



VERIFICATION / CERTIFICATION REPORT

HEBEI GUYUAN COUNTY DONGXINYING 199.5 MW WIND POWER PROJECT IN CHINA

(UNFCCC Registration Ref. No. 4853)

Monitoring Period:
10 January 2012 to 3 October 2012

REPORT No. 2012-9702

REVISION No. 01

DET NORSKE VERITAS



VERIFICATION / CERTIFICATION REPORT

Date of first issue: 16 November 2012	Project No.: PRJC-424613-2012-CCS-CHN	DNV CLIMATE CHANGE SERVICES AS VERITASVEIEN 1, 1322 HØVIK, NORWAY Tel: +47 67 57 99 00 Fax: +47 67 57 99 11 http://www.dnv.com Org. No: NO 994 774 352 MVA
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Client: Hebei Construction Investment New Energy Co., Ltd.	Client ref.: Zhou Xin	

Summary:

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions reported for the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” in China (UNFCCC Registration Ref. No. 4853) for the period 10 January 2012 to 3 October 2012.

In our opinion, the GHG emission reductions reported for the project in the monitoring report (version 02.1) of 23 November 2012 are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology ACM0002 (version 12.1.0) and the revised Project Design Document version 7.0 of 27 July 2012.

DNV Climate Change Services AS is able to certify that the emission reductions from the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” during the period 10 January 2012 to 3 October 2012 amount to 311 932 tonnes of CO₂ equivalent.

Report No.: 2012-9702		Subject Group: Environment		Indexing terms <table border="1"> <tr> <td rowspan="3">Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism</td> <td>Service Area Verification</td> </tr> <tr> <td>Market Sector</td> </tr> <tr> <td>Process Industry</td> </tr> </table>		Key words Climate Change Kyoto Protocol Validation Clean Development Mechanism	Service Area Verification	Market Sector	Process Industry
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Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CL	Clarification request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNV	DNV Climate Change Services AS
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
ETN	Electricity Transaction Note
FAR	Forward Action Request
FSR	Feasibility Study Report
FVR	Final Validation Report
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
MoC	Modalities of communication
MP	Monitoring Plan
NCPG	North China Power Grid
OM	Operating Margin
PDD	Project Design Document
PLF	Plant Load Factor
PP	Project Participants
PPA	Power Purchase Agreement
PS	Clean Development Mechanism Project Standard
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard
WTG	Wind Turbine Generator



1 INTRODUCTION

Hebei Construction Investment New Energy Co., Ltd has commissioned DNV Climate Change Services AS (DNV) to carry out the verification and certification of emission reductions reported for the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” (the project) for the period 10 January 2012 to 3 October 2012. This report contains the findings from the verification and a certification statement for the certified emission reductions.

1.1 Objective

Verification is the periodic independent review and *ex post* determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” for the period 10 January 2012 to 3 October 2012.

1.2 Scope

The scope of the verification is to verify that:

- The project activity has been implemented and operated in accordance with the revised PDD;
- The monitoring plan complies with the monitoring methodology and the actual monitoring complies with the monitoring plan, including compliance with any guidance provided by the Board regarding deviations from the provisions of a registered plan and/or methodology;
- The data and calculation of GHG emission reductions have been assessed to correctly support the emission reductions being claimed.

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

1.3 Description of the project activity

Project Parties:	China (Host Party) and United Kingdom of Great Britain and Northern Ireland (Annex I Parties)
Title of project activity:	Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project
UNFCCC registration No:	4853
UNFCCC registration date:	15 September 2011
Baseline and monitoring methodology	ACM0002 (version 12.1.0)



<i>Project Participants:</i>	Hebei Construction Investment New Energy Co., Ltd from China and Shell Trading International Limited from United Kingdom of Great Britain and Northern Ireland
<i>Location of the project activity:</i>	Southern area of Guyuan County, Zhangjiakou City, Hebei Province, P.R.China., the geographical coordinates of the project location are 115.2997° E ~ 115.7508°E, 41.3169°N ~ 41.5661°N
<i>Project's crediting period:</i>	15 September 2011 to 14 September 2018 (Renewable)
<i>Period verified in this verification:</i>	10 January 2012 to 3 October 2012

1.4 Methodology for determining emission reductions

According to the applied methodology ACM0002 of version 12.1.0 /16/, the emission reductions are determined as the difference between baseline emissions, project emissions and leakage:

$$ER_y = BE_y - PE_y - L_y.$$

Hereinto,

PE_y and L_y are considered to be zero as per ACM0002 of version 12.1.0 /16/ and revised PDD /12/. Thus, the emission reductions are accounted as:

$$ER_y = BE_y = EG_{\text{facility},y} * EF_{\text{grid,CM},y} = (EG_{\text{export},y} - EG_{\text{import},y} - EG_{\text{back-up line},y}) * EF_{\text{grid,CM},y}$$

Where, $EF_{\text{grid,CM},y}$ is the emission factor of the grid (tCO₂/MWh), which was calculated *ex-ante* and will not be updated during the first 7-year renewable crediting period. The $EF_{\text{grid,CM},y}$ of 1.05485 tCO₂/MWh derived from the revised PDD /12/ and the validation report /14/ was used for the ER calculation during the period of 10 January 2012 to 3 October 2012.

EG_y is the net electricity generation supplied to the grid during the monitoring period, which is determined by the electricity supplied to the grid minus the electricity imported from the grid on a monthly basis by monitoring the net electricity exported.



2 METHODOLOGY

DNV has assessed and determined that the implementation and operation of the project activity, and the steps taken to report emission reductions comply with the CDM criteria and relevant guidance provided by the Board.

The assessment involved a desk review of relevant documentation as well as an on-site visit(s).

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

- i. Review of project documentation;
- ii. The net electricity supplied by the project to the NCPG is multiplied with a fixed grid baseline combined emission factor of 1.05485 tCO₂/MWh /12/ /14/;
- iii. The actual installed capacity of the wind power plant to ensure the conformance with the descriptions in the revised PDD /12/.

The verification process has been based on the recommendations in the Validation and Verification Standard (version 02.0) /15/.

