Before site visit, the Monitoring Report for this verification period and ER calculation spreadsheet, and previous PDs, MRs, validation reports and verification reports had been gathered by the verification team. A required supporting documents list had been delivered to PP before site visit, and all the supporting documents had been gathered during site visit. In addition, pictures of equipment, operation and the verification process had been collected by the verification team during site visit, which are also as a part of the project evidences.

The document review for format specification and consistency with previous PD/MRs should be conducted before site visit. The schedule of on site verification activities are described in the following table.

Key milestones of the verification activities

Date	Time	Activity	Verifier
28/03/2022	8:30-9:00	Kick-off meeting	Zhao Jinlan Liu Yibo Xiao Leling
	9:00-12:00	Documents review	
	13:00-15:00	Site visit, including main equipment, central control room, monitoring equipment, etc.	
	15:00-16:30	Stakeholders interview	
	17:00-17:30	Close meeting	

The following sections outline each step in details.

2.2 Document Review

A desk review of the registered/updated VCS-PD /3/, the verification reports /4/, the applied monitoring methodology /9/, the VCS monitoring report (VCS-MR) /1/ and supporting documents was conducted by the verification team. The aim of the desk review of the documentation was to verify the completeness of the data and the information presented, to carry out the compliance check of the VCS-MR /1/ with respect to the monitoring plan and

the applied methodology /9/. Particular attention was given to the quality of the metering equipment including calibration requirements, the monitored data and its evidence, and the emission reduction calculation. The 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 was also conducted.

Appendix A of this report contains a complete list of all documents and proofs reviewed by the verification team.

2.3 Interviews

The on-site interview was conducted on 28/03/2023.

The verification team verified that the actual implementation of the Project was as described in the VCS-PD /3/ and VCS-MR /1/.

During the assessment, the verification team has interviewed with responsible personnel of the project owner, the consultancy, and local stakeholders. The topics and persons interviewed are provided in the table below.

Date: 28/03/2023	
Interview topics	Interviewed Organizations and persons
--The status of VCS project implementation. -- Any changes of the VCS project. -- The project on-site inspection —The evidences of construction status and operation of key equipment, parameters monitoring and data processing activities, monitor equipment and calibration. -- Monitoring data. --Quality Management; organizational structure, responsibilities and competencies; Internal QA/QC Management procedures and document control. --Compliance with National Laws and Regulations. --Sustainable development	Longyuan (Jiuquan) Wind Power Co., Ltd Mr. Zhang Hu (Inspector) Mr. Zhao Yun (Technical specialist) Mr. Li Zheng (Operation inspector)
-- Preparation of Monitoring Report. -- Compliance of the monitoring plan with the monitoring methodology --Compliance of monitoring with the monitoring plan -- Assessment of data and calculation of GHG emission reductions	Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd. Mr. Ma Qian/Project Manager
--The comments of local stakeholder --Sustainable development	Local Stakeholders Mr. Zeng Fahua, Local villager Ms. Qian Guilan, Local villager Mr. Liu Feng, local official Mr. Wu Ruichao, local official

2.4 Site Visits

The on-site assessment on 28/03/2023 involved following activities,

- 1) An assessment of the implementation and operation of the project activity as per the VCS-PD /3/;
- 2) A review of information flows for generating, aggregating and reporting the monitoring parameters;
- 3) Interviews with relevant personnel of the project owner to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- 4) A cross-check between information provided in the monitoring report /1/ and data from other sources such as operational records or similar data sources;
- 5) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the updated VCS-PD /3/ and the selected methodology /9/;
- 6) A review of calculations and assumptions made in determining the GHG data and emission reductions;
- 7) An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

During the verification of a project activity, to identify issues that need to be further elaborated upon, researched or added to in order to confirm that the project activity meets the VCS requirements and can achieve credible emission reductions, the verification team will issue a Corrective Action Request (CAR), a Clarification Request (CL) or a Forward Action Request (FAR) depending on different situations.

The objective of this phase of the verification is to resolve issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions prior to CTC's positive conclusion on the GHG emission reduction calculation.

Findings established during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

A Corrective Action Request (CAR) will be raised if one of the following occurs:

- (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 registered 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.

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

A Forward Action Request (FAR) will be raised, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

Two CARs and one FAR have been raised during the verification.

Please see details for all findings in Appendix B.

2.5.1 Forward Action Requests

There was no FAR identified in validation and previous verifications/4/.

According to sections 3.23.7 to 3.23.9 of VCS Standard (version 4.4), the project proponent shall require the producer(s) or retailer(s) which are involved in the project to post a public statement on their website. For the producer(s) or retailer(s) of the impacted good or service are unknown, not involved in the project or do not have a website, the project proponent shall post a public statement on their website. The public statements shall be issued at the project's start date and remain posted for the project crediting period. Besides, for the producer(s) or retailer(s) of the impacted good or service are known but not involved in the project or do not have a website, the project proponent shall notify them of the project and potential risk of Scope 3 emissions double claiming via email.

These sections will be effective on 01/07/2023. Public statements are required for all emission reductions and removals associated with impacted goods or services for which VCUs may be requested from this date onwards. Hence, FAR-1 was raised during the verification.

2.6 Eligibility for Validation Activities

The VVB of “China Testing & Certification International Group Co., Ltd” commissioned by the project participant is one of eligible VVBs listed on the VCS website (<https://verra.org/project/china-testing-certification-international-group-co-ltd-ctc/>), and holds the accreditation for validation/verification for the sectoral scope: “1. Energy (renewable/non-renewable)”, to which the project activity belongs. Therefore, CTC is eligible for the validation/verification of the project activity.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The verification team has checked the official website of other GHG Programs like CDM, GS VER, CCER, and is able to confirm that the Project is not included in any GHG programs or any other mechanisms that include GHG allowance trading except VCS and CDM. The net GHG emission reductions generated by the Project during this monitoring period have not been used for compliance under any emission trading programs or mechanisms. The Project have not sought or received any other form of GHG-related environmental credit during this monitoring period.

