



VERIFICATION REPORT BEIJING GUOTOU ENERGY CONSERVATION COMPANY (BJGT)

VERIFICATION OF THE ZHANGBEI MANJING WINDFARM PROJECT

REPORT No.BVC/CHINA-VR/8781/2013

REVISION No.01

BUREAU VERITAS CERTIFICATION

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VERIFICATION REPORT

Date of first issue: 13/02/2013	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Beijing Guotou Energy Conservation Company (BJGT)	Client ref.: Mr. Yao Xi

Summary:

Bureau Veritas Certification has conducted the 9th periodic verification of Zhangbei Manjing Windfarm Project, CDM Registration Reference Number 0233, owned by Beijing Guotou Energy Conservation Company (BJGT), which is located in Zhangbei County, Zhangjiakou City, Hebei Province, P.R.China, and applying the methodology AM0005 Version 01, on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions, and consisted of the following three phases: i) desk review of the project design, the baseline and monitoring plan; ii) follow-up 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.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in the validated and registered project design documents. Installed equipments being essential for generating emission reduction run reliably and are calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reductions are calculated without material misstatements, and the emission reductions verified totalize 24,765 tons of CO₂e for the monitoring period.

Our opinion relates to the projects' GHG emissions and resulting GHG emission reductions reported and related to the valid and registered project baseline, approved revised monitoring plan and its associated documents.

Reporting period:	01/09/2012 - 31/12/2012
Baseline emissions:	24,765 t CO ₂ equivalents.
Project emissions:	0 t CO ₂ equivalents.
Leakage emissions:	0 t CO ₂ equivalents.
Emission Reductions:	24,765 t CO ₂ equivalents.

Report No.: BVC-China/VR8781/2013	Subject Group: CDM
Project title: Zhangbei Manjing Windfarm Project	
Work carried out by: Ms. Zhang Chen - Team Leader	
Internal Technical Review carried out by: Ms. Li Yiting	
Date of this revision: 27/02/2013	Rev. No.: 01
Number of pages: 44	

Indexing terms

Work approved by:

Matthieu Martini

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
FAR	Forward Action Request
GHG	Green House Gas(es)
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
MRR	Monthly Reading Record
NCPG	North China Power Grid
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
WTG	Wind Turbine Generator



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1. INTRODUCTION

Beijing Guotou Energy Conservation Company (BJGT) has commissioned Bureau Veritas Certification to verify the emissions reductions of its CDM project Zhangbei Manjing Windfarm Project (hereafter called “**the Project**”) at Zhangbei County, Zhangjiakou City, Hebei Province, P.R.China.

This report summarizes the findings of the verification of the Project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1. Objective

The objective of CDM verification is to conduct a thorough, independent assessment of the registered project activities.

In carrying out its verification work, the DOE shall ensure that the project activity complies with the requirements of paragraph 62 of the CDM modalities and procedures. In particular, this assessment shall:

- (a) Ensure that the project activity has been implemented and operated as per the registered PDD, and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- (b) Ensure that the monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of CERs, verifiable, and in accordance with applicable CDM requirements;
- (c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan, and the approved methodology including applicable tool(s);
- (d) Evaluate the data recorded and stored as per the monitoring methodology including applicable tool(s).

1.2. Scope

The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions. The verification is based on the validated and registered project design document, the monitoring report, emission reduction calculation spreadsheet, and supporting documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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



1.3. GHG Project Description

The Project consists of 30 sets of Wind Turbine Generators (WTGs) with a unit installed capacity of 1.5 MW, providing a total installed capacity of 45MW. The annual expected electricity supplied to North China Power Grid (NCPG) is 108,000MWh and the annual estimated emission reductions are 97,848 tCO₂e.

Project title: Zhangbei Manjing Windfarm Project
 UNFCCC ref number: 0233
 Registration Date: 23/03/2006
 Crediting Period: 01/01/2006 - 31/12/2012 (renewable)
 Monitoring Period: 01/09/2012 - 31/12/2012
 Project Participants: Beijing Guotou Energy Conservation Company (BJGT) (Host Party: P.R.China)
 First Carbon Fund Ltd (Other Party: United Kingdom of Great Britain and Northern Ireland)
 Vitol S.A. (Other Party: Switzerland)
 Methodologies used: AM0005 Version 01
 Location of the Project: Zhangbei County, Zhangjiakou City, Hebei Province, P.R.China
 Geo coordinates: Longitude: 114°32'E, Latitude: 41°08'N
 UNFCCC view page: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1136989231.92/view>

[Post Registration Changes]

A request for revision of the monitoring plan as described in the registered PDD has been approved by the Board on 19/10/2007.

1.4. Verification Team

The assessment team and internal technical reviewer team consist of the following personnel:

FUNCTION	NAME	TA 1.2	TASK PERFORMED*
Team Leader	Ms. Zhang Chen	☒	☒ DR ☒ SV ☒ RI ☐ TR
Team Member	N.A.	☐	☐ DR ☐ SV ☐ RI ☐ TR
Technical Specialist	N.A.	☐	☐ DR ☐ SV ☐ RI ☐ TR
Internal Technical Reviewer (ITR)	Ms. Li Yiting	☒	☐ DR ☐ SV ☐ RI ☒ TR
Specialist supporting ITR	N.A.	☐	☐ DR ☐ SV ☐ RI ☐ TR

*DR = Document Review; SV = Site Visit; RI = Report issuance; TR = Internal Technical Review



2. METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 03.0 of the Clean Development Mechanism Validation and Verification Standard, issued by CDM Executive Board at its 70th meeting on 23/11/2012 /10/. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

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

The completed verification protocol is enclosed in Appendix A to this report.

2.1. Review of Documents

The assessment 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 06/02/2013 /7/. 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.

The monitoring report version 01 submitted by the project participant was also web hosted on the UNFCCC-CDM web site on 09/01/2013 and thus, was available in the public domain.

