

VCS VERIFICATION REPORT

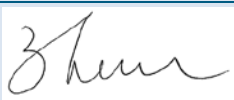
SHANDONG WENDENG ZHANGJIACHAN WIND FARM PROJECT

Monitoring Period:

26 February 2011 to 29 February 2012

Prepared by: Shenzhen CTI International Certification Co., Ltd
Report No.: CTI/NB-2013-1121
Rev. No.: 01
Date: 7 January 2014

Project Title	Shandong Wendeng Zhangjiachan Wind Farm Project
Version	01
Report ID	CTI/NB-2013-1121

Report Title	VCS Verification report for Shandong Wendeng Zhangjiachan Wind Farm Project
Client	CGN Carbon Asset Management (Beijing) Co., Ltd.
Pages	17
Date of Issue	7 January 2014
Prepared By	Shenzhen CTI International Certification Co., Ltd
Contact	Address: Floor 5, Block F, Shenzhen Culture Creative Park, No.4001 Fuqiang Road, Futian Dist., Shenzhen, 518048, China Tel: +86 755 82721531 Email: zhoulu@cti-cert.com Website: http://www.cti-cert.org
Approved By	Zhou Lu 
Work Carried Out By	Zhang Lei, Sun Jian
Technical Reviewed By	Lin Wu

Summary:

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions reported for the project activity "Shandong Wendeng Zhangjiachan Wind Farm Project" for the period 26 February 2011 to 29 February 2012, to review and determine the monitored reductions in GHG emissions that have occurred as a result of the project activity. The project has previously been registered by the CDM Executive Board under CDM registration number of 5655 and the current monitoring period covers the period pre-CDM registration. The project activity was validated as CDM project by SGS and registered as the CDM project on 17 January 2012 and CDM crediting period starts from 1 March 2012. As emission reductions occur prior to the project registration as the CDM project activity, the emission reductions prior to the project's CDM registration cannot be claimed as Certified Emission Reductions (CERs). These emission reductions are thus claimed as Verified Carbon Units (VCU) under the Verified Carbon

Standard (VCS) version 3.4. This is in accordance to the eminent VCS Guidance for projects that are registered in two GHG programs.

The verification was performed on the basis of VCS Programme Guide version 3.5 and VCS Standard version 3.4 for the VCS projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. The verification was conducted by means of document review, follow-up interviews and site inspections, and the resolution of outstanding issues. The verification team did not identify any CAR, CL or FAR in this monitoring period.

In CTI's opinion, the GHG emission reductions reported for the project in the monitoring report (version 01 dated 06 December 2013) are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved methodology ACM0002 (version 12.2.0) and the monitoring plan contained in the registered CDM-PDD of (version 2 dated 02 December 2011).

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

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

Hence, CTI is able to certify that the emission reductions from the "Shandong Wendeng Zhangjiachan Wind Farm Project" during the period amount to 63,369 CO₂e.

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CL	Clarification request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
CTI	Shenzhen CTI International Certification Co., Ltd
DOE	Designated Operational Entity
EF	Emission Factor
ER	Emission Reduction
ETN	Electricity Transaction Note
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
MR	Monitoring Report
NCPG	North China Power Grid
PD	Project Description
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit

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1 INTRODUCTION

CGN Carbon Asset Management (Beijing) Co., Ltd. has commissioned Shenzhen CTI International Certification Co., Ltd (CTI) to carry out the verification and certification of emission reductions reported for the “Shandong Wendeng Zhangjiachan Wind Farm Project” (the project) for the period 26 February 2011 to 29 February 2012. This report contains the findings from the validation and verification and includes a validation statement for the project and verification statement for the verified carbon units.

1.1 Objective

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

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

The objective of this verification was to verify and provide a verification statement of emission reductions reported for the “Shandong Wendeng Zhangjiachan Wind Farm Project” for the period 26 February 2011 to 29 February 2012.

1.2 Scope and Criteria

The scope of the verification is:

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

The criteria of the verification are:

- VCS Program Guide (version 3.5) /19/;
- VCS Standard (version 3.4) /18/ and other relevant requirements defined by VCSA;
- The approved methodology ACM0002 (version 12.2.0) /27/ applied by the project.

