

# VERIFICATION REPORT

## GUAZHOU BEIDAQIAO NO.1 WIND FARM PROJECT IN GANSU PROVINCE, CHINA



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**Summary:**

Bureau Veritas Certification has made the Pre-CDM verification of Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China, owned by Hydrochina Guazhou Wind Power Co., Ltd, which is located in Guazhou County, Jiuquan City, Gansu Province, P.R. China, with UNFCCC Reference No. 4254 on the basis of Voluntary Carbon Standard (VCS) Version 3 Program, 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 a periodic 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 (CLs, CARs and FARs).

In summary, Bureau Veritas Certification confirms that the Project is implemented as planned and described in the 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 is ready to reduce GHG emission. 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	Baseline emissions (tCO <sub>2</sub> e)	Project emissions (tCO <sub>2</sub> e)	Leakage emission (tCO <sub>2</sub> e)	Emission Reductions (tCO <sub>2</sub> e)
03/01/2011 to 28/09/2011	309,444	0	0	<b>309,444</b>
<b>Total</b>	309,444	0	0	<b>309,444</b>

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## 1 INTRODUCTION

### 1.1 Objective

Beijing MD Energy Technology Co., Ltd has commissioned Bureau Veritas Certification to verify the emission reductions of the Verified Emission Reduction (VER) of Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China (hereafter referred to as “**the Project**”), which is located in Guazhou County, Jiuquan City, Gansu Province, P.R. China for the period from 03/01/2011 to 28/09/2011, prior to its first CDM crediting period.

Bureau Veritas Certification 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.

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

Certification is the written assurance by a Certification Entity that, during a specific period in time, a project activity achieved the emission reductions as verified. According to the VCS Standard, the Certification Entity is defined as an entity which has been accredited as a DOE by the CDM Executive Board for the particular scope into which the project falls or has been accredited as an approved Certification Entity by the VCS Steering Committee. Bureau Veritas Certification is an accredited DOE for the particular scope into which the Project falls.

The objective of verification is to verify and certify the Verified Carbon Units (VCUs) generated by the Project from 03/01/2011 to 28/09/2011.

VCS Version 3 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 Version 3 requirements, UNFCCC rules and associated interpretations.

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

### 1.3 Level of assurance

The verification report is based on the VCS-PD, the VCS Monitoring Report (MR), CDM-PDD, 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 level of assurance of the Project is high.

#### 1.4 Summary Description of the Project

The Project is owned by Hydrochina Guazhou Wind Power Co., Ltd (hereafter referred to as “**the PP**”) and is located in Guazhou County, Jiuquan City, Gansu Province, P.R. China. The Project consists of 67 sets of SL1500/77 and 67 sets of GW77/1500 wind turbines with a unit capacity of 1500kW, providing a total capacity of 201MW. The annual expected electricity supplied to Northwest China Power Grid (NWPG) is 461,464MWh and the annual estimated emission reductions are 428,829tCO<sub>2</sub>e.

The Project has been registered on 29/09/2011 (UNFCCC ref. No. 4254) under approved CDM methodology ACM0002 Version 12.1.0 “Consolidated methodology for grid-connected electricity generation from renewable sources”. The Project Start Date is 03/01/2011, when the first turbine generator started electricity generation. The crediting period for the Project under the VCS is from 03/01/2011 to 28/09/2011.

Project title:	Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China
UNFCCC Ref number:	4254
CDM Registration Date:	29/09/2011
VCS Monitoring Period:	03/01/2011 to 28/09/2011
Project Participants:	China (host): Hydrochina Guazhou Wind Power Co., Ltd
Methodologies used	ACM0002 Version 12.1.0
Location of the Project:	Guazhou County, Jiuquan City, Gansu Province, P.R. China
Geo coordinates:	longitude 95.8037°E and latitude of 40.6025°N
UNFCCC link:	<a href="http://cdm.unfccc.int/Projects/DB/ERM-CVS1292512044.7/view">http://cdm.unfccc.int/Projects/DB/ERM-CVS1292512044.7/view</a>

## 2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

### 2.1 Validation Process

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The Project Description (VCS-PD)<sup>[7]</sup> and the Monitoring report (VCS-MR)<sup>[9]</sup> submitted by Beijing MD Energy Technology Co., Ltd and additional background documents related to the project design and baseline, i.e. country Law, submitted revised CDM-PDD<sup>[4]</sup>, validation report, Approved methodology, Clarifications on Validation Requirements to be Checked by a certified validation body were reviewed.