In addition to the monitoring documentation provided by the project participants, the DOE reviews:

- (a) The registered PDD, the approved revised monitoring plan, and the corresponding validation opinion /1/ /3/ /4/;
- (b) The validation report /2/;
- (c) Previous verification reports and corresponding monitoring reports /5/;
- (d) The applied monitoring methodology /9/;
- (e) Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board /10/;
- (f) Other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, laboratory analysis or national regulations) /11//12/.



2.2. Follow-up Interviews

On 07/02/2013, Bureau Veritas Certification performed a site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Beijing Guotou Energy Conservation Company (BJGT) and China Energy Conservation and Environment Protection Group (the consultant) were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Beijing Guotou Energy Conservation Company (BJGT) (the Project Owner)	➤ Project Design and implementation ➤ Technical equipment, calibration and operation ➤ Monitoring Plan and management procedures ➤ Monitoring data ➤ Data uncertainty and residual risks (QA/QC) ➤ GHG Calculation ➤ Environmental Impacts ➤ Compliance with National Laws and Regulations
China Energy Conservation and Environment Protection Group (the Consultant)	➤ Monitoring Plan ➤ Monitored data and Monitoring Report ➤ GHG Calculations

2.3. Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to resolve issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions prior to Bureau Veritas Certification's positive conclusion on the GHG emission reduction calculation.

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

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

- (a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- (d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.



A Clarification Request (CL) is raised, if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A Forward Action Request (FAR) is raised, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4. Internal Technical Review

The verification report underwent an Internal Technical Review (ITR) before requesting issuance of CERs for the project activity.

The ITR is an independent process performed to examine thoroughly that the process of verification has been carried out in conformance with the requirements of the verification scheme as well as internal Bureau Veritas Certification procedures.

The Team Leader provides a copy of the verification report to the reviewer, including any necessary verification documentation. The reviewer reviews the submitted documentation for conformance with the verification scheme. This will be a comprehensive review of all documentation generated during the verification process.

When performing an Internal Technical Review, the reviewer ensures that:

- The verification activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.
- The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the verification exercise, review of sample documents.

The reviewer may raise Clarification Requests to the verification team and discusses these matters with Team Leader.

After the agreement of the responses on the Clarification Requests from the verification team as well as the PP(s), the finalized verification report is accepted for further processing such as uploading via the UNFCCC interface.

3. VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated.

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.



The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 1 CL.

The CL was closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section corresponds to the VVS paragraph.

3.1. Remaining issues from validation or previous verification (213)

All CARs and CLs raised were successfully closed during the validation stage and previous verification of the Project, no remaining issues were left.

3.2. Compliance of the project implementation with the registered project design document (228)

Bureau Veritas Certification has performed a site visit and found that the Project has been put into operation and the electricity generated is supplied to NCPG according to the signed Power Purchase Agreement (PPA) /15/. 30 sets of WTGs (Type: GE 1.5sle) with a unit capacity of 1.5 MW, providing a total installed capacity of 45MW /14/ have been in operation during the monitoring period.

No changes to the project design have been identified during this verification. The implementation and operation of the project activity have been conducted in accordance with the description contained in the registered PDD and approved revised monitoring plan.

According to Construction Commencement Report Form of the Project /16/, the Project started construction on 28/07/2004. As per WTGs operation log /17/, the Project started commissioning on 30/12/2005, and was put into full operation on 18/08/2006.

Meter replacement has occurred during the current monitoring period, which is detailed in the [Metering System] below. Although the meter replacement was sufficiently short, the end value of the replaced meters and the original value of the new meters (both at 12:30 of 22/10/2012) were accurately noted down to ensure the correct measurement of electricity generation and correct calculation of emission reductions /18/.

[Power System]

As shown in the diagram of the power connection system /13/, the Project exports electricity to and imports electricity from NCPG via Zhangbei 220kV substation, where the Project shares the main meter with Zhangbei Mijiagou 49.5MW Windfarm Project (CDM ref. 0845, hereafter called the Mijiagou Project)..

[Metering System]

There are three meters installed for the Project.



The main meter (M) was installed at 220kV substation of power grid to measure the total power generation to the grid and total power consumption of the two projects.

The Zhangbei Manjing meter (M1) was installed at the exit of 110kV project site substation to measure the electricity generation of the Project. The former meter M1 (Serial No. 30089907) has been replaced by a new meter (Serial No. 30096860) at 12:30 of 22/10/2012.

The Zhangbei Mijiagou meter (M2) was installed at the exit of 110kV Mijiagou project site substation to measure the electricity generation of the Mijiagou Project. The former meter M2 (Serial No.0007049D0145) has been replaced by a new meter (Serial No.30096855) at 12:30 of 22/10/2012.

[Management and Operation]

The PP has operated the Project as per the registered PDD and the approved revised monitoring plan. The monitoring organization has been set up and all monitoring staffs have been trained. Meter reading records of all the meters are continuously measured and at least monthly recorded by the PP. The grid company issues the ETNs every month to confirm the electricity exported to and imported from the grid. CDM Monitoring & Management Manual /23/ and internal training records /24/ have been provided and verified by the verification team.



Corresponding to the paragraph 228 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- The implementation of the Project is consistent with the registered PDD.
- The Project is operated as per the registered PDD and the approved revised monitoring plan by the PP.

3.3. Compliance of the monitoring plan with the monitoring methodology including applicable tool(s) (232)

The verification team has verified the monitoring plan, including the data and parameters required to be monitored, measurement procedures, monitoring frequency and QC/QA procedures as described in the approved revised monitoring plan.



Corresponding to the paragraph 232 of VVS version 03.0, Bureau Veritas Certification can confirm that the approved revised monitoring plan is in accordance with the approved methodology including applicable tool(s) applied by the Project.

3.4. Compliance of monitoring activities with the monitoring plan (235-236)

Monitoring has been carried out in accordance with the approved revised monitoring plan.

[Parameters and information flow]

The parameters required by the approved revised monitoring plan and how 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 report are described below:

Parameters monitored:

- (1) EG_1 (equivalent to EG_y in the registered PDD): calculated power generation from the Project
- (2) E1: electricity generation metered from the Project site
- (3) E2: electricity generation metered from the Zhangbei Mijiagou 49.5MW Windfarm Project site
- (4) EG_total: total net electricity supplied to the grid of the two projects at the 220kV substation

EG_1 calculated by $EG_total \times E1/(E1+E2)$ is used for baseline emissions calculation.