Verification team

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

Duration of verification

Monitoring report publication	1 November 2012
Desk review:	1 November 2012 to 15 November 2012
On-site assessment:	15 November 2012- 16 November 2012
Reporting, calculation checks and QA/QC:	17 November 2012 to 26 November 2012

2.1 Desk review

The monitoring report, version 01 of 17 October 2012 /1/, has been made publicly available on the CDM website. In addition to the monitoring report version 02.1 of 23 November 2012 /1/, DNV reviewed:



- The revised PDD for the project activity (version 7.0 dated 27 July 2012) /12/, including the monitoring plan and the corresponding validation report /14/;
- The 1st periodical verification report /13/;
- The approved baseline and monitoring methodology ACM0002 version 12.1.0 /16/;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- Other information and references relevant to the project activity's resulting emission reductions including: the emission reduction spreadsheet /2/, original monthly monitoring records /5/, monthly ETNs /6/, CDM and monitoring training records /7/.

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

- A review of the data and information presented to verify their completeness;
- A review of revised PDD /12/ and monitoring methodology /16/, paying particular attention on the frequency of measurements, the quality of metering equipment including calibration requirements /11/, and the quality assurance and quality control procedures /8/; and
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

2.2 On-site assessment

On 15 November 2012 to 16 November 2012 DNV performed on-site assessments. During the on-site assessment DNV has applied standard auditing techniques to assess the quality of information provided. The following aspects of the CDM project activity have been verified:

- The implementation and operation of the CDM project activity;
- The information flow for generating, aggregating and reporting of the monitoring parameters; and
- The operational and data collection procedures are implemented in accordance with the monitoring plan in the revised PDD /12/.

Further, the following activities were performed:

- A cross-check between information provided in the monitoring report /1/ and data from other sources /6/;
- A check of the monitoring equipment including calibration performance /11/ and observations of monitoring practices against the requirements of revised PDD /12/ approved by EB on 6 November 2012 and the selected methodology /16/;
- A review of calculations /2/ and assumptions made in determining the GHG data and emission reductions; and
- An identification that quality control and quality assurance procedures /8/ in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.



The data presented in the monitoring report was assessed by review of the detailed project documentation and production records, as well as by interviews with personnel at project implementer Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd. and observation of collection of measurements, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. This has enabled the verification team to assess the accuracy and completeness of reported monitoring results; to verify the correct application of the approved monitoring methodology and the determination of the emission reductions.

In addition, all parameters required by the monitoring methodology ACM0002 version 12.1.0 /16/ and the management system were assessed during the site visit.

2.3 Closing out of verification findings

The objective of this phase of the verification was to resolve any issues which needed be clarified prior to DNV's conclusion that i) the project activity has been implemented and operated in accordance with approved revised PDD, ii) the monitoring plan complies with the monitoring methodology and the actual monitoring complies with the monitoring plan and iii) the data and calculation of GHG emission reductions are correct.

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

- i. Non-conformities 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;
- ii. Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- iii. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- iv. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

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

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

The verification identified 0 CAR, 4 CLs and 0 FAR. The CLs were satisfactorily addressed by the project participants by among other revising the monitoring (please refer to Appendix A for further details). In addition to the changes made to the monitoring report as a result of the verification findings, No changes made to the monitoring report version 02.1 dated 23 November 2012 were made compared to the initial version of the monitoring report received for verification.



3 VERIFICATION FINDINGS

This section summarises the findings from the verification of the emission reductions reported for the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” for the period 10 January 2012 to 3 October 2012.

3.1 Remaining issues, CARs, FARs from previous validation / verification

This is the 2nd periodical verification, no remaining issue was identified in the validation report /14/. The 1st periodical verification report prepared by other DOE was obtained from the website of UNFCCC, there is no remaining issue in the 1st periodical verification report /13/.

3.2 Post registration changes

The post registration changes described in Appendix B were identified and assessed by Bureau Veritas Certification during this monitoring period. The post registration change had been approved by CDM EB on 6 November 2012 /12/ prior to the request for issuance for this monitoring period conducted by DNV. For post registration changes requiring prior approval by the CDM EB is in accordance with Appendix 1 to the CDM Project Standard /15/.

The assessment of compliance with the project description and the monitoring plan contained in the revised PDD conducted by DNV for this monitoring period, as described in the following sections, is based on the revised PDD (version 7.0 dated 27 July 2012).

3.3 Project implementation

As part of the site visit DNV was able to confirm that the project implementation is in accordance with the project description contained in the revised PDD of 27 July 2012 /12/. The verification team confirmed through visual inspection and document review that all physical features of the CDM project activity including data collection systems and storage systems have been implemented in accordance with the revised PDD /12/. DNV confirmed during the on-site visit that the CDM project was completely operational.

The project is located in the Southern area of Guyuan County, Zhangjiakou City, Hebei Province, P.R.China. The details of installed turbines with respect to installation and capacity have been verified by DNV during on-site visit to be consistent with the description indicated in the revised PDD /12/. The project consists of 133 sets of wind turbines with a unit capacity of 1.5 MW, the total installed capacity is 199.5 MW.

The annual output of the project was estimated to be 405 685 MWh as per the revised PDD /12/. The project has net electricity supplied to the grid of 295 712.244 MWh during the period of 10 January 2012 to 3 October 2012 /1/ /2/. The electricity generated is supplied to the North China Power Grid (NCPG) /4/.

The first batch of wind turbines of this project passed the commission and was put into operation on 25 May 2010 and all 133 sets of turbines were put into operation on 6 October 2010, which was confirmed by checking the operation daily log /9/, which are prior to the registration date of the project i.e 15 September 2011, the emission reduction occurred after 15 September 2012 can thus be claimed.

The project passed the EIA completion and acceptance on 19 April 2011 /10/. The project has chosen a seven-year renewable crediting period with the starting date of 15 September 2011



and the project was registered on 15 September 2011. The current monitoring period from 10 January 2012 to 3 October 2012 is within the first seven-year renewable crediting period from 15 September 2011 to 14 September 2018. The reported emission reduction for the project from 10 January 2012 to 3 October 2012 is 311 932 tCO₂e /1/ /2/.

The electricity with voltage of 690 V generated by the wind turbines is boosted to 35 kV through the on-site 35 kV box transformers for each turbine; via 35 kV power lines the project is connected to the 220 kV Xiaochang substation on grid side and then supplies electricity to NCPG.

The electricity generated by the project is measured by the meters M1, M3 and M2, M4, M1 and its backup meter M3 were installed at the high voltage side of the No.1 main transformer for measuring the electricity exported (EG_{export,y,1}) and imported (EG_{import,y,1}) by Group 1 WTGs. M2 and its backup meter M4 were installed at the high voltage side of the No.2 main transformer for measuring the electricity exported (EG_{export,y,2}) and imported (EG_{import,y,2}) by Group 2 WTGs. The accuracy of meters M1, M2, M3 and M4 is 0.2S, which is in line with accuracy of meters stated in the revised PDD /12/.

