



**Verified Carbon
Standard**

CECIC HKE ZHANGBEI LVNAOBAO WIND POWER PROJECT



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

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Summary:

LGAI Technological Center, S.A. (hereafter referred to as “Applus+ Certification”) has been commissioned by Beijing Ruifang Information Technology Co., Ltd to perform the verification of greenhouse gas emission reductions of the project activity “CECIC HKE Zhangbei Lvnaobao Wind Power Project” (VCS Ref. No. 727, hereafter referred to as “the project activity”) reported in the monitoring report /1/ during monitoring period 01/12/2019 to 31/12/2021 which under 2 different crediting period, 01/08/2010 to 31/07/2020 as CP1 and 01/08/2020 to 31/07/2030 as CP2.

The project activity has been validated by TÜV SÜD Industrie Service GmbH based on the CDM PDD /3/ version 06 dated 23/09/2010 and reported in the validation report No. 600500230 /4/, version 5, completed on 13/10/2010. The project activity was registered as a CDM project activity on 28/10/2010 which is available at <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1265810041.21/view>. A gap validation was performed by Bureau Veritas Certification based on VCS PD version 02 dated 14/06/2011 which is the basis for this verification for CP1. And the renewal of crediting period under VCS standard has been done by LGAI Technological Center, S.A. (Applus+ Certification). Both are available at <https://registry.verra.org/app/projectDetail/VCS/727>. The VCS PD /3/ for renewal of VCS would be the basis for this verification for CP2.

The project activity is a wind power project located at Zhangbei County, northwest region of Hebei Province, P. R. China which is to use wind resource for electricity generation. The installed capacity of the project activity is 100.5 MW, consisting of 67 sets of wind turbines with unit capacity of 1,500 kW. The average annual power delivered to the grid by the project is expected to be 241.70 GWh. The project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants in North China Power Grid (NCPG). It’s estimated that the proposed project could achieve GHG emission reductions of 254,960 tCO₂e under CP1 and 203,136 tCO₂e under CP2 annually.

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

- Monitoring plan included in the registered VCS PD /3/ version 02 dated 14/06/2011 for CP1;

- Monitoring plan included in the registered VCS PD /3/ version 2.0 dated 21/07/2020 for CP2;
- Validation report No. 600500230 /4/, version 5, completed on 13/10/2010 by TÜV SÜD Industrie Service GmbH;
- VCS Validation Statement /4/ dated 02/09/2011, completed by Bureau Veritas Certification;
- Verification report /4/, version 01.0, completed on 16/12/2019 by Applus+ Certification;
- Validation report No. A+SH_SYST_VCS_RCP_3320 /4/, version 01.0, completed on 22/07/2020 by Applus+ Certification;
- Approved methodology, ACM0002 /7/, version 10, dated 11/06/2009;
- Approved methodology, ACM0002 /7/, version 20.0, dated 28/11/2019;
- VCS standards version 4.1 and guidance version 4.0, as well as relevant UNFCCC requirements;
- All information and references relevant to the project activity's resulting in emission reductions.

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

Applus+ Certification confirms that the project is implemented in accordance with the registered PD /3/. The monitoring plan complies with the applied methodology ACM0002 /7/ version 10 and version 20.0 for different crediting period and the monitoring has been carried out in accordance with the registered PD. The monitoring system is in place and the emission reductions are calculated without material misstatements. The level of assurance of the verification is reasonable. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 488,016 tCO₂e emission reductions during period 01/12/2019 to 31/12/2021.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. (Applus+ Certification) has been commissioned by Beijing Ruifang Information Technology Co., Ltd to perform the verification of greenhouse gas emission reductions of the project activity “CECIC HKE Zhangbei Lvnaobao Wind Power Project” (VCS Ref. No. 727) reported in the Monitoring Report /1/ during monitoring period 01/12/2019 to 31/12/2021.

LGAI Technological Center, S.A. (Applus+ Certification) as the verification body of the project activity has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2013.

The objective of verification is to have an independent review and ex post determination by a Validation and Verification Body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the registration of VCS project. Certification is the written assurance by the VVB that, during a specific time period, a proposed VCS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

The objective of this verification/certification is to verify and certify emission reductions, reported for the “CECIC HKE Zhangbei Lvnaobao Wind Power Project” in China for the period 01/12/2019 to 31/12/2021.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the registered PD and PDD, the Project’s baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS Version 4.1 requirements, UNFCCC rules and associated interpretations.