As described above, the meters have been installed in accordance with the registered 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 meters are continuously measured and at least monthly recorded by the PP and the grid company. The cut-off time is 24:00 on the last day of each month during the monitoring period. The end value of the replaced meters and the original value of the new meters (both at 12:30 of 22/10/2012) were accurately noted down to ensure the correct measurement of electricity generation. The grid company provided the PP with the ETNs monthly to confirm the Monthly Reading Records (MRR) followed the PPA /15/.

The verification team has verified the values provided in the monitoring report and ER spreadsheet against the relevant documented evidences i.e. the MRRs /19/ and the ETNs /20/ and found them to be consistent with the evidences. The MRRs and the ETNs can cover this monitoring period from 01/09/2012 - 31/12/2012.

- (5) EF_y : CO_2 emissions factor of the grid
- (6) EF_OM : CO_2 emissions factor of the grid (operating margin)
- (7) EF_BM : CO_2 emissions factor of the grid (build margin)

$$EF_y = \omega_{OM} * EF_OM + \omega_{BM} * EF_BM$$

ω_{OM} and ω_{BM} are 0.5 according to default weight factor.

The verification team confirms that the data used for EF_y calculation are taken from the most recent data available including:

- 2006 IPCC Guidelines for Default Values /25/
- China Electric Power Yearbook (2008, 2009, 2010 and 2011) /26/
- China Energy Statistical Yearbook (2011) /27/



Moreover, the verification team has checked the calculated EF_OM and EF_BM for the Project with latest 2012 Notification on Determining Baseline Emission Factor of China's Grid published by National Development and Reform Commission (NDRC, China's DNA) /28/ and found the calculated EF_OM and EF_BM for the Project are more conservative than official publication.

✌ Corresponding to the paragraph 235 and 236 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- The monitoring has been carried out in accordance with the approved revised monitoring plan.
- All parameters required by the approved revised monitoring plan have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified by checking the whole information flow.

3.5. Compliance with the calibration frequency requirements for measuring instruments (243)

The approved revised monitoring plan requires that the metering equipment are calibrated and checked annually.

During this monitoring period, the installed measuring instruments 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	Serial number	Accuracy	Calibration date	Validity	Calibration entity
main meter (M)	200407007Z 0062	0.2S	07/01/2012	Yes	Zhangjiakou Power Grid Company Electricity Metrological Centre /22/
Zhangbei Manjing meter (M1)*	(Replaced) 30089907	0.5S	02/11/2011	Yes	
	(New) 30096860	0.5S	29/02/2012	Yes	
Zhangbei Mijiagou meter (M2)*	(Replaced) 0007049D01 45	0.5S	02/11/2011	Yes	
	(New) 30096855	0.5S	29/02/2012	Yes	

*Note: The replacement of Meter M1 and Meter M2 occurred at 12:30 of 22/10/2012.

[Instrument accuracy]

The verification team has verified the calibration records and the accreditation certificates of the calibration entity. All the meters meet the rated accuracy level as described in the approved revised monitoring plan and are in compliance with the industry standard *Technical Administrative Code of Electric Energy Metering (DL/T 448-2000)* /11/.



[Calibration frequency]

The calibration frequency fulfills the requirement as described in the approved revised monitoring plan and is in compliance with the national standard *Verification Regulation of Electrical Energy Meter with Electronics (JJG 596-1999) /12/*.



Corresponding to the paragraph 243 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- The calibration is conducted at the frequency as specified by the methodology and the approved revised monitoring plan.

3.6. Assessment of data and calculation of emission reductions (246)

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 calculated power generation from 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 AM0005 Version 01 and the registered PDD, project emissions are zero and leakage emissions do not need to be considered. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y$$

Where,

ER_y : Emission reductions

BE_y : Baseline emissions

[Baseline emissions]

The baseline emissions are the baseline emission factor times the calculated power generation from the Project. Therefore,

$$BE_y = EF_y * EG_y = EF_y * EG_1$$

EF_y is the baseline emission factor, determined ex-post as

$$EF_y = \omega_{OM} * EF_OM + \omega_{BM} * EF_BM$$

$$= 0.5 * 0.9485 \text{ tCO}_2\text{e/MWh} + 0.5 * 0.4570 \text{ tCO}_2\text{e/MWh}$$

$$= 0.7027 \text{ tCO}_2\text{e/MWh}$$

Where

EF_OM Operating Margin Factor, calculated to be 0.9485 tCO₂e/MWh;

EF_{BM} Build Margin Factor, calculated to be 0.4570 tCO₂e/MWh;

ω_{OM} Default weight factor is 0.5.

ω_{BM} Default weight factor is 0.5.

EG₁ (equivalent to EG_y in the registered PDD) is calculated power generation from the Project, which can be calculated as:

$$EG_{1} = EG_{total} \times E1 / (E1 + E2)$$

The verification team has cross-checked the values from the MRRs /19/ with the ETNs /20/ for the period from 01/09/2012 - 31/12/2012, which are found fully consistent with each other. Thus, only verified values are shown in the following table.

Table 3 The verified EG_y (EG₁) calculated power generation from the Project (MWh)

Period	E1	E2	Electricity exported by the two projects	Total electricity imported by the two projects	EG _{total}	EG _y (EG ₁)
	A	B	C	D	E=C-D	F=E*A/(A+B)
01/09/2012- 30/09/2012	5,494.720	4,893.680	10,377.444	125.664	10,251.780	5,422.458
01/10/2012- 12:30 22/10/2012*	4,686.000	4,532.880	13,305.204	87.912	13,217.292	6,676.947
12:30 22/10/2012- 31/10/2012*	2,067.120	2,082.080				
01/11/2012- 30/11/2012	11,488.400	9,580.560	21,007.536	48.048	20,959.488	11,428.708
01/12/2012- 31/12/2012	11,890.560	9,956.320	21,629.520	104.280	21,525.240	11,715.502
Total	-					35,243.614

*Note: Meter M1 (Serial No. 30089907) has been replaced by a new meter (Serial No. 30096860) at 12:30 of 22/10/2012. Meter M2 (Serial No.0007049D0145) has been replaced by a new meter (Serial No.30096855) at 12:30 of 22/10/2012. Although the meter change was sufficiently short, the end value of the replaced meters and the original value of the new meters were accurately noted down to ensure the correct measurement of electricity generation and correct calculation of emission reductions.