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

1.3 Level of Assurance

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

1.4 Summary Description of the Project

1.4.1 Sectoral Scope and Project Type

According to the VCS Program Guide (version 3.5) /19/, the project is applicable under the following activity categories:

- Sectoral Scope: 1. Energy (Renewable/non-renewable).

According to Annex A of the Kyoto Protocol, the project is applicable under the Sectoral Scope 1:

- Energy Industries (renewable/ non-renewable sources).

1.4.2 Project Background

Project title:	Shandong Wendeng Zhangjiachan Wind Farm Project
Project proponent:	Wendeng Zhangjiachan Wind Power Co., Ltd. from China
Project location:	Wendeng City, Shandong Province, P. R. China
UNFCCC registration No:	5655
UNFCCC registration date:	17 January 2012
Applied baseline and monitoring methodology:	ACM0002 (version 12.2.0)
CDM project crediting period:	1 March 2012 to 28 February 2019 (Renewable)
VCS project start date:	26 February 2011
VCS project crediting period:	26 February 2011 to 29 February 2012
VCU verification period:	26 February 2011 to 29 February 2012

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification was performed through means of the following three phases in accordance with the requirement of the registered CDM-PDD, the applied methodology, and the VCS Standard (version 3.4) and other relevant VCS requirements:

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

The following sections outline each step in more detail.

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

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

2.2 Document Review

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

Function	Name	Technical competence	Task Performance*
Team Leader	Zhang Lei	1.1, 1.2, 4.1, 4.3, 4.4, 13.1, 13.2	☒ DR ☒ SV ☒ RP ☐ TR
GHG Auditor	Sun Jian	1.2	☒ DR ☐ SV ☒ RP ☐ TR
Technical Reviewer	Lin Wu	1.1, 1.2, 2.1, 3.1, 4.1, 13.1, 13.2	☒ DR ☐ SV ☐ RP ☒ TR

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

In addition to the VER/VCU monitoring report /1/, VCS project description /10/, emission reduction calculation spreadsheet /2/, the following documents also were assessed as a part of the verification audit:

- The registered CDM-PDD for the project activity /15/, including the monitoring plan and the corresponding CDM validation report /16/;
- Baseline and monitoring methodology ACM0002 (version 12.2.0) applied by the project /27/;
- Relevant decisions, clarifications and guidance from the VCSA /18/-/26/; and
- Other information and references relevant to the project activity /3/-/16/.

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

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

2.3 Interviews

On 25 December 2013, CTI visited Wendeng Zhangjiachan Wind Power Co., Ltd., and performed on-site assessment. The key personnel of the project were interviewed or assisted the verification team /28//29/. Main topics of the interview cover implementation of the project construction, applicability of selected methodology, implementation of project monitoring, emission reduction calculation, etc.

2.4 Site Inspections

During the on-site assessment, CTI has applied standard auditing techniques to assess the quality of information provided. The following aspects of the project activity have been verified:

- An assessment of the implementation and operation of the registered project activity is as per the CDM-PDD for the project activity;
- A review of information flows for generating, aggregating and reporting the monitoring parameters; and
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the CDM-PDD;

- A cross-check between information provided in the monitoring report and data from other sources such as plant logbooks and electricity sale receipts;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the CDM-PDD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions; and
- An identification that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The data presented in the monitoring report were assessed by review of the detailed project documentation and production records, as well as by interviews with personnel from the project developer Wendeng Zhangjiachan Wind Power Co., Ltd. and project consultant CGN Carbon Asset Management (Beijing) Co., Ltd. and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results, to verify the correct application of the approved monitoring methodology and the determination of the emission reductions.

In addition all parameters required by the monitoring methodology ACM0002 (version 12.2.0), and the management system were assessed during the site visit.

2.5 Resolution of Findings

A corrective action request (CAR) is issued, where:

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

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

No CAR or CL was identified during the verification.

2.5.1 Forward Action Requests

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period. No FAR was raised during the verification.