The verification is not meant to provide any consulting towards the client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the Project monitoring towards reductions in the GHG emissions.

1.3 Level of Assurance

The verification report is based on the VCS-PD, CDM-PDD, the VCS Monitoring Report (MR), supporting evidences made available to the verifier and information collected through performing interviews and during the on-site assessment.

The verification conclusion is assured a reasonable level of assurance.

1.4 Summary Description of the Project

Project title	CECIC HKE Zhangbei Lvnaobao Wind Power Project
VCS reference number	727
Project Participants	CECIC HKE Wind Power Co., Ltd. (Project Owner, host country, P. R. China)
Location of the project	Zhangbei County, northwest region of Hebei Province, People's Republic of China Geographic coordinates: longitude 114°32'30"E and latitude 41°03'50"N
Project start date	Construction start date: 20/08/2008 Operation start date: 26/07/2010 Fully operation start date: 24/09/2010
Version of VCS PD	Version 02, dated 14/06/2011 (VCS PD) for CP1 Version 2.0, dated 21/07/2020 (VCS PD) for CP2
Monitoring period	01/12/2019 to 31/12/2021 01/12/2019 to 31/07/2020 (CP1) 01/08/2020 to 31/12/2021 (CP2)
First monitoring report	Version 1.0, dated 10/01/2022
Final monitoring report	Version 3.0, dated 14/12/2022
Applied Methodology/Version	ACM0002, version 10, dated 11/06/2009 ACM0002, version 20.0, dated 28/11/2019
Scope/Technical Area	1/1.2

The project activity is a wind power project located at Zhangbei County, northwest region of Hebei Province, P. R. China which is to use wind resource for electricity generation. The installed capacity of the project activity is 100.5 MW, consisting of 67 sets of wind turbines with unit capacity of 1,500 kW. The average annual power delivered to the grid by the project is expected to be 241.70 GWh. The project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants in North China Power Grid (NCPG). It's estimated that the proposed project could achieve GHG emission reductions of 254,960 tCO₂e under CP1 and 203,136 tCO₂e under CP2 annually.

The project activity has been validated by TÜV SÜD Industrie Service GmbH based on the CDM PDD /3/ version 06 dated 23/09/2010 and reported in the validation report No. 600500230 /4/, version 5, completed on 13/10/2010. The project activity was registered as a CDM project activity on 28/10/2010 which is available at <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1265810041.21/view>. A gap validation was performed by Bureau Veritas Certification based on VCS PD version 02 dated 14/06/2011 which is the basis for this verification for CP1. And the renewal of crediting period under VCS standard has been done by LGAI Technological Center, S.A. (Applus+ Certification). Both are available at <https://registry.verra.org/app/projectDetail/VCS/727>. The VCS PD /3/ for renewal of VCS would be the basis for this verification for CP2.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification was conducted using Applus+ Certification's procedures in line with the requirements specified in the VCS Standard version 4.1, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant UNFCCC requirements and applying standard auditing techniques.

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

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

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

The information of the assessment team is included in below:

Assessment team

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

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

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

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

Doris Dai (Master’s Degree in Environmental Sciences, Bachelor’s Degree in Environmental Technology) is an Auditor appointed by Applus+ LGAI for the GHG project assessment and auditing. She has more than 6 years of work experience in CDM/VCS project assessment. Before she joined Applus+ LGAI, she has been working for CTI Certification as senior GHG Auditor for 3.5 years.

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Assessment team and ISO 9001/14001 Lead Auditor for 3.5 years.

2.2 Document Review

The VCS monitoring report /1/ version 1.0 dated 10/01/2022, version 3.0 dated 14/12/2022 and the emission reduction calculations spreadsheet /2/, were assessed as part of the verification. In addition, the registered Gap VCS PD /3/ version 02 dated 14/06/2011 and VCS PD for renewal /3/ version 2.0 dated 21/07/2020 in particular the baseline estimations and the monitoring plan, the CDM validation report /04/ version 5 dated 13/10/2010, VCS Validation Statement /4/ dated 02/09/2011 and the VCS Validation Report /4/ dated 22/07/2020, as well as relevant documents, were reviewed. A detailed document reviewed are listed in Appendix 1 of the report.

2.3 Interviews

The key personnel interviewed are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Chen Zihan	Project Manager	CECIC HKE Wind Power Co., Ltd.	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement;
Ms. Li Yurong	Project Manager	CECIC HKE Wind Power Co., Ltd.	Calibration of meters and equipment maintenance. Data collection and ER calculation.

