



GUOHUA TONGLIAO KEZUO ZHONGQI PHASE I 49.5 MW WIND FARM 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 “Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project” (VCS Ref. No. 1310, hereafter referred to as “the project activity”) reported in the monitoring report /1/ during monitoring period 01/01/2013 to 31/10/2018.

The project activity was registered as a CDM project activity on 24/02/2011 which is available at <https://cdm.unfccc.int/Projects/DB/DNV-CUK1297673136.16/view>. Later, the project has been registered as a VCS project which is available at https://www.vcsprojectdatabase.org/#/project_details/1310.

The project activity is a wind power project located at Dailiji County, Kezuozhong Qi, Tongliao City, Inner Mongolia Autonomous Region, People’s Republic of China which is to use wind resource for electricity generation. The installed capacity of the project activity is 49.5 MW, consisting of 33 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 108,830 MWh. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants of Northeast China Power Grid (NECPG). It’s estimated that the project could achieve GHG emission reductions of 111,877 tCO₂e 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 22/03/2013;
- Validation report No. 2010-1547 /04/, version 01, completed on 15/10/2010;
- Verification report No. CCP.VOL0851A /04/, version 3, completed on 29/03/2013;
- Approved methodology, ACM0002 /9/, version 11.0, dated 26/02/2010;
- VCS standards 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 11.0 and the monitoring has been carried out in accordance with the monitoring plan in the registered PD /3/. 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 695,322 tCO₂e emission reductions during period 01/01/2013 to 31/10/2018.

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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 “Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project” (VCS Ref. No. 1310) reported in the Monitoring Report /1/ during monitoring period 01/01/2013 to 31/10/2018.

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 14065:2007.

The objective of verification is to have an independent review and ex post determination by a Designated Operational Entity (DOE) 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 DOE 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 “Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project” in China for the period 01/01/2013 to 31/10/2018.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the registered PD, the Project’s baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS Version 4.0 requirements, UNFCCC rules and associated interpretations.

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

1.3 Level of Assurance

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

The verification conclusion is assured a reasonable level of assurance.

1.4 Summary Description of the Project

Project title	Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project
VCS reference number	1310
Project Participants	Guohua (Tongliao) Wind Power Co., Ltd. (Project Owner, host country, P. R. China)
Location of the project	Dailiji County, Kezuo Zhong Qi, Tongliao City, Inner Mongolia Autonomous Region, People's Republic of China Geographic coordinates: Longitude: 122°57' E Latitude of 41°13' N
Project start date	Construction date: 20/11/2007 Operation start date: 16/01/2009
Version of VCS PD or CDM PDD	Version 02, dated 22/03/2013 (VCS PD and basis for verification)
Monitoring period	01/01/2013 to 31/10/2018
First monitoring report	Version 01, dated 19/10/2019
Final monitoring report	Version 02, dated 29/02/2020
Applied Methodology/Version	ACM0002, version 11.0, dated 26/02/2010
Scope/Technical Area	1/1.2

The project activity is a wind power project located at Dailiji County, Kezuozhong Qi, Tongliao City, Inner Mongolia Autonomous Region, People's Republic of China which is to use wind resource for electricity generation. The installed capacity of the project activity is 49.5 MW, consisting of 33 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 108,830 MWh. The Project can reduce GHG emissions by replacing the electricity generated by fossil fuel fired power plants Northeast China Power Grid (NECPG). It's estimated that the project could achieve GHG emission reductions of 111,877 tCO₂e annually.

The project activity was registered as a CDM project activity on 24/02/2011 which is available at <https://cdm.unfccc.int/Projects/DB/DNV-CUK1297673136.16/view>. Later, the project has been registered as a VCS project which is available at https://www.vcsprojectdatabase.org/#/project_details/1310.

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 4.0, 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>Denny Xue</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>

Denny Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is a lead auditor appointed by Applus+ Certification for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined Applus+ Certification, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

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

2.2 Document Review

The VCS monitoring report /1/ version 01 dated 19/10/2019, version 02 dated 29/02/2020 and the emission reduction calculations spreadsheet /2/, were assessed as part of the verification. In addition, the registered PD /3/ version 02 dated 22/03/2013 in particular the baseline estimations and the monitoring plan, the CDM validation report /04/ version 01 dated 15/10/2010 and the VCS verification report /04/ version 3 dated 29/03/2013, as well as relevant documents, were reviewed. A detailed documents reviewed are listed in Annex 1 of the report.