2.6 Eligibility for Validation Activities

The project has been validated under the CDM rules and registered as CDM project. CTI has undertaken validation activities as part of the verification for the project according to the VCS Program Guide. CTI was accredited in Sectoral Scope 1 on validation and verification and thus is eligible for validation activities on the proposed project.

3 VALIDATION FINDINGS

Shandong Wendeng Zhangjiachan Wind Farm Project has been registered as a CDM project activity (UNFCCC Registration Number: 5655). Therefore, CTI only performed validation for the project on those additional requirements by VCSA. This validation was completed as part of the current VCU verification.

3.1 Participation under Other GHG Programs

The project has been registered as a CDM project on 17 January 2012 under the UNFCCC registration number 5655. The project activity was validated by SGS /16/. As the project has been validated under the CDM rules, except relevant information provided in the registered CDM-PDD, the additional project description produced from cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the *VCS Project Description Template* was completed. CTI has undertaken a validation on the sections above, as detailed below.

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CTI verified the relevant information against the registered CDM-PDD and confirmed their consistency.

Section 1.2: Sectoral Scope and Project Type

According to the “VCS Sectoral Scopes” /20/, the project is applicable under the sectoral scope 1, Energy (renewable/non-renewable). The project is a grid-connected wind power plant with the total installed capacity of 49.3 MW.

Section 1.3: Project Proponent

Project proponent: Wendeng Zhangjiachan Wind Power Co., Ltd.

Section 1.5: Project Start Date

The project consists of 58 sets of wind turbine and generator. The first wind turbine was put into operation on 26 February 2011 /6/. Therefore, the project start date for VCU issuance is identified as 26 February 2011.

Section 1.6: Project Crediting Period

The project is a registered CDM project with the first 7 years CDM renewable crediting period starting from 17 January 2012 /15/. The project crediting period for VCU issuance is from 26 February 2011 to 29 February 2012.

Section 1.7: Project Scale and Estimated GHG Emission Reductions or Removals

Project	Yes
Large project	NA

Years	Estimated GHG emission reductions or removals (tCO₂e)
Year 2011 (26 February 2011 to 31 December 2011)	71,712
Year 2012 (1 January 2012 to 29 February 2012)	13,925

Total estimated ERs	85,637
Total number of crediting years	369 days
Average annual ERs	84,709

Annual 84,709 tCO₂e was estimated in the registered CDM-PDD /15/, from which figures in table above were calculated.

Section 1.9: Project Location

The project locates at Wendeng City, Shandong Province, P. R. China. The geographical coordinates of the proposed project is from 122.051944 E to 122.155278 E, and from 37.093611 N to 37.181667 N. The central geographical coordinate of the proposed project is 122.103611 E, 37.137639 N..

Section 1.10: Conditions Prior to Project Initiation

The project activity is the installation of a new grid-connected renewable wind power plant. The conditions prior to project initiation is that the equivalent electricity delivered to the grid by the project activity which would have otherwise been generated by the operation of grid connected power plants in the North China Power Grid (NCPG).

Section 1.12.1: Right of Use

Evidences of proof of title have been verified via documentation proving ownership of the wind power plant and equipment at the on-site visit, such as agreements signed by the project owner and the letter of approval issued by NDRC (DNA of China) /17/.

Section 1.12.2: Emissions Trading Programs and Other Binding Limits

The project is not included in an emissions trading program, and does not take place in a jurisdiction or sector in which binding limits are established on GHG emissions. The project does not reduce GHG emissions from activities that participate in an emissions trading program, so this clause is not applicable.

Section 1.12.3: Other Forms of Environmental Credit

The project was registered as a CDM project activity on 17 January 2012 under the UNFCCC registration number 5655. The project has not been registered under any other GHG programs. The project neither has nor intends to generate any other form of GHG related environmental credits for GHG emission reductions or removals, 63,369 tCO₂e, achieved during the period from 26 February 2011 to 29 February 2012 claimed under the VCS Program.

Section 1.12.4: Participation under Other GHG Programs

The project has not been registered under any other GHG programs.

Section 1.13: Additional Information Relevant to the Project

Eligibility Criteria

The project is not a grouped project. Hence, this clause is not applicable.

