

VERIFICATION REPORT

HEBEI YUXIAN SECOND PHASE 49.5MW WIND POWER PROJECT



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Summary:

Bureau Veritas Certification has made the Pre-CDM verification of Hebei Yuxian Second Phase 49.5MW Wind Power Project, owned by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd., which is located in southwest of Yuxian County, Zhangjiakou City, Hebei Province, P.R.China, with UNFCCC Reference 4789 on the basis of Voluntary Carbon Standard (VCS) Version 3 Program, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, as well as the host country criteria.

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

The first output of the verification process is a list of Clarification Requests, Corrective Actions Requests, Forward Actions Requests (CLs, CARs and FARs).

In summary, Bureau Veritas Certification confirms that the Project is implemented as planned and described in the VCS-PD. Deviations from the monitoring plan are sufficiently justified. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the Project is ready to reduce GHG emission. The GHG emission reduction is calculated without material misstatements.

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

Reporting period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emission (tCO ₂ e)	Emission Reductions (tCO ₂ e)
01/09/2009-31/12/2009	36,376	0	0	36,376
01/01/2010-31/12/2010	104,804	0	0	104,804
01/01/2011-31/05/2011	51,179	0	0	51,179
Total	192,359	0	0	192,359

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1 INTRODUCTION

1.1 Objective

Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. has commissioned Bureau Veritas Certification to verify the emission reductions of the Verified emission reduction (VER) of Hebei Yuxian Second Phase 49.5MW Wind Power Project (hereafter referred to as “**the Project**”), which is located in southwest of Yuxian County, Zhangjiakou City, Hebei Province, P.R.China for the period from 01/09/2009 to 31/05/2011, prior to its first CDM crediting period.

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

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

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

The objective of verification is to verify and certify the Verified Carbon Units (VCUs) generated by the Project from 01/09/2009 to 31/05/2011.

VCS Version 3 Program and UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the VCS Project Description (VCS-PD), the Project's baseline study and Monitoring Report (MR) and other relevant documents. The information in these documents is reviewed against VCS Version 3 requirements, UNFCCC rules and associated interpretations.

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

1.3 Level of assurance

The verification report is based on the VCS-PD, the VCS Monitoring Report (MR), CDM-PDD, supporting evidences made available to the verifier and information collected through performing interviews and during the on-site assessment. The verification conclusion is assured the level of assurance of the Project is high.

1.4 Summary Description of the Project

The Project is owned by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. (hereafter referred to as “the PP”) and is located in southwest of Yuxian County, Zhangjiakou City, Hebei Province, P.R.China. The Project consists of 33 sets of wind turbine generators (WTGs) with a unit installed capacity of 1500kW, providing a total installed capacity of 49.5MW. The annual expected net electricity supplied to Northwest China Power Grid (NCPG) is 112,170MWh and the annual estimated emission reductions are 111,243tCO₂e.

The Project has been registered as a CDM project on 01/06/2011 (UNFCCC Reg. No.4789) under approved CDM methodology ACM0002 Version 12.1.0 “Consolidated methodology for grid-connected electricity generation from renewable sources”.

Project title:	Hebei Yuxian Second Phase 49.5MW Wind Power Project
UNFCCC ref number:	4789
CDM Registration Date:	01/06/2011
VCS Monitoring Period:	01/09/2009 to 31/05/2011
VCS Project Proponent:	China: Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.
Methodologies used	ACM0002 Version 12.1.0
Location of the Project:	southwest of Yuxian County, Zhangjiakou City, Hebei Province, P.R.China
Geo coordinates:	114°32'2.12"E, 39°35'0.71"N
UNFCCC link:	http://cdm.unfccc.int/Projects/DB/TUEV-RHEIN1305258656.92/view

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

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

The Project Description (VCS-PD) ^[6] and the Monitoring report (VCS-MR) ^[8] submitted by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. and additional background documents related to the project design and baseline, i.e. country Law, registered CDM-PDD ^[4], validation report, Approved methodology, Clarifications on Validation Requirements to be Checked by a certified validation body were reviewed.