2.3 Interviews

The key personnel interviewed are summarized in the table below:

Interviewed personnel	Role	Organization	Subject
Mr. Zhang Xiaolong	Chief	Guohua (Tongliao) Wind Power Co., Ltd.	Operation of the project activity; Implementation of the monitor plan of the project activity; Data collection and data achievement;
Mr. Sun Jia	Operator	Guohua (Tongliao) 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 (Dailiji County, Kezuozhong Qi, Tongliao City, Inner Mongolia Autonomous Region, People's Republic of China) on 27/02/2020. The interviewed personnel and objective are listed in above table.

2.5 Resolution of Findings

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

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

- 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;
- Modifications to the implementation, operation and monitoring of the project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- 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 verification and 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 PD /3/ and validation and verification report /4/, it was validated that the project has been registered as a CDM project with reference No. 4495 first which is available at <https://cdm.unfccc.int/Projects/DB/DNV-CUK1297673136.16/view>. Then the project has been registered as VCS project which is available at https://www.vcsprojectdatabase.org/#/project_details/1310. 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 16/01/2009 to 15/01/2019 as the first VCS crediting period, the project would claim only for VCU or CERs. But both VCS and CERs will not be claimed in the same period. Also, for period 24/02/2011 to 31/12/2012, 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 not deviation for methodology.

3.3 Project Description Deviations

The project was registered under CDM scheme on 24/02/2011 with reference number of 4495. According to CDM standard, the crediting period is 24/02/2011-23/02/2018, which could be renewed twice.

Then the project was registered under VCS scheme in 2013. In the registered PD, the project commission date is 16/01/2009 and start date of crediting period is chosen as 16/01/2009 as well. However, in the registered PD, the crediting period was set as from 16/01/2009 to 23/02/2011. 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 16/01/2009 to 15/01/2019.

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.

According to VCS-PD, the accuracy of electricity meter used for monitoring $E_{P,y}$ and $E_{x,y}$ is 0.5, however during this monitoring period, the accuracy of M3 and M4 which are used to monitor $E_{x,y}$ is 0.5s and 0.2s respectively which are different with PD. However, considering the 0.5s and 0.2s are both higher than 0.5 in terms of accuracy, such deviation will not affect the accuracy of monitoring.

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 PD /3/ are in place and the PP has operated the project as per registered PD /3/. The installed capacity of the project activity is 49.5 MW, consisting of 33 sets of wind turbines with unit capacity of 1,500 kW. The electricity generated is transmitted to the Inner Mongolia Power Grid via 220kV step-up substation, which was then exported to the NECPG. The project activity was expected to supply 108,830 MWh of electricity to the grid annually. The commissioning time was 16/01/2009 verified by site visit interview and checking verification report. 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. The implementation of project is in line with the description of registered PD.

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 activity. Therefore, 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 in as below:

- Being located in a power grid dominated by coal-fired power plants, development of the proposed project will not only reduce GHG emissions but also mitigate local environmental pollution caused by air emissions from coal-fired power plants.
- The proposed project could be helpful to diversify power structure of the NECPG and reduce the dependence on exhaustible fossil fuels for power generation.
- North China where the proposed project is located is facing rapid increase in electricity demand. Development of the proposed project could contribute to meeting local electricity demand, and therefore boosts the economy in the local region.