M5 was installed in the project site for measuring the electricity imported from backup line in case of emergencies or the wind farm does not produce enough electricity for self-use and recorded according to the monitoring methodology. The accuracy of M5 is 0.5S, which is in line with the accuracy of M5 stated in the revised PDD /12/.

All meters have been calibrated annually by the independent third party, which is consistent with the revised PDD approved by EB on 6 November 2012 /12/.

The readings of meters M1, M2, M3, M4 and M5 were continuously measured and monthly recorded. Normally, on the cut-off date (last day of each month) of every month, the project owner and the grid company jointly read the two meters M1, M2 (if M1 and /or M2 are/is failed, the reading of backup meter M3 and/or M4 will be used) and M5, after the readings were confirmed by both project owner and the grid company, the local grid company issued the monthly ETNs for electricity exported and imported by the project /6/, for the electricity exported and imported during the period from 10 January 2012 to 31 January 2012 and from 1 October 2012 to 3 October 2012 were confirmed by checking the ETNs issued by grid company.

On-site training for operating and maintaining the equipment was provided by the equipment supplier. The CDM related procedures, which include monitoring, recording and reporting, were introduced by the project owner /8/. The routine internal training has also been verified by DNV during on site visit. DNV was able to confirm that this training and procedure implementation were appropriate by checking the training records /7/ and CDM Monitoring and Management Manual /8/, and interviewing the key personnel of the plant /17/.

The project boundary is as defined in the revised PDD /12/.

3.4 Information (data and variables) provided in the monitoring report that is different from that stated in the revised monitoring plan

The emissions reductions reported in this monitoring period are 311 932 tCO₂e in the period from 10 January 2012 to 3 October 2012 (i.e. 268 days from 10 January 2012 to 3 October 2012). The yearly expected emission reductions in the revised PDD /12/ are 427 936 tCO₂e, which correspond to the emission reductions of 314 210.5 tCO₂e in 268 days. The reported



emission reductions of 311 932 tCO₂e during this monitoring period is 0.73% lower than the value estimated in the revised PDD /12/, which is caused by the wind variation during the monitoring period, DNV thus considers the 0.73% decrease in emission reductions to be acceptable.

3.5 Compliance of monitoring plan with monitoring methodology

The monitoring plan contained in the revised PDD approved by EB on 6 November 2012 was verified by DNV and confirmed to be in accordance with the approved methodology, i.e. ACM0002 (version 12.1.0).

3.6 Compliance of monitoring with the revised monitoring plan

The monitoring has been carried out in accordance with the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 /12/.

All parameters stated in the monitoring plan /12/ are monitored and reported appropriately. The monitoring report lists each parameter required by the monitoring plan and the information flow (i.e. from data generation, aggregation, to recording, calculation and reporting) for these parameters is provided in the monitoring report /1/. The information flow for the each parameter is further verified in the following sections.

Monitoring parameters

According to the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 /12/ three parameters $EG_{\text{export},y}$ (Electricity delivered to grid in year y), $EG_{\text{import},y}$ (electricity purchased from the grid by the project in year y) and $EG_{\text{backuptime},y}$ (electricity imported from the back-up line by the project in year y) need to be monitored.

The following tables are related to the parameters in the revised monitoring plan / methodology:

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	$EG_{\text{export},y}$ (Electricity delivered to grid in year y)
Measuring frequency:	$EG_{\text{export},y}$ would be calculated as per the formula below: $EG_{\text{export},y} = EG_{\text{export},y,1} + EG_{\text{export},y,2}$ $EG_{\text{export},y,1}$ and $EG_{\text{export},y,2}$ would be continuously measured.
Reporting frequency:	Monthly recorded and reported.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
Type of monitoring equipment:	Bi-directional electricity meters: ACE8000 The readings of meters M1 and M2 were used by the grid company and project owner to measure the electricity exported to the grid by the project. M3 and M4 were used for measuring electricity in case of emergencies as the backup meters



	of M1 and M2.
Is accuracy of the monitoring equipment as stated in the revised monitoring plan, If the revised monitoring plan does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	The accuracy level of meters M1, M2 and their backup meters M3 and M4 are 0.2S, which is in line with the accuracy specified in the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 /12/.
Calibration frequency /interval:	Once a year.
Is the calibration interval in line with the revised monitoring plan? If the revised monitoring plan does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval once a year was in line with the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 /12/.
Company performing the calibration:	The calibrations of all meters M1/M2 were executed by Zhangjiakou Electric Energy Measurement Centre, which was accredited by Bureau of Quality and Technical Supervision of Hebei Province on 8 February 2008 and valid to 31 December 2011 /3/ The calibrations of all meters M3/M4 were executed by Hebei Electric Power Research Institute, which was accredited by Bureau of Quality and Technical Supervision of Hebei Province on 14 February 2011 and valid to 13 February 2014/3/
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period?	Yes. The calibrations for meters were conducted by two qualified third parties (detail information is given in table 1 below). Thus, DNV deems the valid period of the calibrations for all meters cover the whole reported period from 10 January 2012 to 3 October 2012/11/.
If applicable, has the reported data been cross-checked with other available data?	Yes. The reported data has been cross-checked against monthly ETNs for exported electricity by the project /6/.
How were the values in the monitoring report verified?	As per the revised PDD /12/ and the clarification letters /4/ issued by Jibei Electric Power Co., Ltd., the exported electricity was measured by the meters M1-M4, M1 and its backup meter M3 were installed at the high voltage side of the No.1 main transformer for measuring the electricity exported ($EG_{\text{export},y,1}$) by Group 1 WTGs. M2 and its backup meter



