



VCS VERIFICATION REPORT

GANSU GUAZHOU BEIDAQIAO WIND POWER PROJECT IN CHINA

MONITORING PERIOD:
22 January 2011 to 4 July 2011

REPORT No. 2012-9355

REVISION No. 01

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Version	01

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Summary:

DNV Climate Change Services AS (DNV) has performed the verification of emission reductions reported for the project activity "Gansu Guazhou Beidaqiao Wind Power Project" in China, managed by Longyuan (Jiuquan) Wind Power Co., Ltd. for the period from 22 January 2011 to 4 July 2011, to review and determine the monitored reductions in GHG emissions that have occurred as a result of the project activity.. The project activity was validated as CDM project by DNV Climate Change Services AS (validation Report No.: 2010-1197, version 01 dated 23 May 2011) and it was registered as a CDM project on 5 July 2011 under the UNFCCC reference number 4832 with a renewable crediting period from 5 July 2011 to 4 July 2018. As emission reductions occur prior to the registration of the project as the CDM project activity, these emission reductions 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 3.2. 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 VCSA Programme Guidelines & Standard version 3.2 for projects participating in more than one GHG programme, 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 inspection, and the resolution of outstanding issues.

In DNV's opinion, the GHG emissions reductions reported for "Gansu Guazhou Beidaqiao Wind Power Project" in the monitoring report version 2.0 dated 11 June 2012 are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved methodology ACM0002 (version 12.1.0) and the monitoring plan contained in the registered CDM-PDD of 9 September 2010.

Hence, DNV Climate Change Services AS (DNV) is able to certify that the emission reductions from Gansu Guazhou Beidaqiao Wind Power Project during the period from 22 January 2011 to 4 July 2011 amount to 110 255 tonnes of CO₂ equivalent.

DNV does not assume any responsibility towards the issuance and utilization of VCUs hereby verified and certified. Request for issuance of VCUs 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 DNV and the engagement conditions detailed in this report. Hence, DNV cannot be held liable by any party for decisions made or not made based on this report.

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1 INTRODUCTION

Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd. has commissioned DNV Climate Change Services AS (DNV) to carry out the verification and certification of emission reductions reported for the CDM project activity “Gansu Guazhou Beidaqiao Wind Power Project” (UNFCCC Reference Number: 4832) in the period from 22 January 2011 to 4 July 2011. A letter of authority was signed between the project participant Longyuan (Jiuquan) Wind Power Co., Ltd. and consultant Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.. 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 of “pre-registration” emission reductions from a project activity is the 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 implementation of an already registered CDM project activity during the period from the date when the project started to operate until the date when the project was actually registered as a CDM project activity by the CDM Executive Board (EB).

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 “Gansu Guazhou Beidaqiao Wind Power Project” for the period 22 January 2011 to 4 July 2011.

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 3.3 /29/.
- VCS Standard version 3.2 /28/ and other relevant requirements defined by VCSA.
- The approved methodology ACM0002 (Version 12.1.0) /4/.

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. DNV applied a materiality threshold of 5%/1% with respect to omission or misstatements concerning reported quantities as per VCS standard 5.3.1 4).

1.4. Summary Description of the Project

1.4.1 Project Category

According to the VCS Program Guide version 3.3 /29/ and the list of Sectoral Scopes of the UNFCCC, the project is applicable under the following activity categories:

- Category 1 – Renewable energy (wind, PV, solar, thermal, biomass, liquid biofuels, geothermal, run-of-river hydro).

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 Geographic Location

The project is located in Guazhou County, Jiuquan City, Gansu Province of China. The project activity has four inflexions of geographical scopes A (E96.257°, N40.674°), B(E96.304°, N40.674°), C(E96.304°, N40.744°), D(E96.257°, N40.744°) as per the registered PDD /2/.

1.4.3 Project Background

Title of the project activity:	Gansu Guazhou Beidaqiao Wind Power Project
Project Participants:	Longyuan (Jiuquan) Wind Power Co., Ltd. authorized by Host Party China.
Location of the project activity:	Guazhou County, Jiuquan City, Gansu Province of China, the geographical coordinates of the project location: North latitude 40.674°-40.744° and East longitude 96.257° - 96.304°
VCU Verification period:	22 January 2011 to 4 July 2011
VCS Project Crediting period:	22 January 2011 to 4 July 2011
UNFCCC Refer. No:	4832
CDM Baseline and monitoring	ACM0002, Version 12.1.0
Methodology:	
CDM Crediting period:	5 July 2011 to 4 July 2018 (Renewable)
CDM Project Starting date:	6 November 2009
Project Commissioning date:	16 December 2010

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

Gansu Guazhou Beidaqiao Wind Power Project has been registered as a CDM project activity (UNFCCC Reference Number: 4832). Therefore, DNV only performed validation for the project on those additional requirements by VCSA. This validation was completed as part of the current VCU verification.