The project has been registered as Clean Development Mechanism (CDM) project on 05/07/2011 and the registration number is 4832 with 7 years’ crediting period and maybe renewed twice. The first CDM crediting period is form 05/07/2011 to 04/07/2018, and no longer possible for the crediting period renewal. The project has been registered as VCS project with Ref. VCS 873, the first renewable crediting period was updated from 22/01/2011-04/07/2011 to 22/01/2011-21/01/2021, and the 2nd crediting period is from 22/01/2021 to 21/01/2031 /3/. Since the project is no longer possible for CDM renewal and successfully renewed as VCS project, then it is not necessary to provide gap validation.

The GHG credits claimed under CDM and VCS programs are details in the following table.

Period	GHG Emission Reduction (tCO ₂ e)	Credit	GHG Program

22/01/2011-04/07/2011	110,255	VCU	VCS
05/07/2011-29/12/2011	114,636	CER	CDM
30/12/2011-31/12/2012	298,623	CER	CDM
01/01/2013-31/12/2018	1,644,730	VCU	VCS
01/01/2019-21/01/2021	696,859	VCU	VCS

Therefore, the Verification Team confirms that the project is eligible to participate under the VCS Program.

3.2 Methodology Deviations

There are no methodology deviations applied during this monitoring period.

3.3 Project Description Deviations

There are no project description deviations applied during this monitoring period.

3.4 Grouped Project

The project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

4.1.1 Project Implementation in accordance with the VCS PD

CTC has performed the on-site assessment and found that the Project has been put into operation and the electricity generated is supplied to Northwest China Power Grid according to the signed Power Purchase Agreement (PPA) /21/. A total installed capacity of 201MW as described in the registered VCS-PD have been in operation. The project is located in Guazhou County, Jiuquan City, Gansu Province, P. R. China and the four inflexions of geographical scopes are A (E96.257°, N40.674), B (96.304°, N40.674), C (E96.304°, N40.744°) and D (E96.257°, N40.744°) .

The project began to construct on 28/11/2009, all the 134 sets of wind turbines started to trial-operate on 16/12/2010 and started exporting electricity to the grid on 22/01/2011 when the first group of wind turbines underwent 240 hours' consecutive trial operation/3/. The actual implementation of the project during this verification period was verified in terms of key parameters of wind turbine/23/.

As is shown in the diagram of the power connection system /15/, each turbine has a 690V-to-35kV transformer, from which a 35kV line links into the 330kV step-up substation, the electricity generated by the project is delivered to Northwest China Power Grid.

All the monitoring system in operation period is consistent with the description in the registered VCS-PD. The control system at the power plant is automated and assures continuous operation. The verification team confirmed through site visit and document review that no serious malfunction happened and the plant was under a normal operation as expected in this monitoring period.

The emission reduction resulted from the project during this monitoring period would apply for VCUs. There are no other forms of environmental credits applied or issued for the project. The project has not been participated or been rejected under any other GHG programs since validation or previous verification.

The project would contribute to sustainable development as follows:

The power grid connected by the project is Northwest China Power Grid, which is dominated by the conventional fossil-fuel based thermal power plants. The project utilizes the wind energy to generate electricity, which could improve local air quality, reduce the GHG and pollutants emission. Meanwhile, the project could generate employment opportunities to the local residents and enhance the local economic development.

According to the information collected during the site visit assessment and the relevant evidence provided by project owner, CTC can confirm that the project was implemented in accordance the VCS-PD /3/.

4.1.2 Compliance of monitoring with the monitoring plan

The verification team has assessed the implementation of monitoring by the project owner against the registered monitoring plan and found all the parameters have been monitored in compliance with the registered monitoring plan and the applied methodology.

A short summary on the verification of every parameter listed in the monitoring plan and used for emission reduction calculation is provided below:

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
----------------------------------	------------------------------------

Data / Parameter: (as in the monitoring plan of PD):	$EG_{facility,y}$ Quantity of net electricity generation supplied by the project plant to the grid in year y Calculated based on the results calculated as $EG_{facility,y} = EG_{export,y} - EG_{import,y}$
Measuring frequency:	Continuously measuring
Reporting frequency:	Monthly recorded
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Electricity meters M1 and M2 installed at the project site, with accuracy no less than 0.5S.
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is as described in the registered VCS- PD /3/. For details see Table 4-1.
Calibration frequency /interval:	Annually according to the national calibration standard "Technical administrative code of electric energy metering (DL/T448-2016)".
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.
Company performing the calibration:	See Table 4-1
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is (are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-1.
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data has been cross-checked with the ETNs issued by grid company in line with the registered VCS-PD /3/.
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of	Yes.

emission reductions and are necessary QA/QC processes in place?	
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of PD):	$EG_{export,y}$ Quantity of electricity generation supplied by the project plant to the grid in year y
Measuring frequency:	Continuously measuring
Reporting frequency:	Monthly recorded
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Electricity meters M1 and M2 installed at the project site, with accuracy no less than 0.5S.
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is as described in the registered PD /3/. For details see Table 4-1.
Calibration frequency /interval:	Annually according to the national calibration standard "Technical administrative code of electric energy metering (DL/T448-2016)".
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes.
Company performing the calibration:	See Table 4-1
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-1.