Leakage Management

According to ACM0002 (version 12.2.0), no leakage emissions are considered. Hence this clause is not applicable.

Commercially Sensitive Information

It has been confirmed that there is no any commercially sensitive information excluded from the public version of the project description. Hence this clause is not applicable.

Further Information

As a wind power project, the project activity will produce clean electricity using wind resources and will generate GHG emission reductions by avoiding CO₂ emissions from electricity generation of fossil fuel fired power plants. Operation of this project does not lead to GHG emissions. It is confirmed that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.

3.2 Methodology Deviations

The validation process /16/ has assessed all factors and issues that constitute the basis for emission reductions from the project according to the applicable CDM methodology ACM0002 (version 12.2.0) /27/. There was not any methodology deviation applied to this project. Details refer to section 4.1.

3.3 Project Description Deviations

The verification team assessed through visual inspection and document review that all physical features of the proposed project activity including data monitoring, reporting and collecting systems have been implemented in accordance with the registered CDM-PDD. CTI confirms that the project is fully implemented in accordance with the project description contained in registered PDD (version 2 dated 02 December 2011), and no deviations for the project description. Details refer to section 4.1.

3.4 Grouped Project

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

4 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the “Shandong Wendeng Zhangjiachan Wind Farm Project” for the period 26 February 2011 to 29 February 2012.

4.1 Project Implementation Status

4.1.1 Project Implementation in accordance with the registered project design document

The project is a wind power grid-connected plant and locates at Wendeng City, Shandong Province, P. R. China. The geographical coordinates of the proposed project is from 122.051944 E to 122.155278 E, and from 37.093611 N to 37.181667 N. The central geographical coordinate of the proposed project is 122.103611 E, 37.137639 N. The electricity generated by the project activity was supplied to the NCPG, which can be confirmed by the Power Purchase Agreement (PPA) signed between Wendeng Zhangjiachan Wind Power Co., Ltd. and Weihai Electric Power Company /3/.

The project's installed capacity is 49.3 MW consisting of 58 sets of wind turbines and generators with unit capacity of 0.85 MW. The details of the turbines with respect to installation and capacity have been verified to be consistent with description indicated in the registered CDM-PDD. The project was implemented and commissioned on 26 February 2011 when the first turbine was put into operation /6/. The actual implementation of the project during this verification period was verified in terms of name plate capacities of each turbine and monitoring equipment.

All the monitoring system in operation period is consistent with the description in the registered CDM-PDD. The control system at the power plant is automated and assures continuous operation, including monitoring on malfunction of equipment. By checking the daily operation and maintenance records /6/, CTI can confirm that no serious malfunction happened and the plant was under a normal operation as expected in this monitoring period.

On-site training for the related procedures including monitoring, recording and reporting was verified to be in place /5/ and their implementation was confirmed by interview with the key operators /28/ and observing the operation.

As part of the site visit, CTI confirms that the project implementation is in accordance with the project description contained in registered CDM-PDD (version 2 dated 02 December 2011). The verification team confirmed through visual inspection and document review that all physical features of the proposed project activity including data collection systems and storage systems have been implemented in accordance with the registered CDM-PDD.

4.1.2 Compliance of monitoring plan with monitoring methodology

CTI is able to confirm that the monitoring plan in the registered CDM-PDD (version 2 dated 02 December 2011) is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (version 12.2.0).

4.1.3 Compliance of monitoring with the monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the registered CDM-PDD (version 2 dated 02 December 2011). CTI confirms that all parameters stated in the monitoring plan are monitored and reported appropriately. All parameters required to be monitored by the monitoring plan as per the monitoring methodology ACM0002 (version 12.2.0) and the management system were assessed during the site visit. The monitoring report lists each parameter required by the monitoring plan and the information flow (i.e. from data generation, aggregation, recording, calculation and reporting) for these parameters is provided. The information flow for the each parameter in further verified in the following sections.