2.1 Validation Process

The validation was performed through means of the following three phases in accordance with the requirement of the registered CDM PPD, the applied methodology, and the VCS Standard version 3.2 and other relevant VCS requirements.

The validation consisted of the following three phases:

- A desk review of the project documents
- Follow-up interviews with project stakeholders and site inspection where necessary
- The resolution of outstanding issues and the issuance of the validation report and opinion

The following sections outline each step in more detail. The team composition used for the validation can be found in section 3.1 of this report.

2.1.1 Document review

The documentation was reviewed in combination with the verification activity for the project. Refer to details in Section 3.2.

2.1.2 Interviews

The interviews were performed in combination with the verification activity for the project. Refer to details in Section 3.3.

2.1.3 Site Inspections

The site inspection was performed in combination with the verification activity for the project. Refer to details in Section 3.4.

2.1.4 Resolution of Any Material Discrepancy

This activity was performed in combination with the verification activity for the project. Refer to details in Section 3.5.

2.2 Validation Findings

2.2.1 Gap Validation

As the project has been validated under the CDM, only the 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* shall be completed. DNV has undertaken a validation of same, as detailed below.

Cover page

DNV verified relevant information provided in the registered CDM-PDD.

Project title: Gansu Guazhou Beidaqiao Wind Power Project

Version: 2.0

Date of issue: 9 September 2010

Prepared By: Li Gang, Longyuan (Beijing) Carbon Asset Management Technology Co. Ltd.

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1.2 Sectoral Scope and Project Type

According to the "VCS Sectoral Scopes" /30/, the project is applicable under the sectoral scope 1. Energy(renewable). The project is a grid-connected wind farm power plant with the installed capacity of 201 MW.

1.3 Project Proponent

Project Participants: Longyuan (Jiuquan) Wind Power Co., Ltd..

1.5 Project Start Date

The project started exporting electricity to the grid on 22 January 2011 when the first group of wind turbines had underwent 240 hours consecutive trial operation /18/., therefore, the project start date is identified as 22 January 2011.

1.6 Project Crediting Period

This is a registered CDM project with the first 7 years CDM renewable crediting period starting from 5 July 2011 to 4 July 2018. The project crediting period for VCU issuance is from 22 January 2011 to 4 July 2011.

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

Project	Yes
Mega-project	NA

Years	Estimated GHG emission reductions or removals (tCO ₂ e)
22 January 2011 to 4 July 2011	110 255

1.9 Project Location

Location of the project activity: Guazhou County, Jiuquan City, Gansu Province of China, the geographical coordinates of the project location: North latitude 40.674°-40.744° and East longitude 96.257°-96.304°.

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 NWPG.

1.12.1 Proof of Title

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 business license of the project owner /15/ agreements signed by the project owner /7/ /12/ and the letter of approval issued by NDRC (DNA of China) /9/.

1.12.2 Emissions Trading Programs and Other Binding Limits

The proposed 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 proposed project does not reduce GHG emissions from activities that participate in an emissions trading program, so this clause is not applicable.

1.12.3 Participation under Other GHG Programs

The project has been registered as a CDM project on 5 July 2011 under the UNFCCC reference number 4832. The project activity was validated by DNV Climate Change Services AS (validation Report No.: 2010-1197, version 01 dated 23 May 2011).

1.12.4 Other Forms of Environmental Credit

The project was registered as a CDM project activity on 5 July 2011 under the UNFCCC reference number 4832. 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, 110 255 tCO₂e, achieved during the period from 22 January 2011 to 4 July 2011 claimed under the VCS Program. This has been confirmed by Environmental Protection Administration of Gansu Province /19/.

1.13 Additional Information Relevant to the Project

Eligibility Criteria

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

Leakage Management

As per ACM0002 Version 12.1.0, no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). These emissions sources are neglected. 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 energy project, the project activity will produce clean electricity using wind power 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.

2.2.2 Methodology Deviations

The validation process /4/ has assessed all factors and issues that constitute the basis for emission reductions from the project according to the applicable large-scale CDM methodology ACM0002 (Version 12.1.0) /24/. There was not any methodology deviation applied to this project.

2.2.3 New Project Activity Instances

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

2.3 Validation Conclusion

DNV is able to confirm the project is in compliance with the VCS requirements for validation.

3 VERIFICATION PROCESS

3.1 Method and Criteria

The verification was performed through means of the following three phases in accordance with the requirement of the registered CDM PPD, the applied methodology, and the VCS Standard version 3.2 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.