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

No	Item	Unit	Value
01	Installed capacity	MW	49.5
02	Rated capacity	kW	1,500
03	Annual Operation hour	Hour	2,199
04	Annual grid-connected output	MWh	108,830
05	Rotor Diameter	M	77
06	Number of blades	/	3
07	Swept area	m ²	4,657
08	Rated Rotation speed of wind wheel	rpm	9.6~17.3±10%
09	Cut-in wind speed	m/s	3.5
10	Cut-out wind speed	m/s	20
11	Rated wind speed	m/s	12.5
12	Hub height of the wind turbines	m	70
13	Rated voltage of generator	V	690
14	Lifetime of the wind turbine	Year	21
15	Plant Load Factor	%	25.1

By comparing the actual ER claimed in this monitoring period with the estimate in the registered PD, the actual emission reductions (695,322 tCO₂e) are 6.50% higher than what is stated in the registered PD (i.e. 652,871 tCO₂e, equals to annual emission reductions, 111,877 tCO₂e multiplied by the actual operational days (2,130 days) then divided by 365 days) which could be consider in the normal variation range, and when considering this in the IRR calculation, the IRR would be still below the benchmark. Therefore, the assessment team consider the variation of ERs is acceptable and will not lead to the overestimation of VERs.

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

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

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

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

4.2 Safeguards

4.2.1 No Net Harm

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

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

4.2.2 Local Stakeholder Consultation

The local stakeholder's meeting was held in Kezuo Zhongqi on 25/03/2007. 27 participants attended the meeting including local residents, builders and members of the local authorities. The project owner introduced the proposed project, and then a survey was arranged through a one-page questionnaire, which was designed to be easily filled in. The opinions expressed by the stakeholders were recorded and are available on request.

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

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 registered PD /3/. All parameters were monitored and determined as per the monitoring plan which is listed in below table:

Data / Parameter:	EG _{Total,y}
Data unit:	MWh
Description:	The total net electricity supplied by the Project to the NECPG by “P” and “X” in year y
Purpose of the data:	Calculation of baseline emissions
Parameter value:	3,030,597.079
Source of data used:	For the total net electricity supplied by the Project to the NECPG by “P” and “X” in year y (EG _{Total,y}) are all sourced from Meter Reading Records (MRRs) /10/ issued by the project owner, Electricity Transaction Notes (ETNs) /11/ issued by power grid company covering monitoring period. Also, the total net electricity supplied by the Project to the NECPG by “P” and “X” in year y (EG _{Total,y}) are calculated as below: $EG_{Total,y} = EG_{export,y} - EG_{import,y}$
Information flow:	2 bidirectional electricity meters (One as main and another as backup) installed on the 220kV substation was measured continuously, recorded monthly and archived electronically. At 24:00 hr of the last day of each month, the staff from project owner will record 2 bidirectional electricity meter’s readings and form Meter Reading Records (MRRs). The staff from power grid company will record the meter readings then transcribes the data into Electricity Transaction Notes (ETNs). After the confirmation of project owner for ETNs, the project owner will issue the invoice. 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.