Parameters monitored

- (1) $EG_{Facility,y}$ Quantity of net electricity generation supplied by the project to the grid;
- (2) $EG_{output,y}$ Electricity supplied to the grid by the proposed project;
- (3) $EG_{import,y}$ Electricity purchased from the grid by the proposed project;
- (4) $EG_{im-spare,y}$ Electricity imported from the grid by the proposed project through the 10kV spare line

The main meter M1 (bidirectional electronic meter) was installed at the Xijiao substation of the local power company to continuously measure and monthly record both the electricity exported by the project to the power grid and the electricity purchased by the project from the power grid. The backup meter M2 was installed at the 110 kV substation of the wind farm and was used to cross checked against the reading of M1 by project owner. One bidirectional electronic meter (M3) was installed at the 10 kV spare line to monitor the imported electricity from the power grid. $EG_{Facility,y}$ is calculated by the electricity exported to the grid ($EG_{output,y}$) minus the electricity imported from the grid ($EG_{import,y}$) and the electricity imported from the grid via the backup power line ($EG_{im-spare,y}$). All the monitoring facilities and system have been verified by CTI during on-site visit.

The meter readings of M1 and M2 are continuously measured and recorded by trained staff as agreed with the grid company at 24:00 on the last but five of every month /7/. The electricity sale and purchase receipts /8/ /9/ to the wind power company issued by the local Grid Company have been used for cross-check of electricity export and import data.

The data of electricity imported through 10kV spare line (measured by M3) are recorded by the grid

company on the last but 20 of every month. Electricity sales receipts issued by the local Grid Company have been used for cross-check of electricity import data of the backup power line. For conservative, the electricity imported from the grid by the Project through the spare line during period from 12 February 2011 to 12 March 2012 is taken into consideration. It is acceptable and conservative by CTI.

Data in the monthly reading records were used to the report, through a cross check with the ETNs, 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.

Monitoring equipment and calibration

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

Item	Main meter M1	Backup meter M2	Spare line meter M3
Type	Bidirectional	Bidirectional	Bidirectional
SN	370110001005067	1007036777000001	WY4D98135
Accuracy class	0.5S	0.2S	0.5S
Calibration frequency	Annual	Annual	Annual
Calibration date	30 December 2010 and 27 December 2011	30 December 2010 and 27 December 2011	30 December 2010 and 27 December 2011
Valid period	26 December 2012	26 December 2012	26 December 2012
Calibration entity	Electricity Metering Center of Linyi Electric Power Co., Ltd.	Electricity Metering Center of Linyi Electric Power Co., Ltd.	Electricity Metering Center of Linyi Electric Power Co., Ltd.

Calibration records and accreditation certificates /12/ /13/ have been verified by the verification team. The actual accuracies of meters M1 and M3 is verified to be 0.5S and the actual accuracy of the meter M2 is verified to be 0.2S, which is more accurate than the description in the registered CDM-PDD and in compliance with the Technical administrative code of electric energy metering (DL/T 448-2000) /14/. The calibration frequency of meters is annual, which is consistent with the information in the CDM-PDD. CTI can thus confirm that the meters' accuracy and calibration interval are in line with the monitoring plan of the registered CDM-PDD, and the calibrations of meters are verified to be valid for the whole reporting period.

Data management and control

Wendeng Zhangjiachan Wind Power Co., Ltd. is responsible for operation and routine maintenance of power plant under the project activity. The quality assurance and quality control procedures have been addressed in the CDM project management and monitoring manual /4/, including the organization structure with the responsibilities, personnel competencies, monitoring procedures and monitoring management. By interview with the staff /28/ and check records /4/-/6/ during on-site visit, it can be confirmed that the monitoring management system is implemented following the project management and monitoring manual.

All monitoring devices have been calibrated and maintained periodically to ensure the accuracy of

measurement. Calibration records of instruments used in measurements were made available during the verification visit and found to be valid for the entire period of the verification. Competence and training records of in-plant personnel engaged in measurement of plant parameters were presented during verification and found to be in order.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

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

According to the applied methodology ACM0002 (version 12.2.0) /27/, the emission reductions are determined as the difference between the baseline emissions, project emissions and leakage:

$$ER_y = BE_y - PE_y - LE_y$$

4.2.1 Baseline emissions

The baseline reductions are determined as multiplying the quantity of net electricity generation supplied by the project to the grid by the validated *ex-ante* fixed grid emission factor:

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

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

$EF_{\text{grid},\text{CM},y}$ is the grid emission factor of the NCPG, which has been verified *ex-ante* in the validation stage in the registered CDM-PDD as 0.9309 tCO₂e/MWh /15/.