2.4 Site Inspections

The assessment team performed the on-site verification (Zhangbei County, northwest region of Hebei Province, P. R. China) on 18/01/2022. The interviewed personnel, role, organization and objective are listed in above table of section 2.3. Please refer to section 2.3 for details.

2.5 Resolution of Findings

As an outcome of the verification process, the team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- b) Modifications to the implementation, operation and monitoring of the project activity has not been sufficiently documented by the project participants;
- c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CL) if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.

There is no CARs and CLs raised for this monitoring period for the project.

2.5.1 Forward Action Requests

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

2.6 Eligibility for Validation Activities

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

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Through reviewing the registered PDD /3/ and validation report /4/, it was validated that the project has been registered as a CDM project with reference No. 3399 first which is available at <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1265810041.21/view>. Then the project has been registered as VCS project which is available at <https://registry.verra.org/app/projectDetail/VCS/727>. The project does not participate in the other emissions trading program by checking public information on Internet, interviewing with project owner and statement issued by project owner.

During the period from 01/08/2010 to 31/07/2020 as the first VCS crediting period and 01/08/2020 to 31/07/2030 as the second VCS crediting period, the project would claim only for VCU or CERs. But VCUs and CERs will not be claimed in the same period. Also, for period 28/10/2010 to 31/08/2015, the project has applied for the issuance of CERs.

Therefore, Applus+ Certification consider the project is eligible to participate under the VCS Program as there is no double counting for the emission reduction during any period.

3.2 Methodology Deviations

Not applicable as no deviation for methodology.

3.3 Project Description Deviations

The project was registered under CDM scheme on 28/10/2010 with reference number of 3399. According to CDM standard, the crediting period is from 28/10/2010 to 27/10/2017, which could be renewed twice.

Then the project was registered under VCS scheme in 2011. In the registered PD, the project commission date is 01/08/2010 and crediting period is from 01/08/2010 to 27/10/2010. The first issuance under is from 01/08/2010 to 27/10/2010. While according to VCS standard Version 3, the project crediting period is allowable for 10 years and could be renewed twice. Therefore, the first crediting period of project has been determined as 01/08/2010 to 31/07/2020.

The deviation has no impact for 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

Not applicable as not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

By means of on-site visit, the assessment team confirms that all physical features of the project activity proposed in the registered VCS PD and CDM PDD /3/ are in place and the PP has operated the project as per registered CDM PDD and VCS PD /3/. The installed capacity of the project is 100.5 MW, consisting of 67 sets of wind turbines with unit capacity of 1,500 kW. The electricity generated is transmitted to a 220kV Substation system then supplied to NCPG via Hebei Power Grid confirmed by site visit. The project activity was expected to supply 241.70 GWh of electricity to the grid. The construction of the project started on 20/08/2008, the first wind turbine of the project has been put into operation on 26/07/2010 and the commissioning time of all 67 wind turbines was 24/09/2010 verified by checking information on the UNFCCC website. There are no changes on the key equipment and technology since the validation of the project. No special event which would affect the monitoring of the project has been observed during the monitoring period.

By checking information of other GHG programs such as CDM, GS, GCC, CCER etc., it is able to confirm:

The project has not participated or been rejected under any other GHG programs since validation or previous verification;

The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification;

The project would contribute to sustainable development in as below:

- Reduce greenhouse gas emissions compared to the business-as-usual scenario;
- Help to stimulate the growth of the wind power industry in China;
- Reduce the emission of other pollutants resulting from the power generation industry in China, compared to a business-as-usual scenario;
- Create local employment opportunities during the construction and operation of the project;
- Stimulate the development of local tourism industry.

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

Key Technology Parameter	FD77B
Rated power (kW)	1,500
Number of Blades	3
Rotor diameter (m)	77
Swept area(m ²)	4,657
Rated Rotational speed (rpm)	9.6-17.3
Cut-in wind speed (m/s)	3
Rated wind speed (m/s)	12.5
Cut-out wind speed (m/s)	20
Hub height of the wind turbines (m)	70
Capacity (kW)	1,500
Rated Voltage (V)	690

By comparing the actual ER claimed in this monitoring period with the estimate in the registered PD, Under CP1, the actual emission reductions (179,192 tCO₂e) are 5.14% higher than what is stated in the registered PD (i.e. 170,439 tCO₂e, equals to annual emission reductions, 254,960 tCO₂e multiplied by the actual operational days (244 days). Under CP2, the actual emission reductions (308,824 tCO₂e) are 7.12% higher than what is stated in the registered PD (i.e. 288,286 tCO₂e, equals to annual emission reductions, 203,136 tCO₂e multiplied by the actual operational days (518 days) then divided by 365 days). For both CP, the assessment team consider this variation is acceptable due to following reasons:

1. The development of technology of renewable resource increases the operation hour of the project.
2. Even, consider this variation of electricity generation in the IRR, calculation, the IRR is still under the benchmark.