Verification Team:

Role	Last Name	First Name	Country	Type of involvement					
				Desk review	Site visit	Reporting	Supervision of work	Technical review	TA 1.2 competence
Team leader (Verifier)	Yang	Xiaoshan	China	✓	✓	✓	✓		✓
Technical reviewer	Xue	Yanju Andi	China					✓	✓

Duration of the verification

Preparations:

17 May 2012 to 29 May 2012

On-site Verification:

30 May 2012

Reporting, calculation checks and QA/QC:

31 May 2012 to 3 July 2012

3.2 Document Review

The verification process includes the desk review of the VER/VCU monitoring report (version 1.0 dated 25 March 2012 and updated version 2.0 dated 11 June 2012) /1/, emission reduction calculation spreadsheet /6/ and other supporting documents and data /16/-/31/. Further, on-site assessments and interviews with those involved in project management and operation were conducted /32/ /33/. This follows summarization of desk review and findings of on-site assessment (i.e. CARs, CLs, and FARs, refer to the Appendix A of this report). Upon successful closing of those findings raised, the final verification report is prepared based on the updated VER/VCU MR (version 2.0 dated 11 June 2012).

The following documents were assessed as a part of the verification audit:

- The VER/VCU Monitoring Report of version 1.0 dated 25 March 2012 and updated version 2.0 dated 11 June 2012 for the period from 22 January 2011 to 4 July 2011 /1/;
- Original daily and monthly reading records, and sales records of electricity exported and imported by the project activity during the period from 22 January 2011 to 4 July 2011 /16/.
- Emission reduction calculation spreadsheet for Gansu Guazhou Beidaqiao Wind Power Project /6/, completed by Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.. Emission reductions are calculated from the net amount of electricity supplied to the grid multiplied by the ex-ante validated emission factor of the NWPG determined during the validation stage /4/.

In addition, the project's CDM Project Design Document (PDD) (version 2.0 dated 9 September 2010) /2/, in particular the monitoring plan included in the CDM PDD, and the CDM validation report (version 01 dated 23 May 2011) /4/ were also assessed.

3.3 Interviews

On 30 May 2012, Mr. Yang Xiaoshan from DNV Beijing office performed the on-site visit of the project at Guazhou County, Jiuquan City, Gansu Province of China and conducted an interview with the representatives of the project owner and the CDM consultant. The personnel interviewed during the audit are listed in the reference section of this report /32/, /33/. Main topics of the interview cover implementation of the project construction, applicability of selected methodology, implementation of project monitoring, emission reduction calculation, etc.

3.4 Site Inspections

The on-site assessment involves:

- Assessment of the implementation and operation of the proposed CDM project activity as per the registered CDM-PDD;
- Review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that 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 log books, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology;
- Review of calculations and assumptions made in determining the GHG data and emission reductions;
- Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The analysis of documentation, interviews and site visit allowed the assessment of the following processes and assumptions (including QA/QC related issues):

Electricity exported to and imported from the grid was verified to be continuously monitored. The quantity of electricity exported to the grid and imported from the grid during this monitoring period have been cross-checked against the ETNs /17/. The net electricity supplied to the grid is the difference between the electricity exported to and imported from the grid by the project activity. The emission reductions generated by the project activity during this monitoring period are equal to the amount of net electricity supplied to the grid multiplied by the grid emission factor (0.9293 tCO₂e/MWh) determined ex-ante in the registered PDD /2/.

3.5 Resolution of Any Material Discrepancy

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 participants.

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.

A forward action request (FAR) is issued for actions if the monitoring and reporting require attention and/or adjustment for the next monitoring period.

Three CLs were raised in this verification under the Verified Carbon Standard (VCS) version 3.2 and have been adequately addressed by the project participants by revising the VER/VCU monitoring report (refer to Appendix A) and provide further supporting evidences. No corrective action request (CAR) and forward action request (FAR) have been identified. DNV was able to verify that the GHG emission reductions reported for the “Gansu Guazhou Beidaqiao Wind Power Project” in the VER/VCU monitoring report version 2.0 dated 11 June 2012 are fairly stated /1/.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

As part of the site visit DNV was able to confirm that the project implementation is in accordance with the project description contained in registered CDM PDD of 9 September 2010, and that the monitoring has been carried out in accordance with the monitoring plan contained in the registered CDM PDD of 9 September 2010.

The project is a wind farm plant developed by Longyuan (Jiuquan) Wind Power Co., Ltd.. The total installed capacity of the project is 201 MW, consisting of 134 sets of turbines with rated capacity of 1.5 MW each (type: SL1500/82) /12/. The details of the turbines with respect to their numbers, type and capacity have been verified to be consistent with the details provided in the registered CDM PDD /2/ through the physical observation at project site and reviewing the turbine purchase agreement /12/.

The project intends to reduce GHG emissions by generating electricity from a newly built wind power project to supply the electricity to the NWPG through the 330 kV step-up substation. The electricity generated is supplied to the NWPG (which is dominated by coal-fired power plants) under the on-grid power dispatching agreement signed between Longyuan (Jiuquan) Wind Power Co., Ltd. and Northwest Power Grid Co., Ltd. /7/. The electricity with voltage level of 690 V generated by the wind turbines is boosted to 35 kV through the on-site 35 kV box transformers equipped with for each turbine; the electricity with voltage of 35 kV is boosted to 330 kV by the on-site 330 kV step-up substation by which electricity generated by the project is finally supplied to the grid.