If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data has been cross-checked with the ETNs issued by grid company in line with the registered VCS-PD.
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

Monitoring Parameter Requirement	Assessment/ Observation by the VVB
Data / Parameter: (as in monitoring plan of PD):	$EG_{import,y}$ Quantity of electricity imported from the power grid by the project in year y
Measuring frequency:	Continuously measuring
Reporting frequency:	Monthly recorded
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Electricity meters M1 and M2 installed at the project site, with accuracy no less than 0.5S.
Is accuracy of the monitoring equipment as stated in the PD? If the PD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Accuracy level of monitoring meters is as described in the registered PD /3/. For details see Table 4-1.
Calibration frequency /interval:	Annually according to the national calibration standard "Technical administrative code of electric energy metering (DL/T448-2016)".
Is the calibration interval in line with the monitoring plan of the PD? If the PD does not specify the frequency of calibration, does the	Yes.

selected frequency represent good monitoring practise?	
Company performing the calibration:	See Table 4-1
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period?	Yes. For details see Table 4-1.
If applicable, has the reported data been cross-checked with other available data?	Yes, the reported data has been cross-checked with ETNs issued by grid company in line with the registered VCS-PD.
How were the values in the monitoring report verified?	The verification details have been reported in Section 4.4 of this report.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable.

The calibration information of the Project in this monitoring period has been listed in Table 4-1 below. The monitoring equipment has been installed in the project activity according to registered monitoring plan. In summary, the verification team is able to verify that the accuracy the monitoring equipment were set according to the registered monitoring plan and relevant sectoral standard of China.

Table 4-1 Calibration records of the meters /19/

Meters	Type	Accuracy Class	Serial number	Date of calibration	Validity
M1	bidirectional electricity meter	0.2s	57034799	03/03/2020	02/03/2021
				24/02/2021	23/02/2022
				07/01/2022	06/01/2023
M2		0.2s	57034801	03/03/2020	02/03/2021
				24/02/2021	23/02/2022

Meters	Type	Accuracy Class	Serial number	Date of calibration	Validity
	bidirectional electricity meter			07/01/2022	06/01/2023
M1	bidirectional electricity meter	0.2s	219216914	05/09/2022	04/09/2023
M2	bidirectional electricity meter	0.2s	219216910	05/09/2022	04/09/2023

Calibration Entity: Electric Energy Measurement Centre of State Grid Gansu Electric Power Corporation with accreditation certificate (Gan) Faji (2018) 62055 with the valid period from 29/09/2018 to 28/09/2022 /20/.

All required monitoring equipment are installed and operating procedures are implemented in an appropriate manner.

The meters M1 and M2 have been replaced on 21/09/2022 to meet the requirements of Electric Energy Measurement Centre of State Grid Gansu Electric Power Corporation., the new serial number of M1 is 219216914 and the new serial number of M2 is 219216910. No operation during meter inspection and replacement according to the power restriction order, and the Meter Replacement Description has been issued by the Gansu Power Trading Center Co. LTD/24/, so the replacement of the meters has no impact on the electricity monitoring of the project.

The verification team confirmed that there is no proposed or actual change to the project design during this monitoring period.

4.1.3 Remaining Issues from Previous Validation or Verification

This is the 1st verification in the 2nd crediting period and the verification team can confirm that there were no any remaining issues from the validation and previous verification reports /4/.

The VCS validation of renewal of crediting period of the project was conducted in October 2022. Before registration as VCS project, the project has been registered as CDM project and the registration number is 4832.

The verification team confirm that since validation of renewal of crediting period, the project hasn't participated or been rejected under any other GHG programs through checking the official website, such as Chinese CCER and GS.

4.1.4 Participation under other GHG programs since validation or previous verification

By checking the UNFCCC website (<https://cdm.unfccc.int/Projects/DB/DNV-CUK1305872143.32/view>), it is confirmed that the emission reductions within the monitoring periods 05/07/2011-29/12/2011, and 30/12/2011-31/12/2012 have been applied for CERs. No CERs have been issued or requested for issuance under CDM program during this monitoring period (22/01/2021-31/12/2022).

4.1.5 Whether included in an emissions trading program or any other mechanism

Though checking the official website and interviewing with PP, the verification team confirm that no GHG emission reductions or removals generated by the project have been included in any trading program or any other mechanism that includes GHG allowance trading. China's national emissions trading scheme only cover the high-emission industries, such as thermal power generation, petrochemical, chemical, building materials, iron and steel, non-ferrous, paper, aviation and other key emission industries that emitted at least 26,000 tons of CO₂e/year/29/. The project hasn't included in China GHG allowance trading according to latest national regulations.

4.1.6 Other form of environmental credit since validation or previous verification

Since validation of renewal of crediting period, the project hasn't sought or received another form of environmental credits, such as renewable energy certificates.

4.1.7 Events that may impact the GHG emission reductions or removals and monitoring

By interviewing the PP, the project has a good running, smooth data transfer and grid connection, and no special events happened during this monitoring period.

Therefore, the verification team confirm that no events or situations occurred during the monitoring period, which may impact the GHG emission reductions or removals and monitoring during this monitoring period.

4.1.8 Supply Chain (Scope 3) Emissions

The project is in a supply chain. The industrial chain of wind farms is mainly divided into upstream raw materials and parts manufacturing, midstream wind power machine manufacturing and downstream wind farm operation.

According to sections 3.23.7 to 3.23.9 of VCS Standard (version 4.4) /5/, the project proponent shall require the producer(s) or retailer(s) which are involved in the project to post a public statement on their website. For the producer(s) or retailer(s) of the impacted good or service are unknown, not involved in the project or do not have a website, the project proponent shall post a public statement on their website. The public statements shall be

issued at the project's start date and remain posted for the project crediting period. Besides, for the producer(s) or retailer(s) of the impacted good or service are known but not involved in the project or do not have a website, the project proponent shall notify them of the project and potential risk of Scope 3 emissions double claiming via email.

These sections will be effective on 01/072023. Public statements are required for all emission reductions and removals associated with impacted goods or services for which VCUs may be requested from this date onwards. Thus, FAR-1 was raised.

4.1.9 SD contributions

The project utilizes the wind energy to generate electricity, which could increase electricity production from renewable sources, reduce the GHG and pollutants emission. During the operation period, the project could also provide some employment opportunities to the local residents and enhance the local economic development.

