



Voluntary Carbon Standard Version 2007.1

VERIFICATION REPORT OF

GANSU GUAZHOU DALIANGXI

WIND POWER PROJECT

Report No: BVC/China-VR7025

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Verification Report of Gansu Guazhou Daliangxi Wind Power Project	Robin Wang Jing
Client:	Project Title:
Gansu CGN Wind Power Co., Ltd.	Gansu Guazhou Daliangxi Wind Power Project

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Summary:

Bureau Veritas Certification has made the verification of Gansu Guazhou Daliangxi Wind Power Project, owned by Gansu CGN Wind Power Co., Ltd., which is located near Guazhou County, Jiuquan City, Gansu Province, P.R. China, UNFCCC CDM Registration No.2916 on the basis of Voluntary Carbon Standard (VCS) 2007.1 Program and UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, as well as the host country criteria.

The verification scope is defined as an independent review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up on-site visit and interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification Requests, Corrective Actions Requests, Forward Actions Requests (CL, CAR and FAR).

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in VCS-PD and validated and registered CDM project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions. The GHG emission reduction is calculated without material misstatements.

Our opinion relates to the Project's GHG emissions and the resulting GHG emission reductions viz. Voluntary Carbon Units (VCUs) reported are based on the valid project baseline, monitoring plan and associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms following statement:

Reporting period:	01/01/2009 to 03/05/2010
Baseline emissions:	141,633 tCO ₂ e
Project emissions:	0 tCO ₂ e
Emission Reductions:	141,633 tCO ₂ e (VCUs)

Work carried out by:

Number of pages:

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Abbreviations

BVC	Bureau Veritas Certification
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DR	Document Review
ETN	Electricity Transaction Notes
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
MRR	Monthly Reading Record
NWPG	Northwest China Power Grid
PD	Project Description
PDD	Project Design Document
P.R. China	People's Republic of China
PP	Project Participant
PPA	Power Purchase Agreement
VCS	Voluntary Carbon Standard
VCU	Voluntary Carbon Unit
VVM	Validation & Verification Manual

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1. INTRODUCTION

Gansu CGN Wind Power Co., Ltd. has commissioned Bureau Veritas Certification (hereafter referred to as “BVC”) to verify the emission reductions of its voluntary emission reduction (VER) project of Gansu Guazhou Daliangxi Wind Power Project (hereafter called “the Project”), which is located near Guazhou County, Jiuquan City, Gansu Province, P.R. China for the period from 01/01/2009 to 03/05/2010 prior to its CDM first crediting period.

BVC as the verification body of the Project has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2007.

1.1. Objective

Verification is the periodic independent review and ex post determination by the verification body of the monitored reductions in GHG emissions during defined verification period.

The objective of verification is one-off Verification for the VCUs generated by the Project before its CDM first crediting period as from 04/05/2010, viz. the time is limited in the period start from 01/01/2009 and end on 03/05/2010, the start date of the crediting period is after 28 March 2006; and the validation has been completed on 05/12/2009, within two years of the project start date, which is in line with the provision as prescribed in Clause 5.2.1 of VCS 2007.1 Program.

VCS 2007.1 Program and UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2. Scope and Criteria

The verification scope is defined as an independent and objective review of the VCS Project Description (VCS-PD), the project’s baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS 2007.1 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. VCS Project Description

The Project is sited in Jiuquan City of Gansu Province, P.R. China, with east longitude 95°36’37” and north latitude 40°42’55”. The Project consists of 33 sets of 1,500kW wind turbines. The type of the wind turbines is FD77A, and the total installed capacity of the Project activity is 49.5MW. The electricity is supplied to Northwest China Power Grid (NWPG) through 110KV transmission lines. The annual expected net electricity supplied by the Project is 115,144 GWh and the annual estimated emission reductions are 114,781 tCO₂e.

The Project has been registered as a CDM project on 04/05/2010 (UNFCCC Reg. No. 2916) under approved CDM methodology ACM0002 version 09.

(<http://cdm.unfccc.int/Projects/DB/BVQI1250066972.19/view>)

During the on-site visit, BVC has confirmed that the first turbine of the Project was put into operation on 04/12/2008^[9]

1.4. Level of Assurance

The verification report is based on CDM-PDD, VCS-PD, VCS-Monitoring Report (VCS-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 the credibility of all above.

2. METHODOLOGY

The verification is as a desk review and on-site visit including discussions and interviews with selected experts and stakeholders.

- Desk review with the PP on 22/10/2010 in the Project site
- On-site visit and conducted discussions and interviews with the PP on 22/10/2010

In order to ensure transparency, a verification protocol was customized for the project, according to the VCS2007.1 and Validation and Verification Manual version 01.2 a verification protocol is used as part of the verification. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements the project is expected to meet; and
- It ensures a transparent verification process where the verifier will documents how a particular requirement has been verified and the result of the verification;

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification procedures.