	M4 were installed at the high voltage side of the No.2 main transformer for measuring the electricity exported ($EG_{\text{export},y,2}$) by Group 2 WTGs. The input data for the electricity exported by the project in the ER calculation spreadsheet /2/ were taken from original daily and monthly monitoring records /5/, which was cross-checked by monthly ETNs for exported electricity. In line with the applied methodology ACM0002 version 12.1.0 /16/, the monthly records /5/ were verified by DNV based on drawing and reviewing a sample of records. Total 10 of monthly metering readings of electricity exported during this monitoring period were drawn /5/, which corresponded to the 100% size of the sample. No error was found from the 100% sampling records. Based on the above, DNV is able to confirm that the values of the exported electricity during this monitoring period are consistent and acceptable, which is in line with the EB guideline on sampling of data /2/ /5/ /6/. The monthly reading time of meters M1 and M2 (in case of failure of M1 and/or M2, the reading of M3 and/or M4 would be used) is at 24:00 on the cut-off date (the last day of each month) in every month according to the clarification letters issued by Jibei Electric Power Co., Ltd. /4/. All original daily and monthly monitoring records /5/, monthly ETNs for electricity exported /6/ have been verified by DNV on the project site during the verification. DNV was able to confirm the calculating process and the conclusion is transparent and reasonable.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	In order to monitor electricity supplied by the project to the NCPG, M1 and its backup meter M3 were installed at the high voltage side of the No.1 main transformer for measuring the electricity exported ($EG_{\text{export},y,1}$) by Group 1 WTGs. M2 and its backup meter M4 were installed at the high voltage side of the No.2 main transformer for measuring the electricity exported ($EG_{\text{export},y,2}$) and by Group 2 WTGs. With the computer-monitoring system, the meters M1, M3 M2 and M4 were continuously



	monitored and monthly recorded. The data were combined into an original daily and monthly records /5/, which was submitted to the CDM responsible person for review. The original daily and monthly monitoring records /5/ were finally reviewed and approved by the manager every month. The approved monthly monitoring records /5/ are the basis for emission reduction calculations. On site visit, the monthly ETNs for electricity exported /6/ have been cross-checked by DNV with the original daily and monthly monitoring records during the monitoring period /5/. Thus, DNV can confirm that the values of electricity exports are consistent between the original daily and monthly monitoring records /5/ and the monthly ETNs for electricity exported /6/. The meters M1-M4 are jointly inspected and sealed on behalf of the parties and are not interfered with by either party except in the presence of the other party or its accredited representatives. The general conditions set out for metering, recording, meter readings, meter inspections, test & checking and communication are as per the the clarification letters issued by Jibei Electric Power Co., Ltd. /4/. All relevant documents and records are stored electronically and will be kept two years after the end of the last crediting period. The management system for the CDM project is in place. In order to make the monitoring system more efficient, the project owner introduced the CDM Monitoring and Management Manual /8/. In the manual, the organization structure with the responsibilities, personnel competencies, monitoring procedure, calculation procedure and QA/QC procedure have been properly identified and put in place. By communicating with some staff /17/ on site and checking of monitoring reports /1/, training records /7/ and CDM Monitoring and Management Manual /8/, it can be confirmed that the monitoring management system is implemented in compliance with the revised PDD.
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In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A
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	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	$EG_{import,y}$: Electricity imported from the grid in year y)
Measuring frequency:	$EG_{import,y}$ would be calculated as per the formula below: $EG_{import,y} = EG_{import,y,1} + EG_{import,y,2}$ $EG_{import,y,1}$ and $EG_{import,y,2}$ would be continuously measured.
Reporting frequency:	Monthly recorded and reported.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
Type of monitoring equipment:	Bi-directional electricity meters: ACE8000 The readings of meters M1 and M2 were used by the grid company and project owner to measure the electricity imported to the grid by the project. M3 and M4 were used for measuring electricity in case of emergencies as the backup meters of M1 and M2.
Is accuracy of the monitoring equipment as stated in the revised monitoring plan? If the revised monitoring plan does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	The accuracy level of meters M1, M2 and their backup meters M3 and M4 are 0.2S, which is in line with the accuracy specified in the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 /12/.
Calibration frequency /interval:	Once a year.
Is the calibration interval in line with the revised monitoring plan? If the revised monitoring plan does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval once a year was in line with the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 /12/.
Company performing the calibration:	The calibrations of all meters M1/M2 were executed by Zhangjiakou Electric Energy Measurement Centre (which was accredited by Bureau of Quality and Technical Supervision of Hebei Province) on 8 February 2008 and valid to 31 December 2011 /3/



	The calibrations of all meters M3/M4 were executed by Hebei Electric Power Research Institute, which was accredited by Bureau of Quality and Technical Supervision of Hebei Province on 14 February 2011 and valid to 13 February 2014 /3/
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period?	Yes. The calibrations for meters were conducted by two qualified third parties (detail information is given in table 1 below). Thus, DNV deems the valid period of the calibrations for all meters cover the whole reported period from 10 January 2012 to 3 October 2012/11/.
If applicable, has the reported data been cross-checked with other available data?	Yes. The reported data has been cross-checked against monthly ETNs for imported electricity by the project /6/.
How were the values in the monitoring report verified?	As per the revised PDD /12/ and the clarification letters /4/ issued by Jibei Electric Power Co., Ltd., the imported electricity was measured by the meters M1-M4, M1 and its backup meter M3 were installed at the high voltage side of the No.1 main transformer for measuring the electricity imported ($EG_{import,y,1}$) by Group 1 WTGs. M2 and its backup meter M4 were installed at the high voltage side of the No.2 main transformer for measuring the electricity imported ($EG_{import,y,2}$) by Group 2 WTGs. The input data for the electricity imported by the project in the ER calculation spreadsheet /2/ were taken from original daily and monthly monitoring records /5/, which was cross-checked by monthly ETNs for imported electricity. In line with the applied methodology ACM0002 version 12.1.0 /16/, the monthly records /5/ were verified by DNV based on drawing and reviewing a sample of records. Total 10 of monthly metering readings of electricity imported during this monitoring period were drawn /5/, which corresponded to the 100% size of the sample. No error was found from the 100% sampling records. Based on the above, DNV is able to confirm that the values of the imported electricity during this monitoring period are consistent and acceptable, which is in line with the EB



	guideline on sampling of data /2/ /5/ /6/. The monthly reading time of meters M1 and M2 (in case of failure of M1 and/or M2, the reading of M3 and/ or M4 would be used) is at 24:00 on the cut-off date (the last day of each month) in every month according to the clarification letters /4/ issued by Jibei Electric Power Co., Ltd. All original daily and monthly monitoring records /5/, monthly ETNs for electricity imported /6/ have been verified by DNV on the project site during the verification. DNV was able to confirm the calculating process and the conclusion is transparent and reasonable.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	In order to monitor electricity imported by the project to the NCPG, M1 and its backup meter M3 were installed at the high voltage side of the No.1 main transformer for measuring the electricity imported ($EG_{import,y,1}$) by Group 1 WTGs. M2 and its backup meter M4 were installed at the high voltage side of the No.2 main transformer for measuring the electricity imported ($EG_{import,y,2}$) and by Group 2 WTGs. With the computer-monitoring system, the meters M1, M3 M2 and M4 were continuously monitored and monthly recorded. The data were combined into an original daily and monthly records /5/, which was submitted to the CDM responsible person for review. The original daily and monthly monitoring records /5/ were finally reviewed and approved by the manager every month. The approved monthly monitoring records /5/ are the basis for emission reduction calculations. On site visit, the monthly ETNs for electricity imported /6/ have been cross-checked by DNV with the original daily and monthly monitoring records during the monitoring period /5/. Thus, DNV can confirm that the values of electricity imports are consistent between the original daily and monthly monitoring records /5/ and the monthly ETNs for electricity imported /6/. The meters M1-M4 are jointly inspected and sealed on behalf of the parties and are not interfered with by either party except in the presence of the other party or its accredited