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

$EG_{\text{facility},y}$ is the net electricity supplied to the grid by the project, which is determined by the electricity exported to the grid minus the electricity imported from the grid. Data in the monthly reading records were used to report. Through a cross check with the ETNs, the most conservative values have been applied to calculate the electricity exported to and imported from the grid by the project.

Electricity exported to the grid by the project:

Period	Values from meter M1 reading (MWh)	Values from ETNs (MWh)	Verified (MWh)
	A	B	C=Min(A, B)
26/02/2011-26/03/2011	1,550.450	1,550.450	1,550.450
27/03/2011-25/04/2011	1,758.900	1,758.900	1,758.900
26/04/2011-26/05/2011	2,011.350	2,011.350	2,011.350
27/05/2011-25/06/2011	4,851.550	4,851.550	4,851.550
26/06/2011-26/07/2011	5,997.750	5,997.750	5,997.750
27/07/2011-26/08/2011	6,765.550	6,765.550	6,765.550
27/08/2011-25/09/2011	8,406.750	8,406.750	8,406.750
26/09/2011-26/10/2011	4,600.750	4,600.750	4,600.750
27/10/2011-25/11/2011	6,514.750	6,514.750	6,514.750
26/11/2011-26/12/2011	9,101.400	9,101.400	9,101.400

27/12/2011-26/01/2012	6,300.800	6,300.800	6,300.800
27/01/2012-25/02/2012	9,796.050	9,796.050	9,796.050
26/02/2012-29/02/2012	743.050	743.050	743.050
Total	-	-	68,399.1

Electricity imported from the grid by the project:

Period	Values from meter M1 reading (MWh)	Values from ETNs for M1 (MWh)	Verified (MWh)
	D	E	F=Max(D, E)
26/02/2011-26/03/2011	12.100	12.100	12.100
27/03/2011-25/04/2011	8.250	8.250	8.250
26/04/2011-26/05/2011	4.400	4.400	4.400
27/05/2011-25/06/2011	15.400	15.400	15.400
26/06/2011-26/07/2011	14.300	14.300	14.300
27/07/2011-26/08/2011	29.150	29.150	29.150
27/08/2011-25/09/2011	23.100	23.100	23.100
26/09/2011-26/10/2011	29.150	29.150	29.150
27/10/2011-25/11/2011	39.050	39.050	39.050
26/11/2011-26/12/2011	20.350	20.350	20.350
27/12/2011-26/01/2012	28.600	28.600	28.600
27/01/2012-25/02/2012	64.900	64.900	64.900
26/02/2012-29/02/2012	20.350	20.350	20.350
Total			309.1

Electricity imported from the grid by the project through the 10kV spare line:

Period	Values from meter M3 reading (MWh)	Values from ETNs for M3 (MWh)	Verified (MWh)
	G	H	I=Max(G, H)
11/02/2011-12/03/2011	4.930	4.930	4.930
13/03/2011-11/04/2011	6.111	6.111	6.111
12/04/2011-12/05/2011	0.695	0.695	0.695
13/05/2011-11/06/2011	0.389	0.389	0.389
12/06/2011-12/07/2011	0.383	0.383	0.383

13/07/2011-12/08/2011	0.596	0.596	0.596
13/08/2011-11/09/2011	0.548	0.548	0.548
12/09/2011-12/10/2011	0.399	0.399	0.399
13/10/2011-11/11/2011	0.614	0.614	0.614
12/11/2011-12/12/2011	0.394	0.394	0.394
13/12/2011-12/01/2012	0.389	0.389	0.389
13/01/2012-11/02/2012	0.389	0.389	0.389
12/02/2012-12/03/2012	0.389	0.389	0.389
Total			16.226

Note: For conservative, the electricity imported from the grid by the Project through the spare line during period from 12 February 2011 to 12 March 2012 is taken into consideration.