Bureau Veritas Certification verified the information contained in the documents reviewed against the requirements set in VCS Standard Version 3.3 effective as the 04/10/2012<sup>[3]</sup> and the Validation and Verification Standard Version 02.0<sup>[2]</sup>, issued by CDM Executive Board at its 65<sup>th</sup> meeting on 25/11/2011.

In addition, on 17/08/2012, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Hydrochina Guazhou Wind Power Co., Ltd and Beijing MD Energy Technology Co., Ltd were interviewed (see References). The main topics of the interviews are summarized in Table 1.

**Table 1** Interview topics

Interviewed organization	Interview topics
Hydrochina Guazhou Wind Power Co., Ltd (The PP)	<ul style="list-style-type: none"> <li>↪ Project background information and CDM consideration.</li> <li>↪ Project technology, operation, maintenance and monitoring capability.</li> <li>↪ Project monitoring and management plan.</li> <li>↪ Stakeholder consultation process.</li> <li>↪ Project approval status (incl. EIA approval, CDM project approval status)</li> <li>↪ Wind power project development in the area</li> <li>↪ Government policies related to wind power projects</li> </ul>
Beijing MD Energy Technology Co., Ltd (The Consultant)	<ul style="list-style-type: none"> <li>↪ Applicability of selected methodology.</li> <li>↪ Baseline determination.</li> <li>↪ Emission reductions calculation.</li> <li>↪ Emission reduction monitoring plan.</li> </ul>

During the validation process no material discrepancies were found and Bureau Veritas Certification did not considered necessary to raise neither corrective actions, nor clarifications nor other findings.

### 2.2 Validation Findings

#### 2.2.1 Gap Validation

According to the VCS standard Version 3.3 for projects validated under the CDM, 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 and a validation/verification body shall undertake a validation of same to provide a gap validation for the project's compliance with the VCS rule.

Bureau Veritas Certification verified the information reported in the VCS-PD version 02 dated 25/10/2012<sup>[7]</sup> against the CDM-PDD<sup>[4]</sup>, CDM validation report<sup>[11]</sup>, Project Host country (China) LoA<sup>[13]</sup>, Turbine commission report<sup>[15]</sup>, Business License of the PP<sup>[12]</sup>, PPA<sup>[14]</sup> and UNFCCC website<sup>[25]</sup> and found consistent. The detailed validation process is documented in the Table below:

Table 1 Criteria of VCS-PD

.CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
<b>1 Project Details</b>			
1.2 Sectoral Scope and Project Type	VCS-PD, CDM-PDD, CDM Validation Report	As a wind power project, the Project falls into the sectoral scope I Energy Industries (renewable sources).  The project is not a grouped project.	OK
1.3 Project Proponent	VCS-PD, CDM-PDD, CDM Validation Report, LoA, UNFCCC website, PPA	The Project owner is Hydrochina Guazhou Wind Power Co., Ltd.	OK
1.5 Project Start Date	VCS-PD, Project implementation log	The project starting date in VCS Version 3.3 is defined as the date when the Project began generating GHG emission reduction or removals.  As per Turbine commission report of the Project, on 03/01/2011 the first turbine generator started electricity generation. As a consequence the Project starting date is 03/01/2011.	OK
1.6 Project Crediting Period and	VCS-PD, Project implementation log, CDM- PDD,	The Project crediting period starting date is 03/01/2011 and the Project was registered as CDM on 29/09/2011.  Since 03/01/2011, the data have been	OK

.CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
	CDM Validation report, UNFCCC website	monitored and collected following the monitoring procedure in the VCS-PD. Therefore, starting date of the crediting period is 03/01/2011. The VCS crediting period is from 03/01/2011 to 28/09/2011, which does not overlap with the CDM crediting period starting from 29/09/2011.	
1.7 Project Scale and Estimated GHG Emission Reductions or Removals	VCS-PD, CDM-PDD, CDM Validation report	The Project is expected to achieve 428,829 tCO <sub>2</sub> e of emission reductions per year. It is thus categorized as 'Project' as per VCS 3.3 definition.	OK
1.9 Project Location	Site visit, VCS-PD, CDM-PDD, CDM Validation report	The project site is located in Guazhou County, Jiuquan City, Gansu Province, P.R. China. The Project coordinates of longitude 95.8037°E and latitude of 40.6025°N have been verified during the onsite visit.	OK
1.10 Conditions Prior to Project Initiation	VCS-PD, CDM-PDD, CDM Validation report	<p>The scenario existing prior to the start of the implementation of the project activity is the Northwest China Power Grid (NWPG), which is dominated by fossil-fuel fired power plant, providing the same electricity service as the Project.</p> <p>The purpose of the proposed project is to generate electricity power and deliver it to NWPG.</p> <p>The implementation of the Project was not to generate GHG emissions primarily for the purpose of its subsequent removal or destruction.</p>	OK
1.12.1 Right of use	FSR, LoAs, PPA, Business license, Approval of the project	Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China is owned by Hydrochina Guazhou Wind Power Co., Ltd. The Letter of Approval (No.3065) issued by National Development and Reform Commission of the P.R. China <sup>[13]</sup> is provided to demonstrate the right of use of the Project.	OK

.CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
		Information has also been verified by checking the FSR <sup>[28]</sup> , LoAs <sup>[13]</sup> , PPA <sup>[14]</sup> , Business license, Approval of the project Business licence <sup>[12]</sup> .	
1.12.2 Emission Trading Programs and Other Binding Limits	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	N.A. to the Project.  The Project has been registered as a CDM project on 29/09/2011. Only GHG emission reductions achieved from 03/01/2011 to 28/09/2011 could be verified as VCUs under the VCS version 3.3.	OK
1.12.3 Participation under Other GHG Programs	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	The Project has been registered as a CDM project (UNFCCC Reference No.4254) on 29/09/2011.  Only GHG emission reductions achieved from 03/01/2011 to 28/09/2011 could be verified as VCUs under the VCS Version 3.3 program.	OK
1.12.4 Other Forms of Environmental Credit	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.  The Project only will generate CER from 29/09/2011 on.	OK
1.13 Additional Information Relevant to the Project  -Eligibility Criteria -Leakage Management -Commercially Sensitive Information -Further Information	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	<ul style="list-style-type: none"> <li>- It is not a grouped project;</li> <li>- Leakage is 0;</li> <li>- No commercial sensitive information has been excluded to the public</li> <li>- There is not any additional relevant legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net GHG emission reductions or</li> </ul>	OK

.CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
		removals, or the quantification of the project's net GHG emission reductions or removals	

### 2.2.2 Methodology Deviations

No methodology deviation has been applied to the Project

### 2.2.3 Project Description Deviations

The accuracy level of the backup meter installed in the backup line to the project activity in the registered CDM PDD is not consistent with the actual situation. The revised PDD has been submitted and the change would not result in increase of emission reductions.

### 2.2.4 New Project Activity Instances

Not applicable since Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China is not a grouped project.

## 2.3 Validation Conclusion

In Bureau Veritas Certification's opinion the Project conforms to the relevant criteria of VCS Standard Version 3.3.

### 3 VERIFICATION PROCESS

#### 3.1 Method and Criteria

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

The Project was verified against the requirements set in VCS Standard Version 3.3 effective as the 04/10/2012<sup>[3]</sup> and the Clean Development Mechanism Validation and Verification Standard<sup>[2]</sup>, issued by CDM Executive Board at its 65<sup>th</sup> meeting on 25/11/2011.

#### 3.2 Document Review

The verification of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report (MR) version 02 dated 30/11/2012 and VCS-PD version 02 dated 25/10/2012 submitted to the Bureau Veritas Certification. Qualitative information comprises information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.

In addition to the monitoring documentation provided by the project participants, Bureau Veritas Certification reviews:

- a) The PD of the Project, the submitted revised CDM-PDD, including the monitoring plan and the corresponding validation report<sup>[4]</sup><sup>[11]</sup>;
- b) The applied monitoring methodology<sup>[1]</sup>;
- c) The CDM-MR and Verification for the 1<sup>st</sup> monitoring period of CDM<sup>[5]</sup>
- d) Other information and references relevant to the project activity's resulting emission reductions (e.g. national regulations)<sup>[20]</sup><sup>[21]</sup>.