The baseline emissions of the Project are calculated as:

$$BE_y = EF_y \times EG_y = EF_y \times EG_{1} = 0.7027 \text{ tCO}_2\text{e/MWh} \times 35,243.614 \text{ MWh} = 24,765 \text{ tCO}_2\text{e}$$

[Project emissions]

The Project is a newly built wind power project, thus according to AM0005 Version 01 the project emissions are zero.

**[Leakage emissions]**

No leakage needs to be considered according to AM0005 Version 01.

[Emission reductions]

The emission reductions during the monitoring period from 01/09/2012 - 31/12/2012 are calculated as:

$$ER_y = BE_y = 24,765 \text{ tCO}_2\text{e}$$

[Comparison of ERs]

The annual estimated emission reductions are 97,848 tCO₂e as per the registered PDD. The actual operation days of the Project in the monitoring period are 122 days. The corresponding estimate in the monitoring period are 32,705 (=97,848*122/365) tCO₂e. The actual emission reductions are lower than the estimated value in the monitoring period.



Corresponding to the paragraph 246 of VVS version 03.0, Bureau Veritas Certification can confirm that:

- Data used for the determination of the emission reductions are available and monitored in accordance with the approved revised monitoring plan.
- Information and data provided in the monitoring report have been cross-checked with other sources such as plant logbooks, inventories, purchase records, laboratory analysis.
- Appropriate methods and formulae for calculating baseline emissions, project emissions and leakage have been followed.
- Assumptions, emission factors and default values that were applied in the calculations have been justified.



4. VERIFICATION OPINION

Bureau Veritas Certification has performed the 9th periodic verification of Zhangbei Manjing Windfarm Project, CDM Registration Reference Number 0233, which is located in Zhangbei County, Zhangjiakou City, Hebei Province, P.R.China, and applying the methodology AM0005 Version 01. The verification was performed based on the requirements set by 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, the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of Beijing Guotou Energy Conservation Company (BJGT) 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 approved revised monitoring plan. 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 06/02/2013 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as described in the validated and registered project design documents and the approved revised monitoring plan. 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 as a CDM project.

Bureau Veritas Certification can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the projects' GHG emissions and resulting GHG emission reductions reported and related to the validated and registered project baseline, approved revised 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:	01/09/2012 - 31/12/2012
Baseline emissions:	24,765 t CO ₂ equivalents
Project emissions:	0 t CO ₂ equivalents
Leakage emissions:	0 t CO ₂ equivalents
Emission Reductions:	24,765 t CO ₂ equivalents

Ms. Li Yiting
Internal Technical Reviewer
27/02/2013

Ms. Zhang Chen
Team Leader
27/02/2013



5. REFERENCES

Documents reviewed:

- /1/ Registered PDD version 3.3 dated 08/12/2005, UNFCCC ref no.0233
- /2/ Validation Report version 01, dated 02/01/2006
- /3/ Revised monitoring plan of the Project approved on 19/10/2007
- /4/ Validation opinion of the revised monitoring plan
- /5/ Verification Reports of the previous periodic verifications
- /6/ Monitoring Report version 01, dated 05/01/2013
- /7/ Monitoring Report version 02, dated 06/02/2013
- /8/ ER Calculation Spreadsheet
- /9/ AM0005 Version 01 dated 14/04/2004
- /10/ Validation and Verification Standard Version 03.0 dated 23/11/2012
- /11/ Technical Administrative Code of Electric Energy Metering (DL/T 448-2000)
- /12/ Verification Regulation of Electrical Energy Meter with Electronics (JJG 596-1999)
- /13/ Diagram of power connection system of the Project
- /14/ Technical Agreement of Wind Turbine Generators Purchase Contract
- /15/ Signed Power Purchase Agreement (PPA) with the Grid Company
- /16/ Construction Commencement Report Form of the Project
- /17/ WTGs operation log
- /18/ Meter replacement record
- /19/ Monthly Reading Records of the Project
- /20/ The ETNs issued by the Grid Company
- /21/ Calibration Certificates
- /22/ Accreditation certification of Zhangjiakou Power Grid Company Electricity Metrological Centre: (JI) FaJi (2010) D011 valid from 14/02/2010 to 13/02/2012 and (JI) FaJi (2012) D011 valid from 14/02/2012 to 13/02/2015
- /23/ CDM Monitoring & Management Manual
- /24/ Internal Training Records and Qualification Certificate of Operation Staff
- /25/ 2006 IPCC Guidelines
- /26/ China Electric Power Yearbook (2008 to 2011)
- /27/ China Energy Statistical Yearbook (2011)
- /28/ 2012 Notification on Determining Baseline Emission Factor of China's Grid published by National Development and Reform Commission
<http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2975.pdf>

Persons interviewed:

- Beijing Guotou Energy Conservation Company (BJGT)
- /1/ Mr. Xi Jiajian Deputy Manager
- /2/ Mr. Yao Xi CDM Project Manager
China Energy Conservation and Environment Protection Group
- /3/ Mr. Shen Hongshuai CDM Project Manager



6. CURRICULA VITAE OF THE DOE'S VERIFICATION TEAM MEMBERS

Ms. Zhang Chen	Bureau Veritas Certification, China	Team Leader, Climate Change Lead Verifier, She holds Master Degree in Environmental Economics and Environmental Engineering. Before joining BV in 2010, she has gained experiences in project financing evaluation, policy cost-benefit analysis and environmental management. She obtained the certificate of CDM Verifier and ISO 14001 Lead Auditor, and received training in ISO 14064.
Ms. Li Yiting	Bureau Veritas Certification, China	Technical Reviewer, Climate Change Lead Verifier. She holds a Master Degree in Environmental Science. Before joining BV in 2009, she gained two and a half years of CDM technical working experience in P.R China. She obtained the certificate of CDM Lead Verifier, Lead Auditor for ISO 14001 and ISO 14064.