While the project activity is the installation of a newly grid-connected wind power plant, the project reduces GHG emissions by displacing equivalent electricity that would have been generated in the existing fossil fuel fired power plants or by the addition of new generation in the grid. The project's emission reductions are determined by multiplying the quantity of net electricity supplied by the project ($EG_{\text{facility},y}$) with an ex-ante fixed grid emission factor ($EF_{\text{grid,CM},y}$) of 0.9293 tCO₂e/MWh.

The CDM baseline and monitoring methodology applied is ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 12.1.0) /24/.

The monitoring procedures of electricity supplied to the grid were verified during the site visit and considered adequate. The calibrations of the electricity meters, M1 and M2 installed at the two loops of 35 kV power collection line connected to the inlet of the 330 kV step-up substation, were carried out and assured by Electric Energy Metering Testing Center of Gansu Province Electric Power Co., Ltd. /22/. The qualification of the entity performing the calibration was verified against the accreditation certificate from Bureau of Quality and Technical Supervision of Gansu Province /21/.

The control system at the wind power plant is automated and assures continuous operation due to the availability of wind resource.

4.1.1 Project Implementation in accordance with the registered project design document

DNV verified that the project is fully implemented according to the description in the registered CDM PDD /2/. The verification team confirmed through visual inspection and document review that all physical features of the proposed CDM project activity including data collection systems and storage systems have been implemented in accordance with the registered CDM PDD. The project is completely operational which was confirmed by means of the on-site visit. Neither a notification nor approval of change has been requested to the CDM Executive Board.

The emissions reductions reported in this monitoring period are 110 255 tonnes of CO₂ equivalents in the period 22 January 2011 to 4 July 2011 (i.e. 164 days). The yearly expected emission reductions in the registered PDD are 446 721 tonnes of CO₂ equivalents, which corresponds to the emission reductions of 200 718 tonnes of CO₂ equivalents in 164 days, and hence the reported emission reductions are 45% lower than expected. The decrease of the emission reductions in this monitoring period was assessed by DNV in the following section 4.4.

4.1.2 Compliance of monitoring plan with monitoring methodology

DNV is able to confirm that the monitoring plan contained in the registered CDM PDD of 9 September 2010 /2/ is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 (Version 12.1.0) /24/. Neither a revision nor a deviation to the monitoring plan has been requested to CDM Executive Board.

According to the monitoring plan of the registered CDM PDD /2/, there is one parameter to be monitored: EG_{facility,y}, the quantity of net electricity generation supplied by the project plant/unit to the grid in year y.

The following table is related to the parameter stipulated in the monitoring plan / methodology:

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	quantity of net electricity generation supplied by the project plant/unit to the grid NWPG in year y (EG _{facility,y});
Measuring frequency:	Continuously measured
Reporting frequency:	Monthly recorded and reported
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Bi-directional electricity meters: The readings of meters (M1 and M2) were used by the grid company and project owner to measure the electricity exported to the grid and imported from the grid.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	The accuracy level of meters (M1 and M2) is 0.2S, which is in line with the accuracy degree no less than 0.5S specified in the monitoring plan of the registered CDM PDD /2/ .
Calibration frequency /interval:	Once a year
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval once a year was in line with the monitoring plan of the registered CDM PDD /2/.
Company performing the calibration:	The certificate of Metrological Authorization for calibrator (Electric Energy Metering Testing Center of Gansu Province Electric Power Co., Ltd.) was accredited by Bureau of Quality and Technical Supervision of Gansu Province on 5 January 2006 (with validity up to 4 January 2011) /21/, which has been verified by DNV.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is (are) calibration(s) valid for the whole reporting period? If the calibration does not cover the whole period please indicated how the project has revised its GHG calculations for the period that calibration was not valid.	Yes. The calibrations for the electric meters (M1 and M2) were conducted by the third party on 26 July 2010 with a validity period of one year /22/. Thus, the calibration of each meter covers a validity period from 26 July 2010 to 25 July 2011. DNV was able to confirm that the calibrations are valid for the whole reporting period from 22 January 2011 to 4 July 2011.
If applicable, has the reported data been cross-	Yes. The reported data has been cross-checked with