#### 3.3 Interviews

On 17/08/2012, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review.

Representatives of Beijing MD Energy Technology Co., Ltd and Hydrochina Guazhou Wind Power Co., Ltd were interviewed (see References).

Interviewed organization	Interview topics
Hydrochina Guazhou Wind Power Co., Ltd (the Project Owner)	<ul style="list-style-type: none"> <li>↪ Project Design and implementation</li> <li>↪ Technical equipment, calibration and operation</li> <li>↪ Monitoring Plan and management procedures</li> <li>↪ Monitoring data</li> <li>↪ Data uncertainty and residual risks (QA/QC)</li> <li>↪ GHG Calculation</li> </ul>

	↪ Environmental Impacts
	↪ Compliance with National Laws and Regulations
Beijing MD Energy Technology Co., Ltd (the Consultant)	↪ Monitoring Plan
	↪ Monitored data and Monitoring Report
	↪ GHG Calculations

### 3.4 Site Inspections

Please refer to section 3.3 above.

### 3.5 Resolution of Any Material Discrepancy

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

Findings established during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, where:

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

Forward Action Requests (FARs) are issued, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

The verification team may also use the term Clarification Requests (CLs), if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

To guarantee the transparency of the verification process, the issues raised are documented in more details below.

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

Bureau Veritas Certification has performed an on-site visit and found that the Project has been put into operation and the electricity generated is supplied to NWPG according to the signed Power Purchase Agreement (PPA)<sup>[14]</sup>. 67 sets of SL1500/77 and 67 sets of GW77/1500 wind turbines with a unit capacity of 1500kW, providing a total capacity of 201MW as described in the submitted revised CDM PDD have been in operation.

According to the Turbine commission report of the Project<sup>[15]</sup>, the first wind turbine has been commissioning since 03/01/2011 and the data have been monitored and collected following the monitoring procedure of the VCS-PD. Therefore, starting date of the crediting period is 03/01/2011.

Information provided in the monitoring report is in accordance with that stated in the VCS-PD and revised CDM-PDD. Further analysis of monitored parameters as reported in the monitoring report compared to those estimated in the revised CDM-PDD is developed in section 4.2 of this report.

#### [Power System]

As shown in the diagram of the power connection system<sup>[16]</sup>, the electricity generated by generators is stepped up by the on-site 690V/35kV transformers, then transmitted to the 35kV/330kV West Beidaqiao Substation of NWPG via a 35kV transmission line. Finally, the electricity is transmitted to the 330kV/750kV Anxi Substation of the NWPG. And there is a backup line connected the Project to the grid. The power system of the Project is consistent with the description in the submitted revised CDM PDD.

#### [Metering System]

There are three electricity meters installed for the Project in accordance with the submitted revised CDM PDD and the Power Purchase Agreement<sup>[14]</sup> signed with the grid company.

The main electricity meter ( $M_{11}$ ) and the backup electricity meter ( $M_{21}$ ) with accuracy level of 0.2S are installed at the 330kV West Beidaqiao Substation; these two electricity meters monitor the electricity supplied to the grid and the electricity imported from the grid by the Project from the 35kV line; and the electricity meter  $M_{21}$  is installed at the project site with accuracy level 1.0, this meter  $M_{21}$  monitors the electricity imported from the grid via backup line.

### 4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Monitoring has been carried out in accordance with the monitoring plan contained in the VCS-PD<sup>[7]</sup> and the submitted revised CDM-PDD<sup>[4]</sup>.

#### [Parameters and information flow]

The parameters required by the monitoring plan and the way Bureau Veritas Certification has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the monitoring reports are described below:

#### **Parameters monitored:**

- 1)  $EG_{\text{facility},y}$  is the net electricity supplied to the grid by the Project;
- 2)  $EG_{\text{export},y}$  is the electricity supplied by the project activity to the grid;
- 3)  $EG_{\text{import}1,y}$  is the electricity imported from the grid through the 35kV line to the project activity;
- 4)  $EG_{\text{import}2,y}$  is Electricity imported from the grid through the backup line to the project;

The net electricity supplied to the NWPG by the Project is the electricity supplied to the grid by the Project minus the electricity imported from the grid via the 35kV line and from the backup line. According to the submitted revised PDD, the  $EG_{\text{facility},y}$  can be calculated as below:

$$EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import}1,y} - EG_{\text{import}2,y} \times (1+0.5\%)$$

As described above, the meters have been installed in accordance with the submitted revised PDD. The verification team has checked on-site the location of the meters against the diagram of power connection system and found them to be consistent.