3. VERIFICATION FINDINGS

In the following sections, the findings of the verification are stated. The verification findings for each verification subject are presented as follows:

- 1) The findings (CARs, CLs and FARs) from the desk review of the initial VCS-PD and the VCS-MR and the findings from interviews during the follow up on-site visit are summarized.
- 2) The conclusions for verification subject are presented.

3.1. Project Implementation

The BVC has performed an on-site visit to verify the real implementation of the Project against the description in the VCS-PD of the Project and found that: all the 33 sets of wind turbines manufactured by Dongfang Steam Turbine Works Company with unit capacity of 1500 kW, were implemented and commissioned before the date of CDM registration. All facilities and equipments as described in the VCS-PD and registered CDM-PDD have been installed and put into operation.

The BVC has verified and confirmed that all wind turbines have been installed in place. The electricity generated has been delivered properly to the NWPG in accordance with the provisions of the Power Purchase Agreement (PPA) ^[7] signed with the grid company and as indicated in the Electricity Transaction Notes (hereafter referred to as “ETN”) ^[9] issued by the grid company.

1) Power system ^{[6] [7]}

The power generated by the wind turbines is delivered to Guazhou substation via the 110KV transmission line and then exported to NWPG.

2) Metering system ^[6]

As described in CDM-PDD, VCS-PD, MR and Diagram of Power System Connection of the Project, a pair of meters (one main and one backup) were installed at the output of on-site Substation to monitor the net electricity supplied by the Project.

All above meters have been properly installed, maintained, calibrated and recorded according to the requirements defined in the VCS-PD and relevant standards.

The data reporting procedure between the Project and NWPG has been identified and assessed during the on-site assessment. The readings of the main meter is monthly recorded and the electricity transacted are jointly confirmed by the two parties every month. In order to ensure the completeness of the records of the meter, the PP had taken the effective actions including the installation, adjustment, calibration and continual monitoring for the meters. The ETNs are used to cross-check with the Monthly Reading Records (MRR) ^{[8][9]}. The data both of MRR and ETNs have been verified and found consistent.

3) Calibration ^{[10][11]}

As per the monitoring plan of VCS-PD, the calibration of meters should be implemented according to the signed PPA and related national standard, i.e. “Technical administrative code of electric energy metering” (DL/T448-2000) ^[13]. The calibration records of the meters as the follow Table 1.

Table 1 Calibration Records of the Meters

Position	Serial No.	Accuracy level	Calibration date	Valid period
Main meter at on-site substation	36032119	0.2s	24/09/2008 20/06/2009	24/09/2008- 23/09/2009 20/06/2009- 19/06/2010
Backup meter at on-site substation	36056210	0.2s	29/08/2008 20/06/2009	29/08/2008- 28/09/2009 20/06/2009- 19/06/2010
Calibrator	Gansu Metrological Measuring Institute			
Accreditation Certificate for the calibrator	[2006] Gan Fa Ji No. 62055; issued on 06/01/2008 and valid to 04/01/2011			
Accredited by	Gansu Province Quality and Technology Supervision Bureau			

BVC has verified the above calibration records issued by the calibrator and accreditation certificate of the calibrator. BVC can conclude that the meters installed are within suitable accuracy level and are calibrated in line with relevant national standards and the VCS-PD, with the valid period covering this monitoring period.

3.2. Internal and External Data

According to the VCS-PD and MR, the following internal parameters need be monitored for determining the net electricity supplied to the grid by the Project and emission reduction.

Net supply of electricity is calculated as:

$$EG_y = EG_{\text{export}} - EG_{\text{import}}$$

EG_y Net electricity supplied to the grid by the Project

EG_{export} Electricity exported to the grid by the Project via the 110KV transmission line

EG_{import} Electricity imported from the grid via the 110KV transmission line

According to the monitoring plan of the VCS-PD and diagram of power system connection of the Project, the emission reductions are to be calculated using the net electricity supplied to the grid by the Project measured by the meters installed at the output of the project site.

BVC has verified the manual records of the above meters and cross checked the data with ETNs covering the period from January 2009 to May 2010, and found the reported data to be consistent and substantial.

3.3. Management and Operational System

The VCS-PD and MR has clearly prescribed the management and operational procedures for the various steps involved in the Project, which includes monitoring, recording, archiving of the data of the Project. The procedures are available as a documentation which has been verified by BVC and found to be consistent with the VCS-PD and CDM monitoring methodology ACM0002 version 09.