The project provides sustainable development contributions to SDG7 Affordable and Clean Energy with the indicator of "Renewable energy supplied to the power grid". 732,133.568 MWh of electricity from renewable sources has been supplied to the power grid during the reporting period, and an accumulated 3,376,513.558 MWh of electricity from renewable sources has been supplied to the power grid by end of the reporting period.

The project provides sustainable development contributions to SDG8 Decent Work and Economic Growth with the indicator of "Numbers of decent job opportunities provide by implementation of the project". The project activity generates long-term working opportunities for 30 people during the operation period.

The project provides sustainable development contributions to SDG13 Climate Action with the SDG indicator of "Tonnes of greenhouse gas emissions avoided". The project has achieved a total GHG estimated emissions reduction of 570,569 tCO₂e in this monitoring period, and an accumulated of 3,022, 413 tCO₂e of GHG estimated emissions have been achieved by the project by the end of the reporting period.

4.1.10 List of previously validated methodology deviations

There were no methodology deviations during previously validation.

4.1.11 Assessment of the audit history

The audit history of the project under VCS is described below. And all the validations and verifications have been conducted as VCS requirements.

Table 4-2 Audit history of the project

Audit Type	Crediting Period/Monitoring Period	Program	VVB Name
Validation	22/01/2011-21/01/2021	VCS	Det Norske Veritas Certification Ltd.
Verification	22/01/2011-04/07/2011	VCS	Det Norske Veritas Certification Ltd.
Verification	01/01/2013-31/12/2018	VCS	Shenzhen CTI International Certification Co., Ltd.
Verification	01/01/2019-21/01/2021	VCS	China Classification Society Certification Co., Ltd.
Validation	22/01/2021-21/01/2031	VCS	Shenzhen CTI International Certification Co., Ltd.
Verification	22/01/2021-31/12/2022	VCS	China Testing & Certification International Group Co., Ltd.

4.1.12 Conclusion

As verified above, the verification team concludes that, during this monitoring period, the project has been implemented as described in the updated PD.

4.2 Safeguards

4.2.1 No Net Harm

The Environmental Impact Assessment (EIA) report for the Project has been approved by Environmental Protection Administration of Gansu Province complying with the provisions of environmental impact assessment law. According to the EIA summary, it is confirmed that the impact caused by the project on air, noise, solid waste, and waste water is very little during construction and operation, and corresponding measures has been taken. There are no negative socio-economic impacts of the project.

4.2.2 Local Stakeholder Consultation

A symposium and a questionnaires survey were made among local stakeholders to investigate the impacts on local ecological environment and social environment. It showed that the proposed project received strong support form the local stakeholders.

Communication with local stakeholders has been carried out at periodic intervals. In this monitoring period, the project owner carried out questionnaire survey for the local stakeholder to collect the relevant comments and suggestions in Jul 2021 and Sep 2022. And there are no negative comments received during this monitoring period.

During the site visit, the verification team had interviewed with local villagers and officials and confirmed that there were no negative comments.

4.3 AFOLU-Specific Safeguards

The project is non-AFOLU project, and this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

4.4.1 Parameters and information flow

The parameters required by the monitoring plan and the way CTC has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the monitoring reports are described below:

Parameters determined ex-ante:

The baseline emission factors include $EF_{grid,OM,y}$, $EF_{grid,BM,y}$, and weight coefficient of ω_{OM} , ω_{BM} .

The baseline emission factor of the crediting period of the Project has been determined ex-ante in the updated VCS PD /3/, and consistent with “2019 Baseline Emission Factors for Regional Power Grids in China” published by China DNA. The emission factor $EF_{grid,OM,y}$ of 0.8922 tCO₂e/MWh, $EF_{grid,OM,y}$ of 0.4407 tCO₂e/MWh, and the weight coefficient ω_{OM} of 0.75 tCO₂e/MWh, ω_{BM} of 0.25 tCO₂e/MWh, therefore $EF_{grid,CM,y}$ of 0.779325 tCO₂e/MWh used in the monitoring period have been verified against the approved PD.

CAR-1 was raised due to the incompleteness of parameters. The MR (version 01) didn't include all the data and parameters available at validation and monitored. The revised MR (version 02) is completed in compliance with the updated PD. Thus, CAR-1 is closed.

Parameters monitored ex-post:

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

$EG_{import,y}$ Quantity of electricity imported from the power grid by the project in year y (MWh/yr)

The quantity of net electricity generation supplied to the grid by the project plant ($EG_{facility,y}$) is calculated through $EG_{export,y}$ minus $EG_{import,y}$.

For the project, all the wind turbines are divided into two loops to parallel-connect with a junction line to new adding transformer shared with other planning wind projects. Two meters are installed at two loops to monitor the electricity generation (accuracy degree is 0.2S, bidirectional).

As described above, the meters have been installed in accordance with the registered PD. The verification team has checked the location of the meters against the diagram of power connection system and found them to be consistent.

The readings of the meter M1 and M2 installed at two loops are recorded by the project owner at 24:00 every day and then reports to the grid company monthly for confirmation purpose/16/. Due to the requirements of the local Grid Company, the monthly cut-off time for the recording of quantity of electricity generation supplied by the project plant to the grid is at 24:00 on the last third day of every month, and the monthly cut-off time for the recording of quantity of electricity imported from the power grid by the project is at 24:00 on the 20th day of every month/17/.

The meter readings are continuously monitored and recorded by the PP. The local grid company issues the ETNs monthly which is used to crosscheck the monthly recording data. For the period 22/01/2021-29/01/2021, 01/02/2021-20/02/2021, 30/12/2021-31/12/2021, 01/01/2022-29/01/2022, and 30/12/2022-31/12/2022, separately electricity statement is issued by the local grid company/18/.