The readings of the main meter at the West Beidaqiao Substation are continuously measured and monthly recorded by the PP and the grid company. The cut-off time for recording exporting electricity is 24:00 o'clock of the second day backwards every month, the cut-off time for recording the electricity imported from the grid via the 35kV line is usually 24:00 o'clock of the 19th of every month, and the cut-off time for the electricity imported via the backup line is usually 24:00 o'clock of the 18th of every month; the cut-off time is also depending on the convenience of the grid company. After confirming the monthly reading records (MRRs) of the main meters, the electricity sales receipts are issued every month, which is in accordance with the signed PPA[14]. Besides that, the grid company provided special sales receipts for the first and the last month of this monitoring period<sup>[22][23]</sup>. According to the monitoring plan contained in the submitted revised CDM PDD, the data of parameters above would be double-checked with the electricity sales receipts.

The verification team has verified the values provided in the monitoring report and ER spreadsheet against the relevant documented evidences i.e. the monthly reading records (MRRs)<sup>[22]</sup> and the sale receipts<sup>[23]</sup> and found them to be consistent with the evidences. The MRRs and the sale receipts can cover this monitoring period from 03/01/2011 to 28/09/2011.

**Parameters determined ex-ante:**

- 1)  $EF_{\text{grid,CM},y}$ , emission factor of the grid

The emission factor of the 1<sup>st</sup> crediting period of the Project has been determined ex-ante in the submitted revised CDM PDD. The emission factor used in the monitoring report has been verified against the revised CDM PDD and found them to be consistent.

**[Calibration]**

During this monitoring period, the installed metering equipments have been operating well and were duly calibrated. The calibration records are shown in Table 2 below.

Table 2 The calibration records of the meters

Meter ID	SN	Accuracy Class	Calibration date	Validity	Calibration entity
M11	57036843	0.2S	11/10/2010	Yes	A
			24/03/2011		
M12	57036839	0.2S	11/10/2010	Yes	A
			24/03/2011		
M21	1000759046	1.0	17/02/2012	Yes	A
			06/09/2010		

Calibration entity A: Electric Energy Measurement Center, Gansu Electric Power Corporation with certificate Code (Gan) Faji (2011) No. 62055) with valid period from 26/01/2011 to 25/01/2016.

The monitoring plan contained in the submitted revised PDD requires that the accuracy of the electricity meter M11 and M12 is 0.2S, the accuracy of the electricity meter M21 is 1.0; and meters should be calibrated no less than once per year.

The verification team has verified the calibration records and the accreditation certificate of the calibration entity. All the meters meet the rated accuracy level as described in the monitoring plan and are in compliance with the industry standard Technical Administrative Code of Electric Energy Metering (DL/T 448-2000)<sup>[20]</sup>. The calibration frequency fulfils the requirement as described in the monitoring plan and is in compliance with the national standard Verification Regulation of Electrical Energy Meter with Electronics (JJG 596-1999)<sup>[21]</sup>.

### 4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

A complete set of data for the specified monitoring period is available.

The critical parameter used for the determination of the Emission Reductions is the net electricity supplied to the grid by the Project. The data pertaining to the above parameter are maintained in the identified records. All the data are in compliance with that stated in the Monitoring Report version 02.

As per the methodology ACM0002 Version 12.1.0<sup>[1]</sup> and the VCS-PD<sup>[7]</sup>, the emission reductions for the Project are calculated as the baseline emissions minus the project emissions. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y - PE_y$$

Where,

ER<sub>y</sub>: Emission reductions

BE<sub>y</sub>: Baseline emissions

PE<sub>y</sub>: Project emissions

#### [Baseline emissions]

The baseline emissions are the baseline emission reductions factor times the net electricity supplied to the grid. Therefore,

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

$EF_{grid,CM,y}$ : GHG emission factor of the Northwest China Power Grid (NWPB), calculated ex-ante in the submitted revised PDD as 0.92928tCO<sub>2</sub>e/MWh.