checked with other available data?	ETNs. Exported electricity of 118 861.75 MWh and imported electricity of 216.125 MWh during this monitoring period are indicated in the ETNs. These values are in line with the data reported in the MR.
How were the values in the VER/VCU monitoring report verified?	As per the registered CDM PDD /2/, the exported electricity and imported electricity are measured by the meters M1 and M2 at the project site. The net electricity is determined by the electricity exported to the grid minus the electricity imported from the grid, which is the basis for the calculation of the emission reduction. The input data for the electricity exported and imported by the project in the ER calculation spreadsheet /6/ were taken from original daily and monthly monitoring records /16/, and cross-checked against the ETNs for monthly electricity exported and imported by the proposed project /17/. DNV verified that the values of the exported and imported electricity during this monitoring period are consistent /6/ /16/ /17/. All original daily and monthly monitoring records /16/, ETNs for monthly electricity exported and imported by the proposed project /17/ have been verified by DNV on the project site during the verification site visit. DNV was able to confirm the calculating process and the conclusion is transparent and correct.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	In order to monitor the net electricity supplied by the project to the NWPG, the meters, M1 and M2, with the accuracy level of 0.2s, was installed at the two loops of 35 kV power collection line connected to the inlet of the on-site 330 kV step-up substation. The meters (M1 and M2) were continuously monitored and monthly recorded by the staff on duty. On cut-off time at 24:00 of the third last day of every month, the project owner and the grid company jointly read the meters M1 and M2. After the readings were confirmed by both sides the grid company issued the ETNs for monthly electricity exported to the grid and imported from the grid by the project /17/. During the site visit, the original daily and monthly monitoring records during the monitoring period /16/ have been cross-checked by DNV with ETNs for monthly electricity exported and imported by the project /17/. DNV was able to confirm that the values of electricity exports and imports are consistent between the original daily and monthly monitoring records /16/, and the ETNs for monthly electricity exported to the grid and imported from the grid by the project /17/. The meters are jointly inspected and sealed on behalf of the parties and are not interfered with by either party except in the presence of the other party or its accredited representatives. All relevant documents and records are stored electronically and will keep for two years after the end of the CDM crediting period. The management system for the CDM project was in place, which has been verified during the site visit. In order to make the monitoring system more efficient,

	before operation of this project, the project owner introduced the CDM Monitoring and management procedure /14/. In the procedure, the organization structure with the responsibilities, personnel competencies, monitoring procedure, calculation procedure and QA/QC procedure have been properly identified By interviewing with some staff /32/ /33/ on site and checking of VER/VCU monitoring reports /1/, training records /13/ and CDM monitoring and management procedure /14/, DNV was able to confirm that the monitoring management system is implemented in compliance with the registered CDM PDD.
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	A complete set of data is available in this monitoring period.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

DNV assessed the different areas that can affect the final emission reduction calculations. All the possible factors were assessed thoroughly to check the accuracy of calculations:

- Electricity generation readings:* The bidirectional electricity meters (M1 and M2), which measure the electricity supplied to and imported from the grid by the proposed project, are installed at the two loops of 35 kV power collection line connected to the inlet of the on-site 330 kV step-up substation. Calibration reports of the installed meters have been verified by DNV on site visit.
- Date Recording:* The original meter readings were recorded at 24:00 on the third last day of every month.
- Grid emission factor:* The emission factor is determined *ex-ante* as 0.9293 tCO₂e/MWh in the registered CDM PDD /2/.

Based on the above discussion, it is DNV's opinion that for the current verification period (22 January 2011 to 4 July 2011), the project developer has taken sufficient steps to ensure the accuracy of reported emission reductions.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

The emission reductions for this project are determined by the grid emission factor multiplied by the net electricity delivered to the grid. The emission factor was fixed for the first 7 years renewable CDM crediting period from 5 July 2011 to 4 July 2018 as per the registered PDD /2/, which also can be applicable to this monitoring period, therefore, the only parameter to be monitored for this project is the net electricity delivered to the grid.

The emission reductions ER_y by the project activity during the crediting period are the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y), as follows:

- Baseline emissions:* Baseline emissions (BE_y in t CO₂e) are the product of the baseline emission factor ($EF_{grid,CM,y}$ in tCO₂e/MWh) times the net electricity supplied by the project activity to the grid ($EG_{facility,y}$ in MWh, calculated as difference of export-import to/from the grid).
- Project emissions:* The project emissions are regarded as zero as per the applied methodology since the project is a greenfield wind power project.
- Leakage:* No leakage has to be considered for the proposed project activity as per the applied methodology.
- Emission reductions:* $ER_y = BE_y - PE_y - L_y = BE_y$.

The combined margin of 0.9293 tCO₂e/MWh is calculated according to the baseline methodology ACM0002 (Version 12.1.0) /24/.

The total exported electricity to the grid ($EG_{\text{export},y}$) has been verified to be 118 861.75 MWh and the total imported electricity from the grid ($EG_{\text{import},y}$) by the project has been verified to be 216.125 MWh in this monitoring period. The net electricity supplied to the grid ($EG_{\text{facility},y}$) by the project is calculated to be 118 645.63 MWh in this monitoring period. Therefore, the emission reductions during the monitoring period are calculated as:

$$ER_y = BE_y = EF_{\text{grid, CM},y} * EG_{\text{facility},y} = 0.9293 \text{ tCO}_2\text{e/MWh} * 118\ 645.63 \text{ MWh} = 110\ 255 \text{ tCO}_2\text{e}$$

Thus the claimed emission reductions of 110 255 tCO₂e during the reported monitoring period was verified by reviewing the presented relevant documents /16/ /17/ /18/.