Data in the monthly reading records were used to the report, through a cross check with the sales receipts, and the conservative values from electricity export and import were applied to calculate the net electricity supplied to the grid by the project. The data reported in the monitoring report and ERs calculation spreadsheet has been verified by the verification team. Supporting references and data required to determine the net electricity supplied to the grid by the project is found to be complete and transparent.

4.4.2 Assessment data and calculation

A complete set of data for the specified monitoring period is available.

The critical parameter used for the determination of the Emission Reductions is the net electricity supplied to the grid by the project. The data pertaining to the above parameter are maintained in the identified records. All the data are in compliance with that stated in the Monitoring Report version 02.

As per the methodology ACM0002 Version 20.0 /9/ and the VCS-PD /3/, the emission reductions for the Project are calculated as the baseline emissions minus the project emissions. Hence the emission reduction is determined by the following formula:

The baseline emissions are the baseline emission reductions factor times the net electricity supplied to the grid. Therefore,

$$ER_y = BE_y - PE_y$$

Where,

ER_y = Emission reductions in year y (tCO₂e)

BE_y = Baseline emissions in year y (tCO₂e)

PE_y = Project emissions in year y (tCO₂e)

Baseline emissions

According to ACM0002 (version 20.0), the baseline emission BE_y during the monitoring period results from:

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

The Project is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the Project. So:

$$EG_{PJ,y} = EG_{facility,y}$$

Accordingly,

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

Where,

$EG_{facility,y}$ = quantity of net electricity generation supplied by the Project plant to the grid in year y (MWh/yr)

$EF_{grid,CM,y}$ = combined margin baseline emission factor of the NWPG (tCO₂e/MWh)

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

Where,

$EG_{export,y}$ = Quantity of electricity generation supplied by the project plant to the grid in year y (MWh/yr)

$EG_{import,y}$ = Quantity of electricity imported from the power grid by the project in year y (MWh/yr)

Table 4-3: Quantity of electricity generation supplied by the project plant (MWh)

Period	Electricity exported to the grid ($EG_{export,y}$) (MWh)				
	Values from meter readings			Values from ETNs	Conservative Value
	Meter (M1)	Meter (M2)	Total		
	A	B	C=A+B	D	E=Min (C, D)
22/01/2021-29/01/2021	2,478.525	2,847.688	5,326.213	5,294.910	5,294.910
30/01/2021-26/02/2021	15,243.288	17,858.925	33,102.213	32,905.677	32,905.677
27/02/2021-29/03/2021	15,824.988	21,853.125	37,678.113	37,375.642	37,375.642
30/03/2021-28/04/2021	20,514.550	21,085.663	41,600.213	40,757.714	40,757.714
29/04/2021-29/05/2021	14,929.425	17,763.638	32,693.063	32,436.077	32,436.077
30/05/2021-28/06/2021	15,103.725	16,527.263	31,630.988	31,137.347	31,137.347
29/06/2021-29/07/2021	15,540.438	21,772.888	37,313.326	36,567.163	36,567.163
30/07/2021-29/08/2021	18,344.813	20,049.575	38,394.388	37,719.155	37,719.155
30/08/2021-28/09/2021	14,112.350	15,548.925	29,661.275	29,350.150	29,350.150
29/09/2021-29/10/2021	20,944.000	27,148.713	48,092.713	47,334.268	47,334.268
30/10/2021-28/11/2021	7,736.838	7,105.437	14,842.275	14,625.354	14,625.354
29/11/2021-29/12/2021	10,551.625	13,389.075	23,940.700	23,363.320	23,363.320
30/12/2021-31/12/2021	409.587	880.687	1,290.274	1,265.061	1,265.061
Subtotal	171,734.152	203,831.602	375,565.754	370,131.838	370,131.838

01/01/2022-29/01/2022	7565.600	11322.675	18,888.275	18,343.387	18,343.387
30/01/2022-26/02/2022	11527.338	13391.175	24,918.513	24,465.090	24,465.090
27/02/2022-29/03/2022	15293.688	17635.888	32,929.576	32,365.767	32,365.767
30/03/2022-28/04/2022	12390.088	13419.350	25,809.438	25,734.373	25,734.373
29/04/2022-29/05/2022	18089.838	26710.688	44,800.526	44,418.518	44,418.518
30/05/2022-28/06/2022	20220.200	19450.638	39,670.838	39,075.821	39,075.821
29/06/2022-29/07/2022	13921.075	16943.763	30,864.838	30,358.622	30,358.622
30/07/2022-29/08/2022	20335.088	23898.438	44,233.526	43,283.432	43,283.432
30/08/2022-28/09/2022	13693.225	16171.050	29,864.275	29,304.010	29,304.010
29/09/2022-29/10/2022	15596.875	18841.988	34,438.863	34,286.449	34,286.449
30/10/2022-28/11/2022	11959.500	14979.125	26,938.625	26,289.317	26,289.317
29/11/2022-29/12/2022	8058.750	8141.875	16,200.625	15,907.420	15,907.420
30/12/2022-31/12/2022	38.500	74.375	112.875	109.934	109.934
Subtotal	168689.765	200981.028	369,670.793	363,942.140	363,942.140
Total	340423.917	404812.630	745,236.547	734,073.978	734,073.978

Table 4-4: Quantity of electricity imported from the power grid (MWh)

Period	Electricity imported from the grid (EG _{import,y}) (MWh)				
	Values from meter readings			Values from sales evidence*	Conservative Value
	Meter (M1)	Meter (M2)	Total		
	A	B	C=A+B	D	E=Max(C,D)
22/01/2021-31/01/2021	8.925	9.450	18.375	27.395	27.395