$EG_{facility,y}$ : Net electricity supplied to the grid

The net electricity supplied to the grid ( $EG_{facility,y}$ ) can be calculated as:

$$EG_{facility,y} = EG_{export,y} - EG_{import1,y} - EG_{import2,y} \times (1+0.5\%)$$

The verification team has cross-checked the values from the MRRs <sup>[22]</sup> with the ETNs <sup>[23]</sup> for the period from 03/01/2011 to 28/09/2011 and found them fully consistent. The verified values are shown in the following Table 2 to Table 4.

Table 2 Electricity supplied to the grid by the Project  $EG_{export,y}$  (MWh)

Period		Receipts	MRR	Verified $EG_{export,y}$
From	To	A	B	C=Min(A,B)
04/01/2011*	29/01/2011	22,867.68	22,867.68	22,867.68
30/01/2011	26/02/2011	41,540.40	41,540.40	41,540.40
27/02/2011	29/03/2011	47,168.88	47,168.88	47,168.88
30/03/2011	28/04/2011**	115,201.68	115,201.68	115,201.68
29/04/2011	29/05/2011			
30/05/2011	28/06/2011			
29/06/2011	29/07/2011	33,607.20	33,607.20	33,607.20
30/07/2011	29/08/2011	37,369.20	37,369.20	37,369.20
30/08/2011	28/09/2011	36,302.64	36,302.64	36,302.64
Total		/	/	334,057.68

\* The electricity sales receipts did not include the electricity generated on 03/01/2011, but the electricity imported from the grid on that day was counted in the calculation of emission reductions, this is conservative.

\*\* On 28/04/2011, the grid company read the meter a few minutes after the PP. On 29/05/2011 and 28/06/2011, both the grid company and the PP read the meter at the same time, the total electricity of the receipts for these three months equal to the total electricity in the meter readings from 30/03/2011 to 28/06/2011. Please refer to the ER calculation sheet for detail.

Table 3 Electricity imported from the grid via 35kV line by the Project  $EG_{import1,y}$  (MWh)

Period		Receipts	MRR	Verified $EG_{import1,y}$
From	To	D	E	F=Max(D,E)
03/01/2011*	20/04/2011	438.24	438.24	438.24
21/04/2011	20/05/2011	47.52	47.52	47.52
21/05/2011	20/06/2011	89.76	89.76	89.76
21/06/2011	20/07/2011	87.12	87.12	87.12
21/07/2011	20/08/2011	87.12	87.12	87.12
21/08/2011	20/09/2011	73.92	73.92	73.92
21/09/2011	19/10/2011**	187.44	187.44	187.44
Total		/	/	1,011.12

\*For the first four months, the grid company only issued one receipts to the PP, therefore, the sum of electricity in the first four months in the monthly records are used for crosscheck for this monitoring period.

\*\* For the month from 21/09/2011 to 19/10/2011, since the grid issued the receipts for the whole month and it's hard to separate the electricity for the VCS crediting period, the electricity imported from the grid in the whole month was used in the calculation of ER, this is conservative.

Table 4 Electricity imported from the grid via the backup line  $EG_{import2,y}$  (MWh)

Period		Receipts	MRR	Verified $EG_{import2,y}$
From	To	G	H	I=Max(G,H)
03/01/2011	27/01/2011	38.4484*	34.9734	38.4484
28/01/2011	16/02/2011	1.0742	0.3702	1.0742
17/02/2011	16/03/2011	0.9878	0.2898	0.9878
17/03/2011	18/04/2011	4.4590	3.5340	4.4590
19/04/2011	17/05/2011	1.3882	0.6642	1.3882
18/05/2011	18/06/2011	2.8568	2.0358	2.8568
19/06/2011	18/07/2011	0.8290	0.1410	0.8290
19/07/2011	18/08/2011	0.7550	0.0720	0.7550
19/08/2011	18/09/2011	0.7420	0.0600	0.7420
20/09/2011	19/10/2011	0.7204	0.0324	0.7204
Total		/	/	52.2608

\* The grid company adds electricity transmission losses in the receipts, i.e. the readings of receipts include both the electricity imported from the grid and the transmission losses, therefore the values are higher than the meter readings; the conservative values have been used in the emission reductions calculation.