Therefore, the assessment team confirmed the ER in this monitoring period is not overestimated.

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

All required equipments and procedures are available and implemented in an appropriate manner.

All necessary monitoring instruments are installed. All required instruments including standby and operating procedures for the same have been implemented in an appropriate manner.

The project is completely operational and the same has been confirmed on-site. Neither mistakes nor malfunction on main meters have been observed during this monitoring period.

4.2 Safeguards

4.2.1 No Net Harm

By checking the EIA summary and conclusion provided in the registered PD and PDD, it is confirmed that wind power is green power and the impact caused by wind power on the surrounding ecosystem and residents, water, and atmosphere etc. is very little, there would be no net harm caused due to the project activity. Also, the EIA of the project are approved by the government.

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

4.2.2 Local Stakeholder Consultation

A survey was carried out on 10/03/2008 through the information publication, distributing and collecting responses to questionnaires targeting on local residents, builders and members of the local authorities. The project owner introduced the proposed project, and then a survey was arranged through a one-page questionnaire, which was designed to be easily filled in. The opinions expressed by the stakeholders were recorded and are available on request.

The stakeholder meeting and the survey showed that the proposed project receives strong support from the local community. They all believe the proposed project will promote local economic development and agree with the project development and construction.

Communications with Local stakeholders was being carried out at periodic intervals. There are no negative comments received for the project.

All such conclusion has been verified through site visit and check registered PD.

4.3 AFOLU-Specific Safeguards

Not applicable as non-AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

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

Data / Parameter:	EG _{togrid,y}										
Data unit:	MW										
Description:	Quantity of annual electricity exported to the grid by the Project										
Purpose of the data:	Calculation of baseline emissions										
Parameter value:	538,887.825 170,458.125 (CP1) 368,429.700 (CP2)										
Source of data used:	Meter Reading Record (MRRs) /10/ issued by the project owner, Electricity Transaction Notes (ETNs) /11/ issued by power grid company covering monitoring period										
Information flow:	<p>The data of 2 sets of bi-direction ammeters (one for main and another for backup) were measured continuously, recorded monthly and archived electronically. At 0:00 hr of first day of each month, the staff from project owner and power grid company will record main meter's readings and form Meter Reading Records (MRRs). The staff from power grid company then transcribes the data into Electricity Transaction Notes (ETNs), then after the confirmation of the project owner for the ETNs, the project owner will issue the invoice.</p> <p>The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.</p>										
Monitoring method, frequency and equipments:	<p>The parameter was measured continuously and recorded monthly by 2 sets of bi-direction ammeters installed at the newly-built 220kV substation by the Project during the monitoring period verified by site visit. See below for the information of 2 sets of bi-direction ammeters verified by site visit and checking calibration certificates /12/:</p> <table border="1" data-bbox="507 1774 1396 1921"> <thead> <tr> <th>Meter</th> <th>Type</th> <th>Serial Number</th> <th>Accuracy</th> </tr> </thead> <tbody> <tr> <td>Main meter</td> <td>ACE8000</td> <td>37006426</td> <td>0.2s</td> </tr> </tbody> </table>			Meter	Type	Serial Number	Accuracy	Main meter	ACE8000	37006426	0.2s
Meter	Type	Serial Number	Accuracy								
Main meter	ACE8000	37006426	0.2s								

	Backup meter	ACE8000	37006420	0.2s
	The type, serial number and accuracy have been confirmed by site visit.			
Calibration:	The calibration information are shown as below /12/:			
	Meter	Calibration date	Valid until	
	Main and backup meter	28/06/2019	27/06/2020	
		10/06/2020	09/06/2021	
		28/05/2021	27/05/2022	
	The calibration was conducted by an accredited third party which is Measurement & Testing Centre of Jibei Power Company was accredited by Hebei Provincial Administration of Quality and Technical Supervision valid from 22/12/2014 to 02/06/2021 /13/.			
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.			
Means of verification:	<p>Data of the parameter was verified by checking MRRs and ETNs. All data is in line with MRRs and ETNs;</p> <p>Information flow was verified by checking MRRs and ETNs, and all information are consistent;</p> <p>Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD;</p> <p>Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.</p>			