01/02/2021- 20/02/2021	23.888	22.750	46.638	91.015	91.015
21/02/2021- 20/03/2021	18.638	18.638	37.276	79.200	79.200
21/03/2021- 20/04/2021	27.913	29.488	57.401	79.200	79.200
21/04/2021- 20/05/2021	18.200	25.288	43.488	52.800	52.800
21/05/2021- 20/06/2021	26.338	18.463	44.801	52.800	52.800
21/06/2021- 20/07/2021	25.725	27.213	52.938	79.200	79.200
21/07/2021- 20/08/2021	16.100	3.150	19.250	26.400	26.400
21/08/2021- 20/09/2021	42.350	56.263	98.613	132.000	132.000
21/09/2021- 20/10/2021	19.775	20.913	40.688	79.200	79.200
21/10/2021- 20/11/2021	38.763	42.700	81.463	132.000	132.000
21/11/2021- 20/12/2021	40.775	39.813	80.588	105.600	105.600
21/12/2021- 31/12/2021	11.900	12.075	23.975	50.800	50.800
Subtotal	319.290	326.204	645.494	987.610	987.610
01/01/2022- 20/01/2022	25.375	23.975	49.350	81.200	81.200
21/01/2022- 20/02/2022	44.713	36.313	81.026	105.600	105.600
21/02/2022- 20/03/2022	23.975	16.538	40.513	52.800	52.800
21/03/2022- 20/04/2022	12.600	14.263	26.863	52.800	52.800
21/04/2022- 20/05/2022	18.550	10.500	29.050	52.800	52.800
21/05/2022- 20/06/2022	0.788	27.650	28.438	52.800	52.800
21/06/2022- 20/07/2022	12.338	2.800	15.138	26.400	26.400

21/07/2022-20/08/2022	10.325	27.038	37.363	52.800	52.800
21/08/2022-20/09/2022	9.362	26.425	35.787	52.800	52.800
21/09/2022-20/10/2022	32.375	37.012	69.387	105.600	105.600
21/10/2022-20/11/2022	24.500	34.388	58.888	105.600	105.600
21/11/2022-20/12/2022	27.825	40.863	68.688	158.400	158.400
21/12/2022-31/12/2022	18.638	17.763	36.401	53.200	53.200
Subtotal	261.364	315.528	576.892	952.800	952.800
Total	580.654	641.732	1222.386	1940.410	1940.410

Table 4-5: Quantity of net electricity generation supplied by the Project plant to the grid (MWh)

Period	Quantity of net electricity generation supplied by the project to the Grid (MWh)		
	Conservative values of $EG_{\text{export},y}$	Conservative values of $EG_{\text{import},y}$	$EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y}$
22/01/2021-31/01/2021	5,294.910	27.395	5,267.515
01/02/2021-20/02/2021	32,905.677	91.015	32,814.662
21/02/2021-20/03/2021	37,375.642	79.200	37,296.442
21/03/2021-20/04/2021	40,757.714	79.200	40,678.514
21/04/2021-20/05/2021	32,436.077	52.800	32,383.277
21/05/2021-20/06/2021	31,137.347	52.800	31,084.547
21/06/2021-20/07/2021	36,567.163	79.200	36,487.963
21/07/2021-20/08/2021	37,719.155	26.400	37,692.755
21/08/2021-20/09/2021	29,350.150	132.000	29,218.150
21/09/2021-20/10/2021	47,334.268	79.200	47,255.068
21/10/2021-20/11/2021	14,625.354	132.000	14,493.354

21/11/2021-20/12/2021	23,363.320	105.600	23,257.720
21/12/2021-31/12/2021	1,265.061	50.800	1,214.261
Subtotal 2021	370,131.838	987.610	369,144.228
01/01/2022-20/01/2022	18,343.387	81.200	18,262.187
21/01/2022-20/02/2022	24,465.090	105.600	24,359.490
21/02/2022-20/03/2022	32,365.767	52.800	32,312.967
21/03/2022-20/04/2022	25,734.373	52.800	25,681.573
21/04/2022-20/05/2022	44,418.518	52.800	44,365.718
21/05/2022-20/06/2022	39,075.821	52.800	39,023.021
21/06/2022-20/07/2022	30,358.622	26.400	30,332.222
21/07/2022-20/08/2022	43,283.432	52.800	43,230.632
21/08/2022-20/09/2022	29,304.010	52.800	29,251.210
21/09/2022-20/10/2022	34,286.449	105.600	34,180.849
21/10/2022-20/11/2022	26,289.317	105.600	26,183.717
21/11/2022-20/12/2022	15,907.420	158.400	15,749.020
21/12/2022-31/12/2022	109.934	53.200	56.734
Subtotal 2022	363,942.140	952.800	362,989.340

Table 4-6: Calculation of baseline emissions

Period	EG _{facility,y}	EF _{grid,CM,y}	BE _y
	(MWh)	(tCO ₂ e/MWh)	(tCO ₂ e)
Year 2021 (22/01/2021-31/12/2021)	369,144.228	0.779325	287,683
Year 2022 (01/01/2022-31/12/2022)	362,989.340	0.779325	282,886
Total	732,133.568	-	570,569

CAR-2 was raised due to the inconsistency between ER calculation and supporting ETNs. of parameters. The baseline emission in MR (version 01) and ER calculation sheet (version 01) was not consistent with the ETNs issued by the grid company. The revised MR (version 02) and ER calculation sheet (version 02) is consistent with the ETNs. Thus, CAR-2 is closed.

Project emissions

The verification team has confirmed the project emissions are regarded as zero and no leakage would be accounted for the Project according to the methodology ACM0002 version 20.0.

Emission Reductions

The verification team has also confirmed the emission reductions of the project have been conservatively calculated in line with above mentioned Formulas in the emission reduction calculation spreadsheet /2/. The total emission reductions have been summarized in the emission reduction calculation spreadsheet /2/ and checked to be correctly accounted.