**APPENDIX A: CDM PROJECT VERIFICATION PROTOCOL (Rev 08)**

Table 1 Verification requirements based on VVS version 03.0 (EB 70 Annex 3), PS version 02.1 (EB 70 Annex 2), PCP version 03.1 (EB 70 Annex 4), and Guidelines for completing the Monitoring Report Form version 03.1 (EB 70 Annex 11)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
Part I Cover Page					
(a) Is the title of the project activity provided?	MR		Yes.	OK	OK
(b) Is the reference number of the project activity provided?	MR		Yes.	OK	OK
(c) Is the version number of the monitoring report indicated?	MR		Yes.	OK	OK
(d) Is the completion date of the monitoring report provided in DD/MM/YYYY format?	MR		Yes.	OK	OK
(e) Is the registration date of the project activity provided in DD/MM/YYYY format?	MR		Yes.	OK	OK
(f) Are the monitoring period number and duration of this monitoring period (first and last days included in DD/MM/YYYY format) provided?	MR		Yes.	OK	OK
(g) Are project participants indicated?	MR		Yes.	OK	OK
(h) Is the host party(ies) indicated?	MR		Yes.	OK	OK
(i) Are the sectoral scope(s) and applied	MR		Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
methodology(ies) indicated?					
(j) Is the estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD indicated?	MR		Yes.	OK	OK
(k) Are the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period indicated?	MR		Yes.	OK	OK
(l) Are the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012 indicated (if applicable)?	MR		N.A.	OK	OK
(m) Are the actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards indicated (if applicable)?	MR		N.A.	OK	OK
Part II Monitoring Report					
A. Description of project activity					
A.1 Purpose and general description of project activity					
A.1.1 Is the description of the project activity to be presented in this section a brief summary of the detailed description given in the section B.1 Implementation status of the project	MR		Yes.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
activity?					
A.1.2 Does this description include:					
A.1.2.1 Purpose of the project activity and the measures taken for GHG emission reductions or net anthropogenic GHG removals by sinks?	MR		Yes.	OK	OK
A.1.2.2 Brief description of the installed technology and equipments?	MR		Yes.	OK	OK
A.1.2.3 Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)?	MR		Yes.	OK	OK
A.1.2.4 Total GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period?	MR		Yes.	OK	OK
A.2 Location of project activity					
A.2.1 Is the information on the location of the project activity provided, including Host Party(ies), Region/State/Province, City/Town/Community, Physical/Geographical location etc.?	MR		Yes.	OK	OK
A.3 Parties and project participant(s)					
A.3.1 Is the Party(ies) and project participant(s) involved in the project activity listed in the	MR		Yes.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
provided table?					
A.4 Reference of applied methodology					
A.4.1 Is the exact reference (number, title, version) of the methodology(ies) indicated?	MR		Yes.	OK	OK
A.4.2 Is the exact reference (number, title, version) of any tools and other methodologies to which the applied methodology(ies) refers indicated?	MR		Yes.	OK	OK
A.5 Crediting period of project activity					
A.5.1 Are the type, start date and length of the crediting period corresponding to this monitoring period provided?	MR		Yes.	OK	OK
B. Implementation of project activity					
B.1 Description of implemented registered project activity					
B.1.1 Is the description of the installed technology, technical processes and equipments provided, include diagrams where appropriate?	MR PS	191(a)	Yes.	OK	OK
B.1.2 Is the information on the implementation and actual operation of the project activity, including relevant dates (e.g. construction, commissioning, continued operation	PS	191(b)	Yes.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
periods, etc.) provided?					
B.1.3 Is the description of: (i) the events or situations that occurred during the monitoring period that may impact the applicability of the methodology (ii) how the issues resulting from these events or situations have been addressed provided?	PS	191(c)	CL-1 The information of meter replacement and the emission reductions determination during the meter change are required to be provided in Section B.1 of the monitoring report. CL-1 is closed after the meter change replacement has been described in Section B.1 of the monitoring report and found consistent with the meter change record. The end value of the replaced meters and the original value of the new meters were accurately noted down, and thus no overestimation of emission reductions would happen.	CL-1	OK
B.1.4 Have the project participants addressed the FARs identified during validation or previous verification(s)?	VVS	213	N.A. No FAR was raised during validation or previous verification(s).	OK	OK
B.1.5 Have the implementation and operation of the project activity been conducted in accordance with the description contained in the registered PDD?	VVS	226	Yes. During the site visit, it was found that all physical features of the project activity in the registered PDD are in place and that the project participants have operated the project activity as per the registered PDD, which are detailed below.	OK	OK
B.1.6 Are all physical features of the project activity in the registered PDD in place?	VVS	227	Yes. All facilities and equipments including 30 sets of wind turbine generators with unit capacity of 1.5 MW are in	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			place and in generation during the monitoring period. The project activities had been put into operation and operated as per the registered PDD.		
B.1.7 Have the project participants operated the project activity as per the registered PDD or any approved revised PDD?	VVS	227	Yes. The Project is operated by Beijing Guotou Energy Conservation Company (BJGT) (the PP). The PP has operated the CDM project activity as per the registered PDD. The construction of the Project started on 28/07/2004; the first turbine put into operation on 30/12/2005 and all the turbines put into operation on 18/08/2006. The electricity generated has been delivered properly to the grid as per the Power Purchase Agreement (PPA) signed with the grid company.	OK	OK
B.1.8 Was an on-site visit conducted?	VVS	227	Yes. The on-site visit of the 9th periodic verification was conducted on 07/02/2013 by Ms. Zhang Chen, Climate Change Lead Verifier of Bureau Veritas Certification (China). The following persons are interviewed: Mr. Xi Jiajian, Deputy Manager, Beijing Guotou Energy Conservation Company (BJGT) Mr. Yao Xi, CDM Project Manager, Beijing Guotou Energy Conservation Company (BJGT) Mr. Shen Hongshuai, CDM Project Manager, China	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			Energy Conservation and Environment Protection Group		
B.1.9 If an on-site visit is not conducted, is the rationale of the decision justified?	VVS	227	N.A.	OK	OK
B.2 Post registration changes					
B.2.1 Temporary deviations from registered monitoring plan or applied methodology					
B.2.1.1 Is it indicated whether any temporary deviations have been applied during this monitoring period?	MR		No temporary deviations have been applied during this monitoring period.	OK	OK
B.2.1.2 Is a description of the deviation(s) in accordance with applicable provisions in the Project standard provided?	MR		N.A.	OK	OK
B.2.1.3 Are the reasons for the deviation(s), how it deviates from the monitoring plan and/or applied methodology(ies), the duration for which the deviation(s) is(are) applicable and justification on the conservativeness of the approach included in the description?	MR		N.A.	OK	OK
B.2.1.4 For deviation(s) that require prior approval by the Board, are the date of approval and reference number included in the description?	MR		N.A.	OK	OK
B.2.2 Corrections					