3.4. Completeness of Monitoring

The reporting procedures reflect the description of the VCS-PD. The monitoring mechanism with practicable procedures has been verified to be effective and reliable.

The documented evidences and records submitted by the project proponent to determine emission reductions have been verified as of sufficient quantity and appropriate quality.

3.5. Accuracy of Emission Reduction Calculations

The calculation of emission reductions has been verified to be appropriate, conservative and in accordance with the CDM methodology ACM0002 version 09.

As the project emission is 0 according to the VCS-PD and ACM0002 version 09, the emission reductions are equal to the baseline emissions, with consideration of project emissions and Leakage to be zero:

$$ER_y = BE_y - PE_y - LE_y = BE_y = EG_y \times EF_y$$

Where:

ER_y : Emission Reductions

BE_y : Baseline Emissions

EF_y : GHG Emission Factor of the NWPG, calculated ex-ante and fixed for this reporting period (unit: tCO_{2e}/MWh). As per the VCS-PD, the EF_y during this reporting period is 0.99685tCO_{2e}/MWh.

PE_y : Project Emissions

LE_y : Leakage

The net electricity delivered to the grid (EG_y) is the result of the electricity exported to the grid (EG_{export}) minus the electricity imported from the grid via the 110KV transmission line (EG_{import}) viz

$$EG_y = EG_{\text{export}} - EG_{\text{import}}$$

According to the VCS-PD, data measured by the meters will be cross-checked against the ETNs within the same period. BVC has checked MRR of the meters and ETNs, and found that they are consistent.

The verified electricity exported to and imported from the grid in this monitoring period is as shown in the following Table 2.

Table 2 The verified net electricity supplied to the grid by the Project (EG_y) (kWh)
From 01/01/2009 to 03/05/2010

Period	Electricity exported via 110kV line		Verified EG _{export}	Electricity imported via 110kV line		Verified EG _{import}	Verified EG _y
	MRR	ETN		MRR	ETN		
	A	B	C=min(A,B)	E	F	G=max(E,F)	F=C-G
01/01/2009-29/01/2009	2,968,350	2,968,350	2,968,350	214,970	214,970	214,970	2,753,380
30/01/2009-27/02/2009	2,580,072	2,580,072	2,580,072	333,638	333,638	333,638	2,246,434
28/02/2009-29/03/2009	10,417,308	10,417,308	10,417,308	309,440	309,440	309,440	10,107,868
30/03/2009-28/04/2009	13,527,360	13,527,360	13,527,360	304,202	304,202	304,202	13,223,158
29/04/2009-29/05/2009	11,497,794	11,497,794	11,497,794	325,365	325,365	325,365	11,172,429
30/05/2009-28/06/2009	10,397,706	10,397,706	10,397,706	306,446	306,446	306,446	10,091,260
29/06/2009-29/07/2009	10,841,754	10,841,754	10,841,754	318,831	318,831	318,831	10,522,923
30/07/2009-29/08/2009	10,273,164	10,273,164	10,273,164	315,531	315,531	315,531	9,957,633
30/08/2009-28/09/2009	10,305,174	10,305,174	10,305,174	311,594	311,594	311,594	9,993,580
29/09/2009-29/10/2009	10,500,006	10,500,006	10,500,006	325,761	325,761	325,761	10,174,245
30/10/2009-28/11/2009	9,557,724	9,557,724	9,557,724	323,606	323,606	323,606	9,234,118
29/11/2009-29/12/2009	7,417,476	7,417,476	7,417,476	342,063	342,063	342,063	7,075,413
Subtotal	110,283,888	110,283,888	110,283,888	3,731,447	3,731,447	3,731,447	106,552,441
30/12/2009-29/01/2010	7,935,246	7,935,246	7,935,246	330,909	330,909	330,909	7,604,337
30/01/2010-27/02/2010	7,186,542	7,186,542	7,186,542	318,194	318,194	318,194	6,868,348
28/02/2010-29/03/2010	11,334,510	11,334,510	11,334,510	302,510	302,510	302,510	11,032,000
30/03/2010-28/04/2010	8,970,192	8,970,192	8,970,192	308,228	308,228	308,228	8,661,964
29/04/2010-03/05/2010	1,520,376	1,520,376	1,520,376	157,183	157,183	157,183	1,363,193
Subtotal	36,946,866	36,946,866	36,946,866	1,417,024	1,417,024	1,417,024	35,529,842
Total	147,230,754	147,230,754	147,230,754	5,148,471	5,148,471	5,148,471	142,082,283

The emission factor is determined as 0.99685 tCO₂e/MWh same as the value for the first CDM crediting period, therefore, emission reductions for the monitoring period from 01/01/2009 to 29/12/2009 are:

$$EG_y = EF_y \times EG_y = 0.99685 \text{ tCO}_2\text{e/MWh} \times 106,552,441/1000 \text{ MWh} \\ = 106,216 \text{ tCO}_2\text{e}$$