The net electricity supplied to the grid and emission reductions claimed for the proposed period were as shown in the following table:

Period	Exported electricity to the grid $EG_{\text{export},y}$ (MWh)			Imported electricity from the grid $EG_{\text{import},y}$ (MWh)		
	Values from ETNs /17/	Values from monthly records /16/	Verified	Values from ETNs /17/	Values from monthly records /16/	Verified
	A	B	C=Min(A, B)	D	E	F=Max(D, E)
22 January 2011 – 29 January 2011	9 090.38	9 090.38	9 090.38	63	63	63
30 January 2011 – 26 February 2011	12 412.75	12 412.75	12 412.75	28.875	28.875	28.875
27 February 2011 – 29 March 2011	25 139.63	25 139.63	25 139.63	34.125	34.125	34.125
30 March 2011 – 28 April 2011	24 087.88	24 087.88	24 087.88	25.375	25.375	25.375
29 April 2011 – 29 May 2011	25 467.75	25 467.75	25 467.75	37.625	37.625	37.625
30 May 2011 – 28 June 2011	18 664.63	18 664.63	18 664.63	24.5	24.5	24.5
29 June 2011 – 4 July 2011	3 998.75	3 998.75	3 998.75	2.625	2.625	2.625
Total	118 861.75	118 861.75	118 861.75	216.125	216.125	216.125

The emissions reductions reported in this monitoring period (i.e. 164 days) are 110 255 tonnes of CO₂e. The yearly expected emission reductions in the registered PDD are 446 721 tonnes of CO₂ equivalents, which corresponds to the emission reductions of 200 718 tonnes of CO₂ equivalents in 164 days, and hence the reported emission reductions are 45% lower than expected. During the site visit interview, the project owner confirmed that the low power generation in this monitoring period was caused by two factors, one is the project did not operate smoothly at the very beginning of its commissioning, another factor is the impact of on-grid power dispatching in this monitoring period. The wind turbines shutdown records were checked by DNV on site. Besides shutdown for routine maintenance, it was found that frequent turbine shutdown due to on-grid dispatching order received from the local power grid happened in this monitoring period. It has been verified that equivalent downtime, around 29.17% of calendar time, for each turbine happened in this monitoring period /18/. Taking into the downtime ratio observed and the turbines usually did not operate at full load due to normal wind fluctuation, therefore, DNV was able to confirm that the power generation and emission reduction achieved by the project activity in this monitoring period was reasonable.

4.4 Management and Operational System

The management system for the project is in place. In order to make the monitoring system more efficient, before operation of this project, the project owner edited the CDM Monitoring and management procedure /14/. In this procedure, the organization structure with the responsibilities, personnel competencies, monitoring procedure and monitoring management have been properly identified. By interviewing with the staff and checking during the site visit, DNV can confirm that the monitoring management system is implemented following the CDM Monitoring and management procedure /14/.

Monitoring and reporting of electricity generation is part of normal operations of Longyuan (Jiuquan) Wind Power Co., Ltd. The quality of meter readings is assured through calibration of electricity meters /22/ and through cross checking of readings between the meter and the ETNs /17/.

5 VERIFICATION CONCLUSION

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions that has been reported for the CDM project activity "Gansu Guazhou Beidaqiao Wind Power Project" (UNFCCC Registration Reference. No. 4832) for the period from 22 January 2011 to 4 July 2011.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project.

It is DNV's responsibility to express an independent verification statement on the reported GHG emission reductions from the project.

DNV conducted the verification on the basis of the CDM monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (Version 12.1.0), the monitoring plan contained in the registered CDM PDD of 9 September 2010 and and the monitoring report version 2.0 dated 11 June 2012. The verification included i) checking whether the provisions of the monitoring methodology ACM0002 (Version 12.1.0) and the monitoring plan in the CDM PDD (version 2.0 dated 9 September 2010) were consistently and appropriately applied and ii) the collection of evidences supporting the reported data.

DNV's verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. DNV planned and performed the verification by obtaining evidence and other information and explanations that DNV considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion, the GHG emissions reduction of the registered CDM project activity "Gansu Guazhou Beidaqiao Wind Power Project" for the period 22 January 2011 to 4 July 2011 are fairly stated in the Monitoring Report version 2.0 dated 11 June 2012.

The GHG emission reductions were correctly calculated on the basis of the approved monitoring methodology of ACM0002 (Version 12.1.0) and the monitoring plan contained in the registered CDM PDD of 9 September 2010.

DNV Climate Change Services AS is able to certify that the emission reductions from the "Gansu Guazhou Beidaqiao Wind Power Project" during the period 22 January 2011 to 4 July 2011 amount to 110 255 tonnes of CO₂ equivalent, detailed as below.

Reporting period: 22 January 2011 to 4 July 2011

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

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	110 255
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	110 255

DNV 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 DNV and the engagement conditions detailed in this report. DNV cannot be held liable by any party for decisions made or not made based on this report.

6 REFERENCES

Documents provided by the Project Participants that relate directly to the GHG components of the project. These have been used as direct sources of evidence for the periodic verification conclusions, and are usually further checked through interviews with key personnel.