According to the submitted revised PDD, the net electricity supplied to the Project in this monitoring period is:

$$EG_{facility,y} = 334,057.68 - 1,011.12 - 52.2608 \times (1+0.5\%) = 332,994.0379\text{MWh}$$

The baseline emissions in this reporting period are:

$$BE_y = EG_{facility,y} \times EF_{grid,CM,y} = 332,994.0379\text{MWh} \times 0.92928\text{tCO}_2\text{e/MWh} = 309,444\text{tCO}_2\text{e}$$

**[Project emissions]**

The Project is a newly built wind project, thus according to the methodology ACM0002 version 12.1 and the submitted revised PDD, the project emissions are zero.

**[Leakage emissions]**

No leakage needs to be considered according to ACM0002 Version 12.1.0.

**[Emission reductions]**

Therefore, the emission reductions during the monitoring period from 03/01/2011 to 28/09/2011 are calculated as:

Monitoring Period	$BE_y$ (tCO <sub>2</sub> e)	$PE_y$ (tCO <sub>2</sub> e)	$LE_y$ (tCO <sub>2</sub> e)	Emission reductions (tCO <sub>2</sub> e)
03/01/2011 to 28/09/2011	309,444	0	0	309,444

As per ex-ante calculation of the registered CDM-PDD, the average of annual emission reductions is

428,829 tCO<sub>2</sub>e. The estimated ERs during this period are 316,041tCO<sub>2</sub>e (=428,829\*269/365), whereas the actual emission reduction accomplished by the project during this verification period is 309,444 tCO<sub>2</sub>e. Comparing with the estimated ERs, the actual ERs were lower than estimation.

#### **4.4 Management and Operational System**

The data reporting procedure between the Project and the grid company has been identified and assessed during the on-site visit. In order to ensure the completeness of the records of the meters, the PP had taken the effective actions including the installation, adjustment, calibration and continual monitoring for the meters.

The PP has operated the Project as per VCS-PD and the submitted revised CDM-PDD. The monitoring organization has been set up, all monitoring staffs have been trained and quality control procedures are in place <sup>[26][27]</sup>. Reading records of all meters are based on continuous measurement and are monthly recorded by the PP and the grid company. The grid company issues monthly sales receipts to confirm the net electricity supplied to the grid.

## 5 VERIFICATION CONCLUSION

Bureau Veritas Certification has performed the verification of Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China, CDM Registration Reference Number 4254, owned by Hydrochina Guazhou Wind Power Co., Ltd, which is located in Guazhou County, Jiuquan City, Gansu Province, P.R. China, and applying the methodology ACM0002 Version 12.1.0. The verification was performed based on the requirements set by VCS Standard Version 3.3 effective as the 04/10/2012, UNFCCC criteria for the CDM and relevant guidance provided by CMP and the CDM Executive Board.

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 and onsite visit; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of Hydrochina Guazhou 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 project Monitoring Plan in the submitted revised PDD. 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.

Bureau Veritas Certification has verified the project Monitoring Report version 02 dated 30/11/2012 for the reporting period as indicated below. Bureau Veritas Certification confirms that the Project is implemented as described in validated and submitted revised project design documents. Installed equipments being essential for generating emission reductions run reliably and are calibrated appropriately. The monitoring system is in place and the Project is generating GHG emission reductions. The Project also conforms with the verification criteria for projects and their GHG emission reductions or removals set out in the VCS rules.

Bureau Veritas Certification can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emission and resulting GHG emission reductions reported and related to the validated and submitted revised project baseline, monitoring plan and its 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 following statement:

Reporting period : 03/01/2011 to 28/09/2011

GHG Emission Reductions or Removals (tCO <sub>2</sub> e)	2011	Total
Baseline Emissions	309,444	309,444
Project Emissions	0	<b>0</b>
Leakage	0	<b>0</b>
<b>Net GHG emission reductions or removals</b>	<b>309,444</b>	<b>309,444</b>

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**Persons interviewed:**

HydroChina Guazhou Wind Power Co., Ltd.	
Mr. Chen Dengping	General Manager
Ms. Yang Jing	Vice General Manager
Mr. Cheng Hong	Chairman of General Department
Mr. Yang Fulin	Operation Supervisor
Beijing MD Energy Technology Co., Ltd.	
Dr. Zhao Ruihong	General Manager
Ms. Lai Xiaochao	Project Manager

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