	representatives. The general conditions set out for metering, recording, meter readings, meter inspections, test & checking and communication are as per the the clarification letters /4/ issued by Jibei Electric Power Co., Ltd.. All relevant documents and records are stored electronically and will be kept two years after the end of the last crediting period. The management system for the CDM project is in place. In order to make the monitoring system more efficient, the project owner introduced the CDM Monitoring and Management Manual /8/. In the manual, the organization structure with the responsibilities, personnel competencies, monitoring procedure, calculation procedure and QA/QC procedure have been properly identified and put in place. By communicating with some staff /17/ on site and checking of monitoring reports /1/, training records /7/ and CDM Monitoring and Management Manual /8/, it can be confirmed that the monitoring management system is implemented in compliance with the revised PDD.
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	EG _{backupline, y} (electricity imported from the back-up line by the project in year y)
Measuring frequency:	Continuously measured.
Reporting frequency:	Monthly recorded and reported.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
Type of monitoring equipment:	Bi-directional electricity meters: DSSD22 The meter M5 was used to measure the electricity imported from the grid by the project through the backup line.
Is accuracy of the monitoring equipment	The accuracy level of M5 is 0.5S, which is in



as stated in the revised monitoring plan? If the revised monitoring plan does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	line with the accuracy specified in the revised PDD approved by EB on 6 November 2012 /12/.
Calibration frequency /interval:	Once a year.
Is the calibration interval in line with the revised monitoring plan? If the revised monitoring plan does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	The calibration interval once a year was in line with the revised PDD approved by EB on 6 November 2012 /12/.
Company performing the calibration:	The calibrations of the meter M5 was executed by Zhangjiakou Electric Energy Measurement Centre, which was accredited by Bureau of Quality and Technical Supervision of Hebei Province on 8 February 2008 and valid to 31 December 2011 /3/.
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes.
Is(are) calibration(s) valid for the whole reporting period?	Yes. The calibrations for meters were conducted by a qualified third party (detail information is given in table 1 below). Thus, DNV deems the valid period of the calibrations for all meters cover the whole reported period from 10 January 2012 to 3 October 2012/11/.
If applicable, has the reported data been cross-checked with other available data?	Yes. The reported data has been cross-checked against monthly ETNs for imported electricity by the project /6/ via backup line.
How were the values in the monitoring report verified?	During the reported period 10 January 2012 to 3 October 2012, there is no electricity imported through the backup line except for the September 2012, which has been confirmed by DNV with the ETNs issued by Jibei Electric Power Co., Ltd. /6/.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	In order to monitor electricity imported from the grid by the project through the backup line, the M5 meter installed is used to monitor the imported electricity. The electricity imported were continuously monitored and monthly recorded. The monthly monitoring records (if the electricity imported occur) /5/ will be provided to project owner and



	were finally reviewed and approved by the CDM manager every month. The approved monthly monitoring records /5/ are the basis for emission reduction calculations. The project owner and Jibei Electric Power Co., Ltd. jointly read the meter, and after the readings were confirmed by both sides, the Jibei Electric Power Co., Ltd. issued the monthly ETNs for electricity imported by project. All relevant documents and records will be stored electronically and kept for two years after the end of the last crediting period. The management system for the CDM project is in place. In order to make the monitoring system more efficient, before operation of this project, the project owner introduced the CDM Monitoring and Management Manual /8/. In the manual, the organization structure with the responsibilities, personnel competencies, monitoring procedure, calculation procedure and QA/QC procedure have been properly identified and put in place. By communicating with some staff /17/ on site and checking of monitoring reports /1/, training records /7/ and CDM Monitoring and Management Manual /8/, it can be confirmed that the monitoring management system is implemented in compliance with the revised PDD.
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	N/A

Table 1 Calibration information of M1, M2, M3, M4 and M5

Meter description	Type	Serial Number	Calibration Date	Validity
M1	ACE8000	ZG37006390	12/12/2011	11/12/2012
M3, backup meter of M1	DSSD331	09080144840023	05/01/2012	04/01/2012
M2	ACE8000	ZG37002994	12/12/2011	11/12/2012
M4, backup meter of M2	DSSD331	09080144840005	05/01/2012	04/01/2012
M5	DSSD22	B24T0P812403001807	12/12/2011	11/12/2012



3.7 Assessment of data and calculation of emission reductions

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

As stated in the section 1.4, the emission reductions ER_y by the project activity during the monitoring period is the difference between the baseline emission, project emissions or leakage.

$$ER_y = BE_y - PE_y - L_y = BE_y = EG_{\text{facility},y} * EF_{\text{grid}, CM, y} = (EG_{\text{export},y} - EG_{\text{import},y} - EG_{\text{backupline},y}) * EF_{\text{grid}, CM, y}$$

Baseline emissions

Baseline emissions (BE_y in tCO_2) are the product of the baseline emission factor ($EF_{\text{grid}, CM, y}$ in tCO_2/MWh) times the net electricity supplied by the project activity to the grid (EG_y in MWh).

$EF_{\text{grid}, CM, y}$ is emission factor of the grid, which was calculated *ex-ante* and will not be updated during the first seven-year renewable crediting period. $EF_{\text{grid}, CM, y}$ of the project in the revised PDD is $1.05485 tCO_2/MWh/12/$. DNV was able to confirm that the baseline emission factor $1.05485 tCO_2/MWh$ has been applied in the monitoring report version 02.1 /1/ and the ER spreadsheet version 02.1 /2/ during this monitoring period. Based on the baseline emission factor $1.05485 tCO_2/MWh$, the emission reductions are calculated as $311\,932 tCO_2e$ for the monitoring period from 10 January 2012 to 3 October 2012 /2/.

EG_y is the net electricity generation supplied to the grid during the monitoring period, which is determined by the electricity supplied to the grid minus the electricity imported from the grid on a monthly basis by monitoring the electricity exported via the transmission lines and imported via the backup line and transmission line. The electricity exported to and imported from the grid were derived from the meters M1 and M2 in the period 10 January 2012 to 3 October 2012 /5/ and the electricity imported derived from the meter M5, which were verified by DNV and cross-checked by monthly ETNs issued from the grid company /6/.