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
B.2.2.1 Is it indicated whether any corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report?	MR		No corrections to project information or parameters fixed at validation have been approved during this monitoring period or submitted with this monitoring report.	OK	OK
B.2.2.2 In cases where the correction(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval date and reference number provided? Otherwise, are the version number and the completion date of the revised PDD provided?	MR		N.A.	OK	OK
B.2.3 Permanent changes from registered monitoring plan or applied methodology					
B.2.3.1 Is it indicated whether any permanent changes from the registered monitoring plan or applied methodologies have been approved during this monitoring period or submitted with this monitoring report?	MR		The Project has revised its registered monitoring plan and the revised monitoring plan was approved by EB on 19/10/2007.	OK	OK
B.2.3.2 In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval date and reference number provided? Otherwise, are the version number and	MR		Yes. The approval date of the revised monitoring plan is provided.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
the completion date of the revised PDD provided?					
B.2.4 Changes to project design of registered project activity					
B.2.4.1 Is it indicated whether any changes to the project design of the project activity have been approved during this monitoring period or submitted with this monitoring report?	MR		No changes to the project design of the project activity have been approved during this monitoring period or submitted with this monitoring report.	OK	OK
B.2.4.2 In cases where the change(s) and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval date and reference number provided? Otherwise, are the version number and the completion date of the revised PDD provided?	MR		N.A.	OK	OK
B.2.5 Changes to start date of crediting period					
B.2.5.1 Is it indicated whether any changes to the start date of the crediting period have been approved during this monitoring period?	MR		No changes to the start date of the crediting period have been approved during this monitoring period.	OK	OK
B.2.5.2 In cases where the changes and the revised PDD are approved prior to the submission of this monitoring report for request for issuance, are the approval	MR		N.A.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
date and reference number provided?					
B.2.6 Types of changes specific to afforestation or reforestation project activity					
B.2.6.1 Is it indicated whether any changes specific to afforestation or reforestation project activities have been applied during this monitoring period based on applicable provisions in the Project standard that do not require prior approval by the Board?	MR		N.A.	OK	OK
B.2.6.2 If changes were applied, are the version number and the completion date of the revised PDD provided?	MR		N.A.	OK	OK
C. Description of monitoring system					
C.1 General requirements					
C.1.1 Have project participants described the monitoring system and provided line diagrams (graphical schemes) showing all relevant monitoring points?	MR PS	193	Yes.	OK	OK
C.1.2 Does this description where appropriate include data collection procedures (information flow including data generation, aggregation, recording, calculations and reporting), organizational structure, roles	MR PS	193	Yes.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
and responsibilities of personnel, and emergency procedures for the monitoring system?					
C.1.3 Is the monitoring plan of the project activity in accordance with the applied methodology including applicable tool(s)?	VVS	229	Yes. The approved revised Monitoring Plan (MP) is in accordance with the methodology AM0005 Version 01 applied by the CDM project activity.	OK	OK
C.1.4 For monitoring aspects that are not specified in the methodology, particularly in the case of small-scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency), are there any issues which may enhance the level of accuracy and completeness of the monitoring plan and should bring to the attention of the Board?	VVS	231	No.	OK	OK
C.1.5 Has the monitoring plan been properly implemented and followed by the project participants?	VVS	234(a)	Yes. The approved revised MP and the methodology AM0005 Version 01 have been followed by the PP.	OK	OK
C.1.6 Have all parameters stated in the monitoring plan and relevant Board decisions been monitored and updated as applicable, including:	VVS	234(b)		-	-
C.1.6.1 Project emission parameters?	VVS	234(b)	Yes. The Project is a newly built wind power project, thus the	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			project emissions of the project are zero according to the AM0005 Version 01.		
C.1.6.2 Baseline emission parameters?	VVS	234(b)	Baseline emission parameters include: 1) EG_1 (equivalent to EGy): calculated power generation from the Project 2) E1: electricity generation metered from the Project site 3) E2: electricity generation metered from the Zhangbei Mijiagou 49.5MW Windfarm Project site 4) EG_total: total net electricity supplied to the grid of the two projects at the 220kV substation EG_1 calculated by $EG_total \times E1/(E1+E2)$ is used for baseline emissions calculation. The electricity generation of the Project was monitored by Zhangbei Manjing meter (M1) installed at the exit of 110kV project site substation. The electricity generation of the Zhangbei Mijiagou 49.5MW Windfarm Project (CDM ref. 0845) was monitored by Zhangbei Mijiagou meter (M2) installed at the exit of 110kV Mijiagou project site substation. The total net electricity supplied to the grid of the two projects is calculated by total electricity exported minus total electricity imported, which are monitored by main	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			meter (M) installed at 220kV substation of power grid. 5) EF _y : CO ₂ emissions factor of the grid 6) EF_OM: CO ₂ emissions factor of the grid (operating margin) 7) EF_BM: CO ₂ emissions factor of the grid (build margin) $EF_y = \omega_{OM} * EF_{OM} + \omega_{BM} * EF_{BM}$ ω_{OM} and ω_{BM} are 0.5 according to default weight factor		
C.1.6.3 Leakage parameters?	VVS	234(b)	Yes. According to the registered PDD and the methodology AM0005 Version 01, no leakage needs to be considered.	OK	OK
C.1.6.4 Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?	VVS	234(b)	The monitoring team has been set up and responsible for the implementation of the monitoring plan. Responsibilities have been allocated to the well-trained staff as per the approved revised MP. The CDM Monitoring and Management Manual has been provided and verified. The QA / QC procedures are part of management system and are documented in management procedures.	OK	OK
D. Data and parameters					
D.1 Data and parameters fixed ex ante or at					