Monitoring method, frequency and equipments:	The parameter was measured continuously and recorded monthly by 2 bi-direction electricity meters installed on the 220kV substation during the monitoring period verified by site visit. See below for the information of 2 electricity meters and verified by site visit and checking calibration certificates /12/: <table><tr><th>Meter</th><th>Type</th><th>Serial Number</th><th>Accuracy</th></tr><tr><td>Main Meter</td><td>ZMD402</td><td>95173915</td><td>0.2s</td></tr><tr><td>Backup Meter</td><td>ZMD402</td><td>0.2s</td><td>0.2s</td></tr></table> The type, serial number and accuracy have been confirmed by site visit.	Meter	Type	Serial Number	Accuracy	Main Meter	ZMD402	95173915	0.2s	Backup Meter	ZMD402	0.2s	0.2s																	
Meter	Type	Serial Number	Accuracy																											
Main Meter	ZMD402	95173915	0.2s																											
Backup Meter	ZMD402	0.2s	0.2s																											
Calibration:	The calibration information is shown as below /12/: <table><tr><th>Meter</th><th>Calibration date</th><th>Valid until</th></tr><tr><td rowspan="6">Main Meter</td><td>06/12/2012</td><td>05/12/2013</td></tr><tr><td>29/11/2013</td><td>28/11/2014</td></tr><tr><td>24/11/2014</td><td>23/11/2015</td></tr><tr><td>17/11/2015</td><td>16/11/2016</td></tr><tr><td>10/11/2016</td><td>09/11/2017</td></tr><tr><td>02/11/2017</td><td>01/11/2018</td></tr><tr><td rowspan="6">Backup Meter</td><td>06/12/2012</td><td>05/12/2013</td></tr><tr><td>29/11/2013</td><td>28/11/2014</td></tr><tr><td>24/11/2014</td><td>23/11/2015</td></tr><tr><td>17/11/2015</td><td>16/11/2016</td></tr><tr><td>10/11/2016</td><td>09/11/2017</td></tr><tr><td>02/11/2017</td><td>01/11/2018</td></tr></table> The calibration was conducted by accredited third parties which is Tongliao Electric Power Bureau Electric Measure Office was accredited by Quality and Technical Supervision Bureau of Inner Mongolia from 02/01/2009 to 01/01/2019 /13/.	Meter	Calibration date	Valid until	Main Meter	06/12/2012	05/12/2013	29/11/2013	28/11/2014	24/11/2014	23/11/2015	17/11/2015	16/11/2016	10/11/2016	09/11/2017	02/11/2017	01/11/2018	Backup Meter	06/12/2012	05/12/2013	29/11/2013	28/11/2014	24/11/2014	23/11/2015	17/11/2015	16/11/2016	10/11/2016	09/11/2017	02/11/2017	01/11/2018
Meter	Calibration date	Valid until																												
Main Meter	06/12/2012	05/12/2013																												
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	17/11/2015	16/11/2016																												
	10/11/2016	09/11/2017																												
	02/11/2017	01/11/2018																												
Backup Meter	06/12/2012	05/12/2013																												
	29/11/2013	28/11/2014																												
	24/11/2014	23/11/2015																												
	17/11/2015	16/11/2016																												
	10/11/2016	09/11/2017																												
	02/11/2017	01/11/2018																												
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.																													
Means of verification:	Data of the parameter was verified by checking MRRs and ETNs. All data is in line with MRRs and ETNs; Information flow was verified by checking MRRs and ETNs, and all information are consistent; Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD; Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.																													

Data / Parameter:	$E_{P,y}$ and $E_{X,y}$																		
Data unit:	MWh																		
Description:	Electricity generation by project “P” and project “X” in year y																		
Purpose of the data:	Calculation of baseline emissions																		
Parameter value:	$E_{P,y}$: 684,658.968 $E_{X,y}$: 2,381,496.068																		
Source of data used:	For Electricity generation by project “P” and project “X” in year y ($E_{P,y}$ and $E_{X,y}$), data are all sourced from Meter Reading Records (MRRs) /10/ issued by the project owner covering monitoring period.																		
Information flow:	For $E_{P,y}$ 1 bidirectional electricity meter installed at lower side of the on-site 220kV transformers was measured continuously, recorded monthly and archived electronically. At 24:00 hr of the last day of each month, the staff from project owner will record 1 bidirectional electricity meter’s readings and form Meter Reading Records (MRRs). For $E_{X,y}$ 3 (In this monitoring period, X = 2, 3, 4) bidirectional electricity meters (M2, M3 and M4) installed at lower side of the on-site 220kV transformers were measured continuously, recorded monthly and archived electronically. At 24:00 hr of the last day of each month, the staff from project owner will record 3 bidirectional electricity meter’s readings and form Meter Reading Records (MRRs). The data for MRRs have been sent to the CDM consulting company for reporting of GHG emission reduction. The conservative one would be used for ER calculation.																		
Monitoring method, frequency and equipments:	The parameter was measured continuously and recorded monthly by 4 bi-direction electricity meters installed at lower side of the on-site 220kV transformers line during the monitoring period verified by site visit. See below for the information of 4 electricity meter and verified by site visit and checking calibration certificates /12/: <table border="1"> <thead> <tr> <th>Meter</th><th>Type</th><th>Serial Number</th><th>Accuracy</th></tr> </thead> <tbody> <tr> <td>M1</td><td>DSD331</td><td>09030048740091</td><td>0.5</td></tr> <tr> <td>M2</td><td>DSD331</td><td>09030048740098</td><td>0.5</td></tr> <tr> <td>M3</td><td>DTSD341</td><td>10110473910122</td><td>0.5s</td></tr> </tbody> </table>			Meter	Type	Serial Number	Accuracy	M1	DSD331	09030048740091	0.5	M2	DSD331	09030048740098	0.5	M3	DTSD341	10110473910122	0.5s
Meter	Type	Serial Number	Accuracy																
M1	DSD331	09030048740091	0.5																
M2	DSD331	09030048740098	0.5																
M3	DTSD341	10110473910122	0.5s																