Bureau Veritas Certification verified the information contained in the documents reviewed against the requirements set in VCS Standard Version 3.2 effective as the 01/02/2012 ^[3] and the Clean Development Mechanism Validation and Verification Manual version 01.2 ^[2], issued by CDM Executive Board at its 55th meeting on 30/07/2010.

In addition, on 18/10/2011, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. (The PP)	↗ Project background information
	↗ Project technology, operation, maintenance and monitoring capability.
	↗ Project monitoring and management plan.
	↗ Project approvals (incl. EIA approval, LOA, FSR approval)
	↗ Government policies related to wind power projects
	↗ Applicability of selected methodology.
	↗ Baseline determination.
	↗ Emission reductions calculation.
	↗ Emission reduction monitoring plan.

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

2.2 Validation Findings

2.2.1 Gap Validation

According to the VCS standard Version 3.2 for projects validated under the CDM, the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description Template shall be completed and a validation/verification body shall undertake a validation of same to provide a gap validation for the project's compliance with the VCS rule.

Bureau Veritas Certification verified the information reported in the VCS-PD version 02 dated 30/01/2012^[6] against the CDM-PDD^[4], CDM validation report^[9], Project Host country (China) LOA^[11], Project Operation Log^[13], Business License^[10] and UNFCCC website^[26] and found consistent. The detailed validation process is documented in the Table below

CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
1. Project Details			
1.2 Sectoral Scope and Project Type	VCS-PD, CDM-PDD, CDM Validation Report	As a wind power farm the Project falls into the sectoral scope I (renewable source).	OK
1.3 Project Proponent	VCS-PD, CDM-PDD, CDM Validation Report, LOA, UNFCCC website, PPA	The Project owner is Hebei Construction Investment Yuzhou Wind Energy Co., Ltd..	OK
1.5 Project Start Date	VCS-PD, Project commercial operation Grid company certificate	The project starting date in VCS Version 3 is defined as the date when the Project began generating GHG emission reduction or removals. As per implementation log of the Project, on 01/09/2009 the Project commenced to deliver electricity to the grid. As a consequence the Project starting date is 01/09/2009.	OK
1.6 Project Crediting Period and	VCS-PD, Project commercial operation Grid company certificate, CD- PDD, CDM Validation	The Project starting date is 01/09/2009 and the Project was registered as CDM on 01/06/2011. Consequently the VCS crediting period is from 01/09/2009 to 31/05/2011.	OK

CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
	report, UNFCCC website		
1.7 Project Scale and Estimated GHG Emission Reductions or Removals	VCS-PD, CDM-PDD, CDM Validation report	The Project is expected to achieve 111,243tCO ₂ e per year. It is thus categorized as ' Project ' as per VCS 3.2 definition.	OK
1.9 Project Location	Site visit, VCS- PD,CDM- PDD, CDM Validation report	The project site is located in southwest of Yuxian County, Zhangjiakou City, Hebei Province, P.R.China. The Project coordinates of 114°32'2.12"E, 39°35'0.71"N has been verified during the onsite visit.	OK
1.10 Conditions Prior to Project Initiation	VCS- PD,CDM- PDD, CDM Validation report	The scenario existing prior to the start of the implementation of the project activity is North China Power Grid (NCPG), which is dominated by fossil-fuel fired power plant, providing the same electricity service as the Project. The implementation of the Project was not to generate GHG emissions primarily for the purpose of its subsequent removal or destruction.	OK
1.12.1 Right of use	FSR, LoAs, PPA	Hebei Yuxian Second Phase 49.5MW Wind Power Project in Hebei Province is developed by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.. The letter of Approval (No.1311) issued by National Development and Reform Commission of the P.R.^[11] China is provided to demonstrate the right of use of the Project. Information has also been verified by checking the Business lisencc^[10].	OK
1.12.2 Emission Trading Programs and Other Binding Limits	VCS-PD, CDM-PDD, CDM	N.A. to the Project. The Project has been registered as a CDM project on 01/06/2011. Only GHG emission	OK

CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
	Validation Report, UNFCCC website	reductions achieved from the starting date of the Project 01/09/2009 to 31/05/2011 could be verified as VCUs under the VCS version 3.	
1.12.3 Participation under Other GHG Programs	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	The Project has been registered as a CDM project (UNFCCC Reference No.4789) on 01/06/2011. Only GHG emission reductions achieved from the starting date of the Project 01/09/2009 to 31/05/2011 could be verified as VCUs under the VCS Version 3.2 program.	OK
1.12.4 Other Forms of Environmental Credit	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program. The Project only will generate CER from 01/06/2011 on.	OK
1.13 Additional Information Relevant to the Project -Eligibility Criteria -Leakage Management -Commercially Sensitive Information -Further Information	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	Not applicable to the Project since - it is not a grouped project; - leakage is 0; - no commercial sensitive information has been excluded to the public - there is not any additional relevant legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals	OK

2.2.2 Methodology Deviations

No methodology deviation has been applied to the Project

2.2.3 New Project Activity Instances

Not applicable since Hebei Yuxian Second Phase 49.5MW Wind Power Project is not a grouped project.

2.3 Validation Conclusion

In Bureau Veritas Certification's opinion the Project conforms to the relevant criteria of VCS Standard Version 3.2.

3 VERIFICATION PROCESS

3.1 Method and Criteria

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

The Project was verified against the requirements set in VCS Standard Version 3.2 effective as the 01/02/2012^[3] and the Clean Development Mechanism Validation and Verification Manual version 01.2^[2], issued by CDM Executive Board at its 55th meeting on 30/07/2010.

3.2 Document Review

The verification of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report (MR) version 02 dated 30/01/2012 and VCS-PD version 02 dated 30/01/2012 submitted to the Bureau Veritas Certification. Qualitative information comprises information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.

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

- a) The PD of the Project, the registered CDM-PDD, including the monitoring plan and the corresponding validation report^{[4] [9]};
- b) The applied monitoring methodology^[1];
- c) Other information and references relevant to the project activity's resulting emission reductions (e.g. national regulations)^{[21] [22]}.

3.3 Interviews

On 18/10/2011, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review.

Representatives of Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. were interviewed (see References).

3.4 Site Inspections

Please refer to section 3.3 above.

3.5 Resolution of Any Material Discrepancy

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

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

Corrective Action Requests (CARs) are issued, where:

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

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

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

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

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Bureau Veritas Certification has performed an on-site visit and found that the Project has been put into operation and the electricity generated is supplied to NCPG according to the signed Power Purchase Agreement (PPA)^[12]. All the 33 sets of wind turbine generators (10 sets of FD70B type wind turbines and 23 sets of FD77B type), manufactured by Dongfang Steam Turbine Co., Ltd.^[15], with the unit capacity of 1500kW and total capacity of 49.5MW as described in the registered PDD have been in operation during the monitoring period.

According to the implementation log of the Project^[13], the Project has been commissioning since 01/09/2009.

No notification or approval of changes has been requested before for the Project. During the site visit, no changes from the project activity as described in the VCS-PDD, VCS-MR and registered CDM-PDD have been observed or identified. Hence there is no need to request for notification or approval of changes.

This is the first verification and there are no open issues from the validation report.

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

[Power System]

The Project shares the same onsite 35kV/110kV substations, the 110kV power line to the Laiyuan 110kV Substation of the grid and the electricity meters installed there (M1 and M2) with the other wind farm project (hereafter referred to as “**the third phase project**”). The electricity generated by the Project is firstly