The net electricity generated by the project is supplied to the NCPG. During the monitoring period of 10 January 2012 to 3 October 2012 covering 268 days, the exported electricity and the imported electricity are $296\,060.259 MWh$ and $348.015 MWh$ respectively. The net electricity supplied to the grid for the monitoring period is calculated as $295\,712.244 MWh$ by accumulating the monthly net electricity supplied to the grid. The claimed emission reductions are therefore $311\,932 tCO_2e$ for the monitoring period of 10 January 2012 to 3 October 2012. The net electricity supplied by the project to the grid in this reporting period is as shown in the following Table 2.

Table 2: electricity supplied to the grid by the project (MWh)

Period	Values from original records			Values on ETNs	Conservative Value (MWh)
	A	B	C=A+B	D	D= MIN (C,D)
	Measured data from M1	Measured data from M2			
10/1/2012-31/1/2012	5 080.075	7 528.950	12 609.025	11 683.925	11 683.925
1/2/2012-29/2/2012	16 561.600	24 566.300	41 127.900	39 186.312	39 186.312
1/3/2012-31/3/2012	16 537.400	23 841.400	40 378.800	38 660.358	38 660.358
1/4/2012-30/4/2012	24 751.100	31 625.825	56 376.925	54 057.927	54 057.927



1/5/2012-31/5/2012	19 015.975	26 488.825	45 504.800	43 638.969	43 638.969
1/6/2012-30/6/2012	16 454.350	23 804.000	40 258.350	38 607.965	38 607.965
1/7/2012-31/7/2012	13 847.625	18 938.150	32 785.775	31 446.635	31 446.635
1/8/2012-31/8/2012	9 227.350	12 309.825	21 537.175	20 646.241	20 646.241
1/9/2012-30/9/2012	6 244.425	9 831.525	16 075.950	15 385.326	15 385.326
1/10/2012-3/10/2012	1 324.400	1 538.350	2 862.750	2 746.601	2 746.601
Total	129 044.300	180 473.150	309 517.450	296 060.259	296 060.259

Table 3: electricity imported from the grid by the project (MWh)

Period	Values from original records			Values on ETNs	Conservative Value (MWh)
	F	G	H=F+G	I	J=MAX (H,I)
	Measured data from M1	Measured data from M2			
10/1/2012-31/1/2012	32.175	83.325	115.500	115.500	115.500
1/2/2012-29/2/2012	2.750	6.050	8.800	8.800	8.800
1/3/2012-31/3/2012	11.825	23.375	35.200	35.200	35.200
1/4/2012-30/4/2012	8.525	7.150	15.675	15.675	15.675
1/5/2012-31/5/2012	9.625	5.775	15.400	15.400	15.400
1/6/2012-30/6/2012	10.450	3.575	14.025	14.025	14.025
1/7/2012-31/7/2012	15.125	9.900	25.025	25.025	25.025
1/8/2012-31/8/2012	18.975	12.375	31.350	31.350	31.350
1/9/2012-30/9/2012	42.350	39.325	81.675	81.675	81.675
1/10/2012-3/10/2012	0.550	0.825	1.375	1.375	1.375
Total	152.350	191.675	344.025	344.025	344.025

Table 4: electricity imported from the grid by the project through the backup line (MWh)

Period	measured data by M5	Values on ETNs	Conservative Value (MWh)
	K	L	M=MAX(K,L)
10/1/2012-31/1/2012	0.000	0.000	0.000
1/2/2012-29/2/2012	0.000	0.000	0.000
1/3/2012-31/3/2012	0.000	0.000	0.000
1/4/2012-30/4/2012	0.000	0.000	0.000
1/5/2012-31/5/2012	0.000	0.000	0.000
1/6/2012-30/6/2012	0.000	0.000	0.000
1/7/2012-31/7/2012	0.000	0.000	0.000
1/8/2012-31/8/2012	0.000	0.000	0.000
1/9/2012-30/9/2012	3.990	3.990	3.990
1/10/2012-3/10/2012	0.000	0.000	0.000
Total	3.990	3.990	3.990

Hence,

$$EG_y = EG_{\text{export},y} - EG_{\text{import},y} - EG_{\text{import-back-up line}} = 296\,060.259 - 344.025 - 3.990 = 295\,712.244 \text{ MWh,}$$

and

$$BE_y = EF_{\text{grid, CM, y}} * EG_y = 1.05485 \text{ tCO}_2/\text{MWh} * 295\,712.244 \text{ MWh} = 311\,932 \text{ tCO}_2\text{e}$$



Project emissions

The project emissions are regarded as zero according to the methodology ACM0002 version 12.1.0 /16/.

Leakages

There are no leakages that need to be considered in applying the methodology ACM0002 version 12.1.0 /16/.

Emission Reductions

Therefore, the emission reductions in this monitoring period are:

$$ER_y = BE_y - PE_y - L_y = 311\,932 - 0 - 0 = 311\,932 \text{ tCO}_2\text{e}.$$

The emissions reductions reported in this monitoring period are 311 932 tonnes of CO₂ equivalents in the period from 10 January 2012 to 3 October 2012 (i.e. 268 days from 10 January 2012 to 3 October 2012). The yearly expected emission reductions in the revised PDD are 427 936 tonnes of CO₂ equivalents, which corresponds to the emission reductions of 314 210.5 tCO₂e in 268 days. The reported emission reductions of 311 932 tCO₂e during this monitoring period is 0.73% less than the value estimated, which is caused by the wind variation during the monitoring period, DNV thus considers the 0.73% decrease in emission reductions to be acceptable.

As outlined above, the input data for calculating the emission reductions /5/ /6/, the calculating process and the result /2/ are complete and transparent. Therefore, DNV is able to confirm the accuracy of the emission reductions.

3.8 Quality of evidence to determine emission reductions

DNV confirms that a complete set of data for this monitoring period was available to be verified and was in accordance with the revised PDD /12/.

All necessary documentation were collected, referenced and aggregated and were easily accessible in hard-copy and electronic format. Measurements are performed by calibrated equipment, and the key data were cross-checked via other sources, such as ETNs /6/. No assumptions are used that have any material influence on reported emission reductions.

3.9 Management system and quality assurance

Hebei Construction Investment New Energy Co., Ltd is responsible for the operation and maintenance of the project, the monitoring equipments and data collection. The management system for the project has been verified to be in place by DNV on site. The organization structure with the responsibilities, personnel competencies, monitoring procedure and monitoring management have been properly identified and put into operation.