	M4	DTSD341	12058075000500	0.2s
	The type, serial number and accuracy have been confirmed by site visit.			
Calibration:	The calibration information is shown as below /12/:			
	Meter	Calibration date	Valid until	
	M1	06/12/2012	05/12/2013	
		29/11/2013	28/11/2014	
		24/11/2014	23/11/2015	
		17/11/2015	16/11/2016	
		10/11/2016	09/11/2017	
		02/11/2017	01/11/2018	
	M2	06/12/2012	05/12/2013	
		29/11/2013	28/11/2014	
		24/11/2014	23/11/2015	
		17/11/2015	16/11/2016	
		10/11/2016	09/11/2017	
		02/11/2017	01/11/2018	
	M3	06/12/2012	05/12/2013	
		29/11/2013	28/11/2014	
		24/11/2014	23/11/2015	
		17/11/2015	16/11/2016	
		10/11/2016	09/11/2017	
		02/11/2017	01/11/2018	
	M4	28/05/2012	27/05/2013	
		23/05/2013	22/05/2014	
		15/05/2014	14/05/2015	
		09/05/2015	08/05/2016	
		02/05/2016	01/05/2017	
		23/04/2017	22/04/2018	
		The calibration was conducted by accredited third parties which is Tongliao Electric Power Bureau Electric Measure Office was accredited by Quality and Technical Supervision Bureau of Inner Mongolia from 02/01/2009 to 01/01/2019 /13/.		
QA/QC procedure:	Data record will be archived for a period of 2 years after the crediting period to which the records pertain.			
Means of verification:	Data of the parameter was verified by checking MRRs. All data is in line with MRRs;			
	Information flow was verified by checking MRRs, and all information are consistent;			
	Monitoring method was verified by site visit, checking calibration certificates, all monitoring method meets the description in the PD;			

	Calibration was verified by checking calibration certificate and Accreditation certificate, all calibration of monitoring equipment meets the requirement indicated in the PD.
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Parameters available at validation stage:

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

Parameter title	Description	Data	Source
EF _{grid,CM,y}	Baseline emission factor in the year y	1.0280	Notification on 2009 baseline emission factors for regional power grids in China, issued by China on 02/09/2009 /14/.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PD /3/ version 02 dated 22/03/2013.

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 11.0 and the monitoring plan contained in the registered PD. 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 5.4 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 “Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project” (VCS Ref. No. 1310).

The management of Guohua (Tongliao) 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 PD /3/, version 02 dated 22/03/2013.

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

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

In our opinion, the GHG emission reductions for “Guohua Tongliao Kezuo Zhongqi Phase I 49.5 MW Wind Farm Project” during the monitoring period 01/01/2013 to 31/10/2018 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 01/01/2013 to 31/10/2018 (divided into 6 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)
2013	121,951	0	0	121,951
2014	116,816	0	0	116,816
2015	116,534	0	0	116,534
2016	119,149	0	0	119,149
2017	118,842	0	0	118,842
2018	102,030	0	0	102,030
Total	695,322	0	0	695,322

APPENDIX 1: REFERENCE LIST

1. Monitoring report, version 01, dated 19/10/2019; version 02, dated 29/02/2020
2. ER calculation spreadsheet
3. Registered PD, version 02, dated 22/03/2013
4. Validation report, No. 2010-1547, version 01, completed by DNV;
Verification report No. CCP.VOL0851A, complete by SGS
5. VCS standard version 4.0, dated on 19/09/2019
6. Statement issued by project owner
7. Approved methodology ACM0002, version 11.0, dated 26/02/2010
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 Tongliao Electric Power Bureau Electric Measure Office
13. Accreditation certificates for Tongliao Electric Power Bureau Electric Measure Office issued by Quality and Technical Supervision Bureau of Inner Mongolia from 02/01/2009 to 01/01/2019.
14. Notification on 2009 baseline emission factors for regional power grids in China, issued by China on 02/09/2009