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
renewal of crediting period					
D.1.1 For “Purpose of data”, is one of the following options chose: (a) Calculation of baseline emissions or baseline net GHG removals by sinks; (b) Calculation of project emissions or actual net GHG removals by sinks; (c) Calculation of leakage?	MR		N.A.	OK	OK
D.1.2 For “Value(s) applied”, if applicable, is one table used to report multiple values referring to the same data and parameter? If necessary, are reference(s) to electronic spreadsheets used?	MR		N.A.	OK	OK
D.1.3 Is the source of data provide and/or identified?	PS	195(d)	N.A.	OK	OK
D.1.4 Is information about appropriate emission factors, IPCC default values and any other reference values that have been used in the calculation of GHG emission reductions or net GHG removals provided?	PS	195(g)	N.A.	OK	OK
D.2 Data and parameters monitored					
D.2.1 For “Purpose of data”, is one of the following options chose: (a) Calculation of baseline emissions or baseline net GHG removals by sinks; (b) Calculation of project emissions or actual net GHG removals by	MR		Yes.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
sinks; (c) Calculation of leakage?					
D.2.2 For “Value(s) of monitored parameter”, if applicable, is one table used to report multiple values referring to the same data and parameter? If necessary, are reference(s) to electronic spreadsheets used?	MR		For “Value(s) of monitored parameter”, one table is used to report each value and the reference to the table in Section E.1 is also listed.	OK	OK
D.2.3 Are the values of the monitored parameter for the purpose of calculating GHG emission reductions or net GHG removals provided? Where data are measured continuously, are they presented using an appropriate time interval? For default values (such as an IPCC value), where it is ex post confirmed, is the most recent value applied?	PS	195(a)	Yes. Monthly data are provided in the referred table in Section E.1.	OK	OK
D.2.4 Is the equipment used to monitor each parameter described, including details on accuracy class, and calibration information (frequency, date of calibration and validity), if applicable as per monitoring plan?	PS	195(b)	Yes.	OK	OK
D.2.5 Is the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan, the applied methodology, the Board guidance, local/national standards, or as per the	VVS	234(c)	The accuracy of all the monitoring meters is in compliance with the approved revised MP and in accordance with the industry standards. The meters were installed, maintained and calibrated annually in line with the revised monitoring plan.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
manufacturer's specification?					
D.2.6 Is the calibration of those measuring equipments that have an impact on the claimed emission reductions conducted by the project participants at a frequency specified in the applied monitoring methodology and/or the monitoring plan?	VVS	237	Yes. The calibration of measuring equipments has been conducted in accordance with the approved revised MP.	OK	OK
D.2.7 If, during verification of a certain monitoring period, the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available), is the following conservative approach adopted in the calculation of emission reductions:	VVS	238			
D.2.7.1 Applying the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration, if the results of the delayed calibration do not show any errors in the measuring equipment, or if the error is smaller than the maximum permissible error?	VVS	238(a)	N.A.	OK	OK
D.2.7.2 Applying the error identified in the delayed calibration test, if the error is beyond the maximum permissible error	VVS	238(b)	N.A.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
of the measuring equipment?					
D.2.8 Has the error has been applied:	VVS	239	-	-	-
D.2.8.1 In a conservative manner, such that the adjusted measured values of the delayed calibration shall result in fewer claimed emission reductions?	VVS	239(a)	N.A.	OK	OK
D.2.8.2 For all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.	VVS	239(b)	N.A.	OK	OK
D.2.9 In cases where the results of the delayed calibration are not available, or the calibration has not been conducted at the time of verification, prior to finalizing verification, were the project participants requested to conduct the required calibration have the project participants calculated the emission reductions conservatively using the approach mentioned in item "D.2.7" above?	VVS	240	N.A.	OK	OK
D.2.10 In cases where it is not possible for the project participants to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons	VVS	241	N.A.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
beyond the control of PPs, are the requirements for post registration changes, in section 9.5 of the VVS, followed?					
D.2.11 In cases where neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipments, are the equipments calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer's specification? If neither local/national standards nor the manufacturer's specification are available, were international standards used?	VVS	242	N.A.	OK	OK
D.2.12 Is it described how the parameters are measured/calculated and the measurement and recording frequency?	PS	195(c)	Yes.	OK	OK
D.2.13 Are monitoring results consistently recorded as per approved frequency?	VVS	234(d)	Yes. All the parameters are continuously measured and at least monthly recorded, which complies with the approved frequency. The monthly records are used to calculate the monthly emission reductions. EF _y , EF_OM and EF_BM are calculated based on latest official statistics.	OK	OK
D.2.14 Is the source of data (e.g. logbooks, daily records, surveys, etc.) provide and/or	PS	195(d)	Yes.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
identified?					
D.2.15 Where relevant is the calculation method of the parameter provided?	PS	195(e)	Yes.	OK	OK
D.2.16 Are the QA/QC procedures applied described (if applicable per monitoring plan)?	PS	195(f)	Yes.	OK	OK
D.2.17 Have quality assurance and quality control procedures been applied in accordance with the monitoring plan or the revised monitoring plan?	VVS	234(e)	Yes. The QA/QC procedures have been documented in the CDM Monitoring and Management Manual and applied in accordance with the approved revised MP.	OK	OK
D.2.18 Is information about appropriate emission factors, IPCC default values and any other reference values that have been used in the calculation of GHG emission reductions or net GHG removals provided?	PS	195(g)	Yes.	OK	OK
D.3 Implementation of sampling plan					
D.3.1 Is a description provided on how project participants implemented the sampling efforts and surveys for those data and parameters according to the sampling plan, Include:	MR				
D.3.1.1 Description of implemented sampling design?	MR		N.A.	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
D.3.1.2 Collected data (electronic spreadsheets may be attached and referenced)?	MR		N.A.	OK	OK
D.3.1.3 Analysis of the collected data?	MR		N.A.	OK	OK
D.3.1.4 Demonstration on whether the required confidence/precision has been met?	MR		N.A.	OK	OK
E. Calculation of emission reductions or GHG removals by sinks					
E.1 Calculation of baseline emissions or baseline net GHG removals by sinks					
E.1.1 Are the sample calculations for all formulae used and calculation of baseline emissions or baseline net GHG removals by sinks provided, applying actual values?	MR PS	197(a)	Yes.	OK	OK
E.1.2 Are the electronic spreadsheets to present full calculations in the monitoring report attached?	MR		Yes.	OK	OK
E.2 Calculation of project emissions or actual net GHG removals by sinks					
E.2.1 Are the sample calculations for all formulae used and calculation of project emissions or actual net GHG removals by sinks provided, applying actual values?	MR PS	197(b)	As per methodology AM0005 Version 01 and the registered PDD, project emissions are zero.	OK	OK
E.2.2 Are the electronic spreadsheets to present full calculations in the monitoring report	MR		N.A.	OK	OK