Table 4-7 Verified Emission Reductions of the Project

Period	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)
Year 2021 (22/01/2021-31/12/2021)	287,683	0	0	287,683
Year 2022 (01/01/2022-31/12/2022)	282,886	0	0	282,886
Total	570,569	0	0	570,569

By cross-check with the electricity sale receipts /17/, the verification team confirms that the monitoring results as listed in the Monitoring Report /1/ and emission reductions calculation spread sheet /2/ are conservative. The verification team confirms that the applied spreadsheet formulas and connections are correct and in line with the indicated emission reduction calculation in the monitoring plan contained in the VCS-PD /3/ and the applied methodology /9/.

Comparison of ERs

Based on the above assessment, CTC can conclude that the emission reduction during the monitoring period from 22/01/2021 to 31/12/2022 have been quantified correctly in accordance with the project description and applied methodology /9/, and the emission reduction during the monitoring period is verified as 570,569 tCO₂e. Compared with the estimated emission reductions under the same 709 days in the VCS-PD/3/, 727,700(=374,627*709/365) tCO₂e, the verified emission reduction is (21.59%) less than the estimated value.

Conclusion

As verified above, the verification team confirm that appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed, and the assumptions and default values that are applied in the calculation have been justified, and confirm that the GHG emission reductions and removals of the project 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 evidences used to determine the GHG emission reductions are assessed as follows:

Assessment of the Evidence Quality	
Parameters monitored	(i) $EG_{export,y}$ (ii) $EG_{import,y}$ (iii) $EG_{facility,y}$
Monitoring method	Quantity of electricity generation supplied by the project plant to the grid ($EG_{export,y}$) and Quantity of electricity imported from the power grid by the project ($EG_{import,y}$) are measured by bi-direction meters. Quantity of net electricity generation supplied by the Project plant to the grid ($EG_{facility,y}$) is calculated as $EG_{export,y}$ minus $EG_{import,y}$.
Measuring/Reading /Recording frequency	The parameters are continuously measured and monthly recorded.
Calibration frequency/ interval	See Table 4-1 Verified calibration information of monitoring meters. Through on-site observation and checking the calibration records of meters, the team confirmed that all the monitoring meters meet the rated accuracy level and the calibration frequency fulfils the requirement as described in the monitoring plan.
Calibration cover the monitoring period	The verification team confirms that the validity period of all conducted calibrations covers this monitoring period.
Data reported	Through cross checking with the ETNs, the monitored data can be confirmed as acceptable to calculate emission reductions.

In summary, all necessary documentation is collected, referenced and is easily accessible in hard-copy or electronic format. Measurements are performed by yearly calibrated meters. The data pertaining to the monitored parameters are maintained in the identified internal records and consistent with the values stated in the Monitoring Report /1/ and ER calculation spreadsheet /2/. Key data have been cross-checked via external sources, such as ETNs. No assumptions are used that have any material influence on reported emission reductions.

The verification team concludes that 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 OPINION

CTC has carried out the 1st periodic verification of the 2nd crediting period of project “Gansu Guazhou Beidaqiao Wind Power Project”. The verification was performed based on the requirements set by Voluntary Carbon Standard (VCS) Version 4.0 /5//6//7//8/, as well as criteria given to provide for consistent project operations, monitoring and reporting. The GHG statement is the responsibility of Longyuan (Jiuquan) Wind Power Co., Ltd/22/. This verification covers the period from 22/01/2021 to 31/12/2022 inclusive.

In the course of the verification two Corrective Action Requests (CAR) and one Forward Action Request (FAR) were raised. The verification is based on the VCS-MR /1/, the VCS-PD /3/, ER calculation spread sheet /2/ and supporting documents available to CTC.

As the result of the verification, CTC confirms that:

- The project activity has been implemented and operated as per the VCS-PD /3/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the Project are in place;
- The VCS-MR /1/ and other supporting documents provided are complete in accordance with the latest applicable version of the VCS Registration & Issuance Process /8/ and in accordance with the additional requirements stated by VERRA;
- The actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology i.e. ACM0002 version 20.0 /9/;

- The GHG emission reductions are calculated without material misstatements and in a conservative and appropriate manner.

Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, CTC confirms the following statement:

Verification period: From 22/01/2021 to 31/12/2022

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

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)
Year 2021 (22/01/2021—31/12/2022)	287,683	0	0	287,683
Year 2022 (22/01/2021—31/12/2022)	282,886	0	0	282,886
Total	570,569	0	0	570,569

The emission reduction during the monitoring period is verified as 570,569 tCO₂e. Compared with the estimated emission reductions under the same 709 days in the VCS-PD/3/, 727,700(=374,627*709/365) tCO₂e, the verified emission reduction is (21.59%) less than the estimated value.

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
Year 2021 (22/01/2021—31/12/2022)	353,073	287,683	-18.52%	The verified emission reduction is less than the estimated value. The difference between estimated ex-ante GHG emission reductions and
Year 2022	374,627	282,886	-24.45%	

(22/01/2021— 31/12/2022)				removals and the achieved emission reductions and removals for this monitoring period is caused by the erratically fluctuation of wind resources in the project area.
Total	727,700	570,569	-21.59%	

Zhao Jinlan

Team Leader

25/04/2023



Yan Haochun

Approver

25/04/2023



APPENDIX A: REFERENCES

Documents provided by the Project Participant and relevant background documents have been reviewed or referenced for the periodic verification conclusions.