- /1/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: VER/VCU Monitoring Report for VCS verification of Gansu Guazhou Beidaqiao Wind Power Project, version 1.0 dated 25 March 2012 and updated version 2.0 dated 11 June 2012.
- /2/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: Registered CDM PDD for Gansu Guazhou Beidaqiao Wind Power Project, version 2.0 dated 9 September 2010.
- /3/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: Financial indicator (IRR) calculation spreadsheet for project activity "Gansu Guazhou Beidaqiao Wind Power Project".
- /4/ DNV Climate Change Services AS: Validation Report of the CDM project, Gansu Guazhou Beidaqiao Wind Power Project, validation Report No.: 2010-1197, version 01 dated 23 May 2011.
- /5/ UNFCCC interface: CDM project information for Gansu Guazhou Beidaqiao Wind Power Project (reference No. 4832). The project was registered on UNFCCC on 5 July 2011 with a renewable crediting period starting from 5 July 2011 to 4 July 2018.
<http://cdm.unfccc.int/Projects/DB/DNV-CUK1305872143.32/view>
- /6/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: Emission Reduction calculation spreadsheet for VCS Gansu Guazhou Beidaqiao Wind Power Project, version 01 dated 10 February 2012 and version 02 dated 11 June 2012.
- /7/ Longyuan (Jiuquan) Wind Power Co., Ltd. and Gansu Province Electric Power Co., Ltd. (on behalf of NWPG): On-grid Power Dispatching Agreement, dated on 27 April 2010.
Longyuan (Jiuquan) Wind Power Co., Ltd. and Northwest Power Grid Co., Ltd. (on behalf of NWPG): On-grid Power Dispatching Agreement (XB2010002), signed on 2 March 2010.
- /8/ Gansu Power Grid Electricity Trade Center: Clarification on accounting date and the meter reading of 4 July 2011 for Gansu Guazhou Beidaqiao Wind Power Project, dated 10 June 2012
- /9/ NDRC (DNA of China): Letter of approval (LoA) for Gansu Guazhou Beidaqiao Wind Power Project (English version Ref. No. 2942), issued in April 2011.
- /10/ NDRC: Baseline emission factor calculation result of China Power Grids, dated 2 July 2009.
- /11/ Gansu Province Electric Power Engineering Consulting Supervision Bright Co., Ltd.: Construction permission for Gansu Guazhou Beidaqiao Wind Power Project, dated 28 November 2009.
- /12/ Longyuan (Jiuquan) Wind Power Co., Ltd. and Sinovel Wind Group Co., Ltd.: Technical agreement of wind turbines purchase contract for project activity Gansu Guazhou Beidaqiao Wind Power Project, dated 28 December 2009.
- /13/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.: Training recordings related to CDM monitoring, dated 10 April 2011.
- /14/ Longyuan (Jiuquan) Wind Power Co., Ltd.: CDM Monitoring and Management Procedure issued on 10 May 2010 and entered into effect on 1 June 2010.
- /15/ Longyuan (Jiuquan) Wind Power Co., Ltd.: Business license (Ref. No.: 620922000002140(1-1), date of establishment on 17 September 2009.
- /16/ Longyuan (Jiuquan) Wind Power Co., Ltd.: Original daily and monthly reading records of electricity exported to the grid and imported from the grid by the project during 22 January 2011 to 4 July 2011.
- /17/ Gansu Power Grid Electricity Trade Center (It belongs to Gansu Province Electric Power Co., Ltd.): ETNs for monthly electricity exported and imported by the project during the period of 22 January 2011 to 4 July 2011.
- /18/ Longyuan (Jiuquan) Wind Power Co., Ltd.: Operation log for project activity "Gansu Guazhou

Beidaqiao Wind Power Project”, during the period of 22 January 2011 to 4 July 2011.

- /19/ Environmental Protection Administration of Gansu Province: Confirmation of GHG related environmental credits of the project activity, dated 11 June 2012
- /20/ Longyuan (Jiuquan) Wind Power Co., Ltd. and Sinovel Wind Group Co., Ltd.: Wind turbine testing report.
- /21/ Bureau of Quality and Technical Supervision of Gansu Province: Accreditation certificate of Electric Energy Metering Testing Center of Inner Mongolia Electric Power Research Institute, Gan FaJi 2006 No. 62055, with validity period from 5 January 2006 to 4 January 2011, issued on 5 January 2006.
- /22/ Electric Energy Metering Testing Center of Gansu Province Power Co., Ltd.: Electric power meter calibration reports,
Report No. QJJL_NAS10/246, for Meter M1 (Serial No. 53034799) calibrated on 26 July 2010 with validity up to 25 July 2011;
Report No. QJJL_NAS10/248, for Meter M2 (Serial No. 57034801) calibrated on 26 July 2010 with validity up to 25 July 2011.