Hence, the quantity of net electricity generation supplied by the project to the grid $EG_{\text{facility},y}$ during the monitoring period 26 February 2011 to 29 February 2012 was calculated conservatively as:

$$EG_{\text{facility},y} = EG_{\text{output},y} - EG_{\text{import},y} - EG_{\text{im-backup},y} = 68,399.1 - 309.1 - 16.226 = 68,073.774 \text{ MWh}$$

The emission reductions for this monitoring period were calculated as:

$$ER_y = BE_y = EG_{\text{facility},y} \times EF_{\text{grid,CM},y} = 68,073.774 \text{ MWh} \times 0.9309 \text{ tCO}_2/\text{MWh} = 63,369 \text{ tCO}_2$$

4.2.2 Project emissions

The project emissions are zero according to the methodology ACM0002 (version 12.2.0) /27/.

4.2.3 Leakages

Leakage does not need to be accounted for this project as per the applied methodology ACM0002 (version 12.2.0) /27/..

4.2.4 Emission reductions

The emission reductions for this monitoring period was calculated as:

Period	GHG emission reductions or removals (tCO ₂ e)
26 February 2011 to 29 February 2012, i.e. 369 days)	63,369
Total ERs claimed	63,369

4.2.5 Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered CDM-PDD

The emission reductions claimed are 63,369 tCO₂e in this monitoring period (i.e. 369 days). Compared with yearly expected emission reductions 84,709 tCO₂e (365 days) in the registered CDM-PDD (corresponding to 85,637 tCO₂e for this monitoring period), the reported emission reductions in this monitoring period are lower than the expected. Considering the wind resource fluctuation, CTI is able to confirm that the actual power supply and also emission reductions reported in this monitoring period are reasonable and appropriate. CTI verified the input data for calculating emission reductions and the calculating process, and confirmed the result were complete and transparent.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

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

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

4.4 Non-Permanence Risk Analysis

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

5 VERIFICATION CONCLUSION

Shenzhen CTI International Certification Co., Ltd (CTI) has performed the verification of the emission reductions that have been reported for the project activity “Shandong Wendeng Zhangjiachan Wind Farm Project” in China (CDM Registration No. 5655) for the period 26 February 2011 to 29 February 2012.

The verification is based on the baseline and monitoring methodology ACM0002 (version 12.2.0), the validated and registered CDM-PDD (version 2 dated 02 December 2011) and the monitoring report (version 01 dated 06 December 2013). The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification and certification report.

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

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

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

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

In CTI's opinion the GHG emissions reductions of the “Shandong Wendeng Zhangjiachan Wind Farm Project” for the period 26 February 2011 to 29 February 2012 are fairly stated in the monitoring report (version 01 dated 06 December 2013). The GHG emission reductions were calculated correctly on the basis of the approved methodology ACM0002 (version 12.2.0) and the monitoring plan contained in the registered CDM-PDD (version 2 dated 02 December 2011).

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

Reporting period: From 26 February 2011 to 29 February 2012

Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	63,369
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	63,369