Data / Parameter:	EG _{fromgrid,y}
Data unit:	MWh
Description:	Quantity of annual electricity imported from the grid by the Project
Purpose of the data:	Calculation of baseline emissions
Parameter value:	1,570.800 579.150 (CP1) 991.650 (CP2)

Source of data used:	Meter Reading Record (MRRs) /10/ issued by the project owner, Electricity Transaction Notes (ETNs) /11/ issued by power grid company covering monitoring period												
Information flow:	<p>The data of 2 sets of bi-direction ammeters (one for main and another for backup) were measured continuously, recorded monthly and archived electronically. At 0:00 hr of first day of each month, the staff from project owner and power grid company will record main meter's readings and form Meter Reading Records (MRRs). The staff from power grid company then transcribes the data into Electricity Transaction Notes (ETNs), then after the confirmation of the project owner for the ETNs, the power company will issue the invoice.</p> <p>The data for MRRs and ETNs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.</p>												
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Meter	Type	Serial Number	Accuracy										
Main meter	ACE8000	37006426	0.2s										
Backup meter	ACE8000	37006420	0.2s										
Calibration:	<p>The calibration information are shown as below /12/:</p> <table border="1" data-bbox="507 1473 1390 1666"> <thead> <tr> <th>Meter</th> <th>Calibration date</th> <th>Valid until</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Main and backup meter</td> <td>28/06/2019</td> <td>27/06/2020</td> </tr> <tr> <td>10/06/2020</td> <td>09/06/2021</td> </tr> <tr> <td>28/05/2021</td> <td>27/05/2022</td> </tr> </tbody> </table> <p>The calibration was conducted by an accredited third party which is Measurement & Testing Centre of Jibei Power Company was accredited by Hebei Provincial Administration of Quality and Technical Supervision valid from 22/12/2014 to 02/06/2021 /13/.</p>	Meter	Calibration date	Valid until	Main and backup meter	28/06/2019	27/06/2020	10/06/2020	09/06/2021	28/05/2021	27/05/2022		
Meter	Calibration date	Valid until											
Main and backup meter	28/06/2019	27/06/2020											
	10/06/2020	09/06/2021											
	28/05/2021	27/05/2022											
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.												

Means of verification:	<p>Data of the parameter was verified by checking MRRs and ETNs. All data is in line with MRRs and ETNs;</p> <p>Information flow was verified by checking MRRs and ETNs, and all information are consistent;</p> <p>Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD;</p> <p>Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.</p>
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Data / Parameter:	$EG_y/EG_{facility,y}^1$
Data unit:	MWh
Description:	Net electricity supplied to the grid by the Project/Quantity of net electricity generation supplied by the project plant/unit to the grid in year y^2
Purpose of the data:	Calculation of baseline emissions
Parameter value:	537,317.025 169,878.975 (CP1) 367,438.050 (CP2)
Source of data used:	$EG_y/EG_{facility,y} = EG_{togrid,y} - EG_{fromgrid,y}$ $EG_y/EG_{facility,y}$ is the difference between electricity exported to the grid by the project ($EG_{togrid,y}$) and electricity imported from the grid by the project ($EG_{fromgrid,y}$).
Information flow:	$EG_y/EG_{facility,y} = EG_{togrid,y} - EG_{fromgrid,y}$ $EG_y/EG_{facility,y}$ is the difference between electricity exported to the grid by the project ($EG_{togrid,y}$) and electricity imported from the grid by the project ($EG_{fromgrid,y}$).
Monitoring method, frequency and equipments:	The parameter was measured continuously and recorded monthly by 2 sets of bi-direction ammeters installed at the newly-built 220kV substation by the Project during the monitoring period verified by site visit. See below for the information of 2 sets of bi-direction ammeters verified by site visit and checking calibration certificates /12/:

¹ The name and description of this parameter are slightly different in both crediting period.

² The name and description of this parameter are slightly different in both crediting period.

	Meter	Type	Serial Number	Accuracy
	Main meter	ACE8000	37006426	0.2s
	Backup meter	ACE8000	37006420	0.2s
	The type, serial number and accuracy have been confirmed by site visit.			
Calibration:	The calibration information are shown as below /12/:			
	Meter	Calibration date	Valid until	
	Main and backup meter	28/06/2019	27/06/2020	
		10/06/2020	09/06/2021	
		28/05/2021	27/05/2022	
	The calibration was conducted by an accredited third party which is Measurement & Testing Centre of Jibei Power Company was accredited by Hebei Provincial Administration of Quality and Technical Supervision valid from 22/12/2014 to 02/06/2021 /13/.			
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.			
Means of verification:	Not applicable.			