Ref no.	Reference Document
/1/	Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., VCS Monitoring Report Version 01 dated 16/03/2023 Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., VCS Monitoring Report Version 02 dated 23/04/2023
/2/	Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., ER calculation spreadsheet Version 01 dated 16/03/2023 Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd., ER calculation spreadsheet Version 01 dated 23/04/2023
/3/	Longyuan Power Group Energy Sale Co., LTD, updated VCS-PD Version 03 dated 24/10/2022
/4/	Det Norske Veritas Certification Ltd., Validation Report Version 01 dated 25/08/2010 Det Norske Veritas Certification Ltd., Verification Report Version 01 dated 03/07/2012 Shenzhen CTI International Certification Co., Ltd, Verification Report 01.1 dated 28/09/2022 China Classification Society Certification Co., Ltd., Verification Report Version 02 dated 25/10/2022 Shenzhen CTI International Certification Co., Ltd, Validation Report Version 2.0 dated 24/10/2022
/5/	VERRA, VCS Standard Version 4.4
/6/	VERRA, VCS Program Guide Version 4.3
/7/	VERRA, Monitoring Report Template Form Version 4.2
/8/	VERRA, Registration & Issuance Process Version 4.3
/9/	CDM Executive Board, ACM0002 Grid-connected electricity generation from renewable sources Version 20.0
/10/	https://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0065 https://verra.org/project/china-testing-certification-international-group-co-ltd-ctc/
/11/	CDM Executive Board, Tool to calculate the emission factor for an electricity system, Version 07.0
/12/	China DNA: 2019 Baseline Emission Factors for Regional Power Grids in China

/13/	China National Economic Trading Commission, Technical Administrative Code of Electric Energy Metering, DL/T 448-2016
/14/	The CDM PDD, CDM validation report, and CDM MRs
/15/	Diagram of power connection system
/16/	Daily and monthly reading records covering this monitoring period 22/01/2021-31/12/2022
/17/	ETNs issued by the grid company covering this monitoring period 22/01/2021-31/12/2022
/18/	The separately electricity statement from the grid company for period 22/01/2021-29/01/2021, 01/02/2021-20/02/2021, 30/12/2021-31/12/2021, 01/01/2022-29/01/2022, and 30/12/2022-31/12/2022
/19/	Calibration Reports for Meters with the validity covering this monitoring period
/20/	Metrological Authorization Certificate of the calibration entity
/21/	Power Purchasing Agreement 2020
/22/	No Double Counting Statement from PP 01/03/2023
/23/	Maintenance procedure of wind turbine-key parameters
/24/	Meter Replacement Description issued by the Gansu Power Trading Center Co. LTD,
/25/	Questionnaire survey
/26/	Routine Maintenance Record
/27/	Roster of employment
/28/	Business license of Longyuan (Jiuquan) Wind Power Co., Ltd.
/29/	Notice on Strengthening Enterprise Greenhouse Gas Emission Report Management" issued by Ministry of Ecology and Environment of P.R.China
/30/	Photos of project site, meters, central control interface, kick-off meeting
/31/	Site visit attendance list

APPENDIX B: RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

1 CAR, 0 CL and 1 FAR were raised in this verification.

Findings	PP's response	Verification teams conclusion
CAR-1: Not all the data and parameters available at validation and monitored during the period in updated PD are included in MR Section 4.1 and 4.2.	All the data and parameters available at validation and monitored during the period in updated PD have been included in MR Section 4.1 and 4.2.	The verification team has checked the revised MR, and confirmed that all the data and parameters available at validation and monitored in the updated PD are included in Section 4.1 and 4.2. Hence, this CAR is closed.
CAR-2: The data of ER calculation sheet (V01) are not consistent with supporting ETNs from the grid company, i.e., $EG_{import,y}$ of 21/11/2022-20/12/2022.	It has been updated in the ER calculation sheet (V02) which is consistent with supporting ETNs from the grid company, i.e., $EG_{import,y}$ of 21/11/2022-20/12/2022.	The verification team has checked the revised MR and ER calculation sheet, and confirmed that all the data used for emission reduction calculation are consistent with the supporting evidence. Hence, this CAR is closed.
FAR-1: According to sections 3.23.7 to 3.23.9 of VCS Standard (version 4.4), the project proponent shall require the producer(s) or retailer(s) which are involved in the project to post a public statement on their website. For the producer(s) or retailer(s) of the impacted good or service are unknown, not involved in	N/A	N/A

the project or do not have a website, the project proponent shall post a public statement on their website. The public statements shall be issued at the project's start date and remain posted for the project crediting period. Besides, for the producer(s) or retailer(s) of the impacted good or service are known but not involved in the project or do not have a website, the project proponent shall notify them of the project and potential risk of Scope 3 emissions double claiming via email. These sections will be effective on 01/072023. Public statements are required for all emission reductions and removals associated with impacted goods or services for which VCUs may be requested from this date onwards.		
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APPENDIX C: CERTIFICATES OF COMPETENCE

 国检集团
National Test

CERTIFICATE OF APPOINTMENT

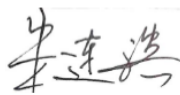
Ms. Zhao Jinlan

Satisfies the requirements as specified in the CTC CCP and is hereby appointed as

CDM Validator/verifier.

The present appointment will terminate on 31/12/2023.

Date of issue: 01/01/2021



Zhu Lianbin
CTC General Manager

 国检集团
National Test

CERTIFICATE OF APPOINTMENT

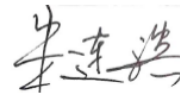
Mr. Liu Yibo

Satisfies the requirements as specified in the CTC CCP and is hereby appointed as

CDM Validator/verifier

The present appointment will terminate on 30/09/2025.

Date of issue: 01/10/2022.



Zhu Lianbin
CTC General Manager

 国检集团
National Test

CERTIFICATE OF APPOINTMENT

Mr. Li Cheng

Satisfies the requirements as specified in the CTC CCP and is hereby appointed as

CDM Validator/verifier.

The present appointment will terminate on 31/12/2023.

Date of issue: 01/01/2021.



Zhu Lianbin
CTC General Manager

 国检集团
National Test

CERTIFICATE OF APPOINTMENT

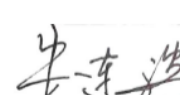
Ms. Xiao Leling

Satisfies the requirements as specified in the CTC CCP and is hereby appointed as

CDM Validator/verifier

The present appointment will terminate on 31/12/2025.

Date of issue: 01/01/2023.



Zhu Lianbin
CTC General Manager