Data was collected according to well defined data collection procedures:

- Data of electricity exported and imported is recorded on a monthly basis /5/;
- At the end of every month, grid company issues the ETNs /6/ based on the recorded data /5/;
- Quality of the meter reading is assured through calibration of electricity meters /11/.



The monitoring and reporting of electricity data is in accordance with well-established operational procedures.

DNV confirms that the responsibilities and authorities in the management and operational system for monitoring and reporting are in accordance with the responsibilities and authorities stated in the revised PDD /12/, such as organizational structure, responsibilities, authorities, non-conformance handling, internal audits, quality assurance and quality control procedures, CDM monitoring and management manual /8/, and the competencies of CDM personnel involved in the project.



4 CERTIFICATION STATEMENT

DNV Climate Change Services AS (DNV) has performed the verification of the emission reductions that have been reported for the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” (UNFCCC Registration Reference No. 4853) for the period 10 January 2012 to 3 October 2012.

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

It is DNV’s responsibility to express an independent verification statement on the reported GHG emission reductions from the project. DNV does not express any opinion on the selected baseline scenario or on the validated and revised PDD.

DNV conducted the verification on the basis of the monitoring methodology ACM0002 (version 12.1.0), the monitoring plan contained in the revised PDD approved by EB on 6 November 2012 and the monitoring report (version 02.1) dated 23 November 2012. The verification included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.

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

In our opinion the GHG emissions reductions of the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” (UNFCCC Registration Ref No. 4853) for the period 10 January 2012 to 3 October 2012 are fairly stated in the monitoring report (version 02.1) dated 23 November 2012.

The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 (version 12.1.0) and the monitoring plan contained in the revised PDD approved by EB on 6 November 2012.

DNV Climate Change Services AS is able to certify that the emission reductions from the “Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project” during the period 10 January 2012 to 3 October 2012 amount to 311 932 tonnes of CO₂ equivalent.

Beijing and Oslo, 26 November 2012

Huang Wenhua John
Verifier
DNV Beijing, China

Edwin Aalders
Approver
DNV Climate Change Services AS



5 REFERENCES

5.1.1 Documentation provided by the project participants

- /1/ Hebei Construction Investment New Energy Co., Ltd: *Monitoring report of Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project for the period 10 January 2012 to 3 October 2012*, version 01 dated 17 October 2012 and version 02.1 of 23 November 2012
- /2/ Hebei Construction Investment New Energy Co., Ltd: *ER calculation spreadsheet of Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project for the period 10 January 2012 to 3 October 2012*, version 01 of 17 October 2012 and version 02.1 of 23 November 2012.
- /3/ Calibration company: Zhangjiakou Electric Energy Measurement Centre was accredited by Bureau of Quality and Technical Supervision of Hebei Province on 18 February 2008 and valid to 17 February 2011.
Approval letter of extending authorisation period to 31 December 2011 with code of Ji Zhijianhan No. (2011) 145.
Calibration company: Hebei Electric Power Research Institute was accredited by Bureau of Quality and Technical Supervision of Hebei Province on 14 February 2011 and valid to 13 February 2014.
- /4/ Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd. and Jibei Electric Power Co., Ltd. (a part of NCPG): clarification letter for metering point, measurement meters and cut off date issued on 20 November 2012 for Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project.
- /5/ Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd.: Original daily and monthly monitoring records on the electricity exported and the electricity imported of Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project during the period of 10 January 2012 to 3 October 2012.
- /6/ Jibei Electric Power Co., Ltd.: Monthly ETNs for electricity exported and imported by the project during this monitoring period 10 January 2012 to 3 October 2012.
- /7/ Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd.: *CDM monitoring training records of Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project* dated 10 January 2012 and 10 August 2012.
- /8/ Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd.: *CDM Monitoring and Management Manual for Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project*, January 2012.
- /9/ Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd.: Operation daily log for project activity "*Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project*", during the period of 10 January 2012 to 3 October 2012.
- /10/ Hebei Province Environmental Protection Bureau: EIA Completion and Acceptance for this project, dated 19 April 2011.
- /11/ Zhangjiakou Electric Energy Measurement Centre:
 - 1) For meter M1 with serial No. ZG37006390 and type ACE8000, M2 with serial No. ZG370062994 and type ACE8000,,
The calibration report was issued on 12 December 2011 and valid to 11



December 2012.

- 2) For meter M5 serial No B24T0P812403001807 and type DSSD22 :
The calibration report was issued on 12 December 2011 and valid to 11 December 2012.

Hebei Electric Power Research Institute:

- 1) M3 with serial No: 09080144840023 and type DSSD331 and M4 with serial No: 09080144840005 and type: DSSD331, calibration report was issued on 5 January 2012 and valid to 4 January 2013.

5.1.2 Other project documents or documents used by DNV to verify the information provided by the project participants

- /12/ Hebei Construction Investment New Energy Co., Ltd: *Revised Project Design Document of the Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project*, version 7.0 of 27 July 2012, approved by EB on 6 November 2012.
Bureau Veritas Certification: validation opinion for the revised PDD dated 20 August 2011
- /13/ Bureau Veritas Certification: The 1st verification/certificate report of the *Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project*, version 01 dated 20 September 2012.
- /14/ TUV Rheinland Japan Ltd: *Validation Report for the Hebei Guyuan County Dongxinying 199.5 MW Wind Power Project* (Report No.:01 997 9105049838), dated 15 September 2011.

5.1.3 Methodologies, tools and other guidance by the CDM Executive Board

- /15/ CDM Executive Board: Validation and Verification Standard, Version 02.0 dated 25 November 2011, EB 65, Annex 4.
- /16/ CDM Executive Board: ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, version 12.1.0 of 17 September 2010.
<http://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3OR24Y5L>

5.1.4 Persons interviewed during the verification

- /17/ Hebei Construction Investment New Energy Co., Ltd:
Mr Du Guang CDM project manager
- /18/ Construction Investment Yanshan (Guyuan) Wind Energy Co., Ltd.:
Mr Wang Qingliang Supervisor of wind farm plant