Parameters available at validation stage:

Below data has been verified against the data sources and the PDD.

Parameter title	Description	Data	Source
EF _{grid,CM,y*}	Baseline emission factor: the combined emission factor of the project grid system for CP1	1.05485	Notification on 2008 baseline emission factors for regional power grids in China issued by China on 30/12/2008 /14/.
EF _{grid,CM,y*}	Baseline emission factor: the combined emission factor of the project grid system for CP2	0.8405	Notification on 2019 baseline emission factors for regional power grids in China, issued by China on 29/12/2020 /14/.

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

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The monitoring has been carried out in accordance with the registered Gap VCS PD /3/ dated 14/06/2011 and VCS PD dated 21/07/2020.

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the MR Report and ER Calculation Spreadsheet /2/ and are consistent with the applied methodology ACM0002 version 10, version 20.0 and the monitoring plan. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the ER Calculation Spreadsheet and the MR Report. The verification process for the same has been clearly described above in section 4.4 of the report.

4.6 Non-Permanence Risk Analysis

Not applicable as a renewable project.

5 VERIFICATION CONCLUSION

Applus+ Certification has been commissioned by Beijing Ruifang Information Technology Co., Ltd to perform the verification of greenhouse gas emission reductions of the project activity “CECIC HKE Zhangbei Lvnaobao Wind Power Project” (VCS Ref. No. 727).

The management of CECIC HKE Wind Power Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project’s Monitoring Plan in the registered Gap VCS PD /3/ approved on 14/06/2011 and VCS PD /3/ dated 21/07/2020.

Our verification approach was based on the requirements as defined under the applicable VCS standards and relevant UNFCCC requirements. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is implemented and operated as per the registered PDD and PD;
- the monitoring plan in the registered PD and PDD is as per the applied methodology;
- the monitoring complies with the registered PDD and PD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for “CECIC HKE Zhangbei Lvnaobao Wind Power Project” during the monitoring period 01/12/2019 to 31/12/2021 as reported in Monitoring Report, prepared on the basis of the project’s Monitoring Plan are fairly stated. Based on the information we have seen and evaluated, we confirm the following statement:

Verification period: From 01/12/2019 to 31/12/2021 (divided into 3 vintage periods). Verified GHG emission reductions or removals in the above reporting 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)
2019	23,960	0	0	23,960
2020	245,581	0	0	245,581
2021	218,475	0	0	218,475
Total	488,016	0	0	488,016

APPENDIX 1: REFERENCE LIST

1. Monitoring report, version 1.0, dated 10/01/2022; version 3.0, dated 14/12/2022
2. ER calculation spreadsheet
3. Registered CDM PDD, version 06, dated 23/09/2010;
Registered VCS Gap PD, dated 14/06/2011;
Registered VCS PD, dated 21/07/2020
4. Validation report, No. 600500230, version 5, completed by TÜV SÜD Industrie Service GmbH;
VCS Validation Statement dated 02/09/2011, completed by Bureau Veritas Certification
VCS Verification report, completed on 16/12/2019 by Applus+ Certification;
VCS Validation report, completed on 22/07/2020 by Applus+ Certification
5. VCS standard version 4.1, dated on 22/04/2021
6. Statement issued by project owner
7. Approved methodology ACM0002, version 10, dated 11/06/2009
Approved methodology ACM0002, version 20.0, dated 28/11/2019
8. CDM Monitoring procedure
9. Nameplate of the equipment
10. Meter Reading Record (MRRs) for Meters
11. Electricity Transaction Notes covering the monitoring period
12. Calibration certificates of meters covering the whole monitoring period issued by Measurement & Testing Centre of Jibei Power Company

- 13 Accreditation certificate of Measurement & Testing Centre of Jibei Power Company valid from 22/12/2014 to 02/06/2021

- 14 Notification on 2008 baseline emission factors for regional power grids in China issued by China DNA on 30/12/2008

Notification on 2019 baseline emission factors for regional power grids in China issued by China DNA on 29/12/2020

- 15 CDM: CDM-Home (unfccc.int)

Home - Global Carbon Council

GSF Registry (goldstandard.org)

<https://ccer.ccchina.org.cn>

- 16 Grievance records (grievance notebook)