Emission reductions for the monitoring period from 30/12/2009 to 03/05/2010 are:

$$EG_y = EF_y \times EG_y = 0.99685 \text{ tCO}_2\text{e/MWh} \times 35,529,842/1000 \text{ MWh}$$

=35,417 tCO₂e

Emission reductions for the monitoring period from 01/01/2009 to 03/05/2010 are:

$EG_y = EF_y \times EG_y = 0.99685 \text{ tCO}_2\text{e/MWh} \times 142,082,283/1000 \text{ MWh}$

=141,633 tCO₂e

3.6. Quality Evidence to Determine Emission Reductions

The critical parameters used for the determination of the Emission Reductions are the reading records of the meters reflecting the electricity exported to and imported from the grid in parallel with the Electricity Transaction Notes issued by the grid company in this reporting period.

The data pertaining to the above parameters is maintained in the identified records and consistent with the values stated in the VCS Monitoring Report version 02.

3.7. Management System and Quality Assurance

BVC confirms that the quality management system for the Project is in place. The documented instructions including the responsibilities have been properly implemented and in line with the VCS-PD. Internal review being a regular practice ensures the quality assurance of the monitoring procedures. The plant manager is responsible for data protection exclusively with access restrictions^[12].

The meters of the Project have been calibrated by Gansu Metrological Measuring Institute and the certificate of calibrator has been checked and verified during the on-site audit^{[10] [11]}.

4. VERIFICATION CONCLUSION

BVC has performed a verification of emission reductions generated prior to the CDM registration of Gansu Guazhou Daliangxi Wind Power Project (UNFCCC CDM Registration No.2916 registered on 04/05/2010). The verification is based on the currently valid VCS Program 2007.1 released by Voluntary Carbon Standard Association on 18 November 2008.

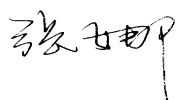
The management of Gansu CGN Wind Power Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the Project on the basis set out within the monitoring procedures in the VCS-PD version 1.0 dated 03/05/2010. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the Project is the responsibility of the management of the project.

BVC verified the VCS Monitoring Report version 02 dated 18/11/2010 for the reporting period as indicated below. BVC confirms that the Project is implemented as planned and described in VCS-PD. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the Project has generated GHG emission reductions (VCUs).

BVC can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the Project's GHG emissions and the resulting GHG emission reductions reported are based on the valid project baseline, monitoring plan and associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms the amount of VCUs associated with the project specific monitoring report that has been verified as following statement:

Reporting period : 01/01/2009 to 03/05/2010
 Baseline emissions : 141,633 t CO₂ equivalents.
 Project emissions : 0 t CO₂ equivalents.
 Emission Reductions : 141,633 t CO₂ equivalents (VCUs)

Period	Emission Reductions
01/01/2009-29/12/2009	106,216 t CO ₂ equivalents (VCUs)
30/12/2009-03/05/2010	35,417 t CO ₂ equivalents (VCUs)

 Zhang Na

Zhang Na
 Team Leader
 Date: 30/11/2010



Robin Wang Jing
 Internal Reviewer
 Date: 30/11/2010

5. REFERENCE

Category 1 Documents:

Documents provided by Gansu CGN Wind Power Co., Ltd. that relate directly to the GHG components of the project.

- [1] VCS Project Description Version 1.0 dated 28/09/2010
- [2] Registered CDM Project Design Document (PDD) version 05 dated 27/04/2010
- [3] CDM Validation Report Rev.No.02 dated 28/04/2010
- [4] VCS Monitoring Report version 01 dated 28/09/2010
- [5] VCS Monitoring Report version 02 dated 18/11/2010

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- [6] Diagram of Power System Connection of the project
- [7] Power Purchase Agreement (PPA) between the PP and the grid company
- [8] Monthly Reading Records(MRR) of the PP
- [9] Electricity Transaction Notes (ETNs) from January 2009 to May to 2010
- [10] Calibration Certificates of all the meters
- [11] Certificate of authorization for Gansu Metrological Measuring Institute certificate code was [2006] Gan Fa Ji No. 62055; issued on 06/01/2008 and valid to 04/01/2011
- [12] CDM Monitoring & Management Manual
- [13] Technical administrative code of electric energy metering (DL/T448-2000)

Persons interviewed:

List persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

- | | | |
|-----|------------------|----------------------------|
| /1/ | Mr. Yuan Dong, | Project Manager of the PP |
| /2/ | Mr. Li Binghua, | CDM Manager of the PP |
| /3/ | Mr. Li Zuoqiang, | Business Manager of the PP |