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
attached?					
E.3 Calculation of leakage					
E.3.1 Are the sample calculations for all formulae used and calculation of leakage provided, applying actual values?	MR PS	197(c)	As per methodology AM0005 Version 01 and the registered PDD, leakage emissions do not need to be considered.	OK	OK
E.3.2 Are the electronic spreadsheets to present full calculations in the monitoring report attached?	MR		N.A.	OK	OK
E.4 Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks					
E.4.1 Are the results of above sections summarized and GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period presented, using the provided table?	MR PS	197(d)	Yes.	OK	OK
E.4.2 Is a complete set of data for the specified monitoring period is available?	VVS	245(a)	Yes. A complete set of data include reading records of the installed meters from 01/09/2012 - 31/12/2012 and ETNs from 01/09/2012 - 31/12/2012, which can cover the monitoring period have been provided to Bureau Veritas Certification.	OK	OK
E.4.3 Has information provided in the monitoring	VVS	245(b)	Yes	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?			The ETNs issued by the power grid company served as the basis for the monthly cross-checking against the PP's Monthly Reading Records. Bureau Veritas Certification found they are in accordance with each other.		
E.4.4 Have calculations of baseline emissions, and project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?	VVS	245(c)	As per methodology AM0005 Version 01 and the registered PDD, project emissions are zero and leakage emissions do not need to be considered. Emission reductions are being determined using the formula as given in the Section E of the PDD. $ER_y = BE_y$ The baseline emission is determined by the following formula as per the methodology: $BE_y = EG_y * EF_y$ The calculated power generation from the Project as EG_1 (equivalent to EG_y) = $EG_{total} \times E1 / (E1 + E2)$.	OK	OK
E.4.5 Have any assumptions used in emission calculations been justified?	VVS	245(d)	No. There are no assumptions in emission calculations.	OK	OK
E.4.6 Have appropriate emission factors, IPCC default values and other reference values been correctly applied?	VVS	245(e)	Yes. The baseline emission factor in the monitoring report is 0.7027 tCO₂/MWh, calculated ex-post applying the most recent data available including 2006 IPCC Guidelines for Default Values	OK	OK

VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			- China Electric Power Yearbook (2008, 2009, 2010 and 2011) - China Energy Statistical Yearbook (2011)		
E.5 Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD					
E.5.1 Is a comparison of actual GHG emission reductions or net anthropogenic GHG removal of the project activity achieved during this monitoring period with the estimates in the registered PDD provided?	MR PS	198	Yes.	OK	OK
E.6 Remarks on difference from estimated value in registered PDD					
E.6.1 For any registered CDM project activity, except A/R project activities, have project participants explained the cause of any increase in the actual GHG emission reductions achieved during the current monitoring period (e.g. higher water availability, higher plant load factor, etc.), including all information (i.e. data and/or parameters) that is different from that stated in the registered PDD?	MR PS	199	Yes. The actual emission reduction achieved during the current monitoring period is lower than it was estimated in registered PDD.	OK	OK
E.7 Actual emission reductions or net anthropogenic GHG removals by sinks					



VERIFICATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
during the first commitment period and the period from 1 January 2013 onwards					
E.7.1 If the monitoring period starts before 31 December 2012 and ends anytime thereafter, are actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved for the following two periods provided respectively? (a) Up to 31 December 2012 (1st commitment period); (b) From 1 January 2013 onwards.	MR		N.A. The monitoring period ends at 31/12/2012.	OK	OK
E.7.2 Is it ensured that the achieved GHG emission reductions or net anthropogenic GHG removals by sinks are calculated proportionally for each period? In cases where annual caps were applied in the calculations, is it ensured that the annual caps are pro-rated to each period?	MR		N.A.	OK	OK

Table 2 Resolution of Corrective Action / Forward Action / Clarification Requests.

Draft report clarifications and corrective action requests by verification team	Reference to checklist question in Periodic Verification Checklist	Summary of project owner response	Verification team conclusion
CL-1 The information of meter replacement and the emission reductions determination during the meter change are required to be provided in Section B.1 of the monitoring report.	B.1.3	Meter M1 (Serial No. 30089907) has been replaced by a new meter (Serial No. 30096860) at 12:30 of 22/10/2012. Meter M2 (Serial No.0007049D0145) has been replaced by a new meter (Serial No.30096855) at 12:30 of 22/10/2012. Although the meter change was sufficiently short, the end value of the replaced meters and the original value of the new meters were accurately noted down to ensure the correct measurement of electricity generation and correct calculation of emission reductions.	The verification team confirms that the meter change replacement has been described in Section B.1 of the monitoring report and found consistent with the meter change record. The end value of the replaced meters and the original value of the new meters were accurately noted down, and thus no overestimation of emission reductions would happen. Thus, CL-1 is closed.