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APPENDIX A

CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS

Corrective action requests

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

Clarification requests

CL ID	Clarification request	Response by Project Participants	DNV's assessment of response by Project Participants
CL1	<i>The actual emission reduction during the monitoring period is lower 0.35% than estimated value in the monitoring period, which stated in the MR version 01, further clarification on the calculation approach is sought.</i>	<i>The number of days this monitoring period covered is 268 which was wrongly stated as 267 in MR version 01. In MR version 02.1, the mistake has been corrected. Comparison between actual emission reduction and estimated emission reduction was also been corrected in the MR version 02.1 and ER calculation spreadsheet version 02.1.</i>	<i>OK. The content corrected in the MR version 02.1 has been verified by DNV, which was confirmed to be correct. Therefore, the CL is closed.</i>
CL2	<i>The calibration information for backup meter M3 and M4 in the MR is sought and the serial number of M1 and M2 stated in the MR version 01 are inconsistent with actual serial numbers checked during the site visit, which were indicated on the surface of M1 and M2 installed at the high voltage side of main transformer, further clarification is sought.</i>	<i>The calibration information for backup meter M3 and M4 has been added into the relevant section of the MR version 02.1. The inconsistency of serial numbers of meter M1 and M2 was due to typo error. The serial numbers have been added into the MR version 02.1.</i>	<i>OK. The calibration information for backup meter M3 and M4 has been added in the MR version 02.1 which are consistent with what presented in the calibration reports provided by project owner during the site visit. The serial number of M1 and M2 have been corrected in the MR version 02.1, the corrected serial number of M1 and M2 are consistent with serial numbers presented on the surface of M1 and M2 checked during site visit and in the calibration reports. Therefore, the CL is closed.</i>

CL ID	Clarification request	Response by Project Participants	DNV's assessment of response by Project Participants
CL3	<i>The PPA for 2012 for the project owner is sought.</i>	<i>Due to the large number of wind power plants in the operational area of the grid company and valid term of PPA is only one year, the work load to negotiate PPAs with wind power companies and approve the PPAs is too heavy for the grid company, leading to serious delay of signing of the PPA-2012 for many wind power projects including our project. But terms in the PPA for our project regarding metering points and settlement cycle have been confirmed by clarification letter from the grid company. Specifically, the metering points are respectively on the high voltage side of two main transformers and the settlement cycle is calendar month from 00:00 on 1st day of each month to 24:00 on the last day of each month. The clarification letter from the grid company has been provided.</i>	<i>OK, As the negotiation between project owner and grid company for PPA is ongoing and the PPA for 2012 signed was not checked, however, as per the ETNs issued by grid company it able to prove the electricity generated by the project has been sold to grid. And as per the clarification letter issued by gid company on 20 November 2012, the metering point for electricity exported and imported, measurement meters and cut off date have been specified, which was verified by DNV, it is able to confirm to be consistent what stated in the MR version 02.1.. Therefore, the CL is closed.</i>
CL4	<i>The certificate of qualification for on-Job have been verified, however the CDM training record for relevant staff as per monitoring plan was not observed during the site visit, further clarification is sought.</i>	<i>The CDM training record for relevant staff as per monitoring plan has been provided.</i>	<i>OK. The traing records for staff have been provided and verified by DNV. Therefore the CL is closed.</i>

Forward action requests from previous verification

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

Forward action requests from this verification

FAR ID	Forward action request	Response by Project Participants	DNV's assessment of response by Project Participants
NA	NA	NA	NA

APPENDIX B

POST REGISTRATION CHANGES

Type of post registration change	Description of post registration change*	Is prior approval by CDM EB required**?	In case prior approval by CDM EB is required, when was post registration change approved?
Corrections	<i>Not applicable</i>	☐ Yes ☐ No	<i>Not applicable</i>
Temporary deviations from the registered monitoring plan and/or monitoring methodology	<i>Not applicable</i>	☐ Yes ☐ No	<i>Not applicable</i>
Permanent changes from the registered monitoring plan or applied methodology	After the registration of this project, the actual implementation of the monitoring was not fully consistent with the monitoring plan contained in the registered PDD since 10 January 2012. In the registered PDD, two meter (one main meter and another one is backup meter) would be installed to measure the electricity imported and exported via 220 kV transimission line. In case of emergency, electricity would be imported through backup line and measured by a meter installed. After 10 January 2012, the two pairs of meters were installed on the high voltage side of main transformers (M1 and its backup meter M3 installed on No.1 main transformer and M2 and its backup meter M4 installed on No.2 main transformer) for measuring the electricity imported and exported by transimission line. M5 was installed to measure the electricity imported via backup line in emergency situation. Accuary of M1-M4 is 0.2S and M5 is 0.5S. The PRC has been validated by DOE Bureau Veritas Certification and approved by EB on 6 November 2012.	☒ Yes ☐ No	<i>Appoved on 6 November 2012. CDM-PRC-4853-1</i>
Changes to the project design of a registered project activity	<i>Not applicable</i>	☐ Yes ☐ No	<i>Not applicable</i>

* For further details refer to the "Post-registration changes request form" (F-CDM-PRC) and DNV's assessment opinion on the changes

** Refer to Appendix 1 to the CDM Project Standard /15/

APPENDIX C

CURRICULA VITAE OF THE VERIFICATION TEAM MEMBERS

Mr. Huang Wen Hu, John holds a Master Degree in Business Administration. Having an overall experience of around 14 years. Prior to joining DNV, having around 10 years experience in several renowned multinational companies like Kodak, Meggitt, APC etc as a quality engineer, management system specialist, quality team leader, quality manager & management representative and his experience also cover the fields of environmental management. He has also been actively involved in establishing, implementation and audit of management systems such as ISO9001, TS16949, ISO140001 and OHSAS18001 standards in manufacturing industries for more than 8 years. In addition, he has gained knowledge in the field of cost accounting, strategic investment analysis & decision, financial risk and sensitivity analysis, and associated financial knowledge through his MBA course, the financial knowledge gained was also applied for the quality cost analysis while he was working in manufacturing industry as quality management role.

He has experience of more than 3.5 years in validation and verification of numerous CDM projects.

His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in “Energy Generation from Renewable Energy Sources”.

Mr. Yang Xiaoshan holds a Bachelor Degree in Material Science and Engineering. He has an overall experience of around seven years. Prior to joining DNV, having around four years of experience in cement manufacturing industry covering production, process optimization, quality assurance, waste heat recovery and energy efficiency improvement. His experience also covers the fields of environmental management and resource conservation including alternative fuels, cheap coal, and solid waste disposal in clinker kiln. He has also been actively involved in implementation of Quality Management System, ISO 9001 standard in cement manufacturing industry for more than three years.

He has experience of around 3 years in validation and verification of CDM and other GHG projects.

His qualification, industrial experience and experience in CDM demonstrate his sufficient sectoral competence in “Cement Manufacturing” and “Energy Generation from Renewable Energy Sources”.