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

- /23/ CDM Executive Board: Validation and Verification Manual, version 1.2, EB 55 Annex 1, dated 30 July 2010.
- /24/ CDM Executive Board: “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002, Version 12.1.0, dated 26 November 2010.
- /25/ CDM Executive Board: Tool to calculate the emission factor for an electricity system, version 2, EB 50 Annex 14.
- /26/ ISAE3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information.
<http://www.ifac.org/IAASB/ProjectHistory.php?ProjID=0104>
- /27/ ISO/FDIS 14064-3 “Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions and employed a risk-based approach.
http://www.iso.org/iso/catalogue/catalogue_tc/catalogue_detail.htm?csnumber=38700
- /28/ Verified Carbon Standard – VCS Standard: VCS version 3.2, dated 1 February 2012.
- /29/ Verified Carbon Standard – VCS Program Guide: version 3.3, dated 1 May 2012.
- /30/ Verified Carbon Standard – VCS Sectoral Scopes, <http://v-c-s.org/node/448>.
- /31/ Verified Carbon Standard: Project Description Template, dated 8 March 2011.

Persons interviewed during the initial verification, or persons who contributed with other information that are not included in the documents listed above.

- /32/ Longyuan (Jiuquan) Wind Power Co., Ltd.:
Mr. Zhang Haitao, Power Plant Manager
Mr. Yang Yong, Safety Officer
Mr. Guo Zhen, Deputy Supervisor
- /33/ Longyuan (Beijing) Carbon Asset Management Technology Co., Ltd.:
Mr. Shi Jin, Project Manager

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APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

CAR ID	Corrective action request	Response by Project Participants	DNV's assessment of response by Project Participants
NA	NA	NA	NA

Clarification requests

CL ID	Clarification request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 1	It is indicated in the MR version 1.0 dated 25 March 2012 that "all the 134 sets of wind turbines started to trial-operate on 16 December 2010 and all wind turbines have been put into full delivery since 1 February 2011". However, it was observed on site visit that there were no meters reading records for the project activity until 23 January 2011. Clarification is sought for the implementation of the project monitoring in parallel with the project operation.	All the 134 sets of wind turbines started to trial-operate on 16 December 2010. During the trial-operation period, the wind turbines didn't exported electricity to the grid. Only after the wind turbines completed operating continuously for 240 hours, the wind turbines should be agreed to connect the grid. Therefore, there is a time interval among three important dates mentioned in CL1.	The wind turbine testing report and project operation log have been verified by DNV. The project started trial operation on 16 December 2010 /20/. The project started exporting electricity to the grid on 22 January 2011 when the first group of wind turbines underwent 240 hours consecutive trail operation /18/. The whole project started exporting electricity to the grid on 1 February 2011 /18/. The emission reduction start date thus is defined to be 22 January 2011. CL 1 is therefore closed.
CL 2	As indicated in the registered CDM PDD, the project participant from Host Party China is Longyuan (Jiuquan) Wind Power Co., Ltd. An entity named "Longyuan (Jiuqian) Wind Power Co., Limited" is seen in the monitoring plan of the registered PDD and the MR version 1.0 dated 25 March 2012. Clarification is sought for the role of the entity "Longyuan (Jiuqian) Wind Power Co., Limited" in the project, and the relationship between this entity and the project owner.	The name of the project participant is Longyuan (Jiuquan) Wind Power Co., Ltd. Other descriptions on the name of the project participant are typo. The relevant sections have been corrected in the MR version 2.0.	The project owner declared that the "Longyuan (Jiuqian) Wind Power Co., Limited" seen in the documents is a typo. It should have been stated "Longyuan (Jiuquan) Wind Power Co., Ltd.", i.e. the name of the project owner. It has been verified during site visit that the management of project operation and the implementation of monitoring were exclusively performed by the project owner with the help of the CDM consultant. CL 2 is therefore closed.

CL ID	Clarification request	Response by Project Participants	DNV's assessment of response by Project Participants
CL 3	It is indicated in the MR version 1.0 dated 25 March 2012 that "according to the requirement of local grid company, the transaction date of electricity exported to/imported from the grid would be recorded on 24:00 of the third last day of every month." Clarification is sought on: 1, the evidence of the requirement of local grid company; 2, the last reading of this monitoring period which is on 4 July 2011.	The clarification letter on the accounting date and the last reading on 4 July 2011 have been issued by the local power grid company. The letter has been as the evidence to provide to DOE.	The Clarification on accounting date and the meter reading of 4 July 2011 for Gansu Guazhou Beidaqiao Wind Power Project issued by Gansu Power Grid Electricity Trade Center on 10 June 2012 has been verified by DNV /8/. The requirement of electricity transaction date and meter reading of the last day of the monitoring period have been fairly clarified by the entity of local grid company. CL 3 is therefore close.

Forward action requests from previous verification

FAR ID	Forward action request	Summary of how FAR has been addressed in this reporting period	Assessment of how FAR has been addressed
N/A	N/A	N/A	N/A

Forward action requests from this verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
N/A	N/A	N/A	N/A

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