Zhang Lei

Mr. Zhang Lei
Team Leader

7 January 2014

Wu Lin

Mr. Lin Wu
Technical Reviewer

7 January 2014

6 REFERENCES

Documentation used to verify the information provided by the project proponents

- /1/ CGN Carbon Asset Management (Beijing) Co., Ltd.: VER/VCU Monitoring Report for Shandong Wendeng Zhangjiachan Wind Farm Project, version 01 dated 6 December 2013.
- /2/ CGN Carbon Asset Management (Beijing) Co., Ltd.: Emission reduction calculation spreadsheet for Shandong Wendeng Zhangjiachan Wind Farm Project, version 01 dated 6 December 2013.
- /3/ Wendeng Zhangjiachan Wind Power Co., Ltd. and Weihai Electric Power Company (on behalf of NCPG): Power Purchase Agreement for Shandong Wendeng Zhangjiachan Wind Farm Project, signed on 20 December 2011 and valid to 21 December 2012.
- /4/ CGN Carbon Asset Management (Beijing) Co., Ltd.: CDM monitoring manual and management procedure, version 01 dated July 2011.
- /5/ CGN Carbon Asset Management (Beijing) Co., Ltd.: Records of training for on-site staff, dated August 2011.
- /6/ Wendeng Zhangjiachan Wind Power Co., Ltd.: Operation log sheets, from February 2011 to February 2012.
- /7/ Wendeng Zhangjiachan Wind Power Co., Ltd.: Monthly reading records of electricity imported and exported by Shandong Wendeng Zhangjiachan Wind Farm Project from February 2011 to February 2012.
- /8/ Weihai Electric Power Company: Electricity sale receipts for the electricity exported to the grid measured by M1, from February 2011 to February 2012.
- /9/ Weihai Electric Power Company: Electricity purchase receipts for the electricity imported from the grid measured by M1, from February 2011 to February 2012.
- Weihai Electric Power Company: Electricity purchase receipts for the electricity imported from the grid measured by M3, from February 2011 to February 2012.
- /10/ CGN Carbon Asset Management (Beijing) Co., Ltd.: VCS project description for Shandong Wendeng Zhangjiachan Wind Farm Project, version 01 dated 20 November 2013.
- /11/ Shandong Province of Quality and Technology Supervision: Accreditation certificate of Electricity Metering Center of Linyi Electric Power Co., Ltd., issued on 8 November 2009 and valid up to 7 November 2014.
- /12/ Electricity Metering Center of Linyi Electric Power Co., Ltd.: Calibration certificates for main meter (M1) and backup meter (M2) issued on 30 December 2010 and 27 December 2011.
- /13/ Electricity Metering Center of Linyi Electric Power Co., Ltd.: Calibration certificate for backup line meter (M3), issued on 30 December 2010 and 27 December 2011
- /14/ State Economic and Trade Commission: Technical administrative code of electric energy metering (DL/T 448-2000), dated 3 November 2000.
- /15/ CGN Carbon Asset Management (Beijing) Co., Ltd.: CDM-PDD for project activity Shandong Wendeng Zhangjiachan Wind Farm Project, version 2 dated 02 December 2011.
- /16/ SGS.: Validation report for project activity Shandong Wendeng Zhangjiachan Wind Farm Project, version 0 dated 5 December 2011.

- /17/ National Development and Reform Commission (DNA of China): Letter of approval for Shandong Wendeng Zhangjiachan Wind Farm Project dated June 2011.

Methodologies, tools and other guidance

- /18/ Verified Carbon Standard: VCS Standard, version 3.4.
- /19/ Verified Carbon Standard: VCS Program Guide, version 3.5.
- /20/ Verified Carbon Standard: VCS Sectoral Scopes
<http://v-c-s.org/node/448>
- /21/ Verified Carbon Standard: VCS Verification Representation, version 3.1.
- /22/ Verified Carbon Standard: VCS Validation Representation, version 3.1.
- /23/ Verified Carbon Standard: VCS Monitoring Report Template, version 3.3.
- /24/ Verified Carbon Standard: VCS Project Description Template, version 3.2.
- /25/ Verified Carbon Standard: VCS Verification Report Template, version 3.3.
- /26/ Verified Carbon Standard: Registration and Issuance Process, version 3.5.
- /27/ CDM Executive Board: Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM0002, version 12.2.0.

Persons interviewed

- /28/ Wendeng Zhangjiachan Wind Power Co., Ltd.:
Mr. Yu Wentao, CDM Director
Mr. Li Gongde
- /29/ CGN Carbon Asset Management (Beijing) Co., Ltd.:
Ms. Ji Huiyin, Senior Project Manager

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APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Table 1: Corrective Action Requests

CAR ID	Corrective Action Request	Response by Project Proponent	Verification Team Assessment
NA	<i>No CAR was issued.</i>	NA	NA

Table 2: Clarification Requests

CL ID	Clarification Request	Response by Project Proponent	Verification Team Assessment
NA	<i>No CL was issued.</i>	NA	NA

Table 3: Forward Action Requests

FAR ID	Forward Action Request	Response by Project Proponent	Verification Team Assessment
NA	<i>No FAR from this verification was issued.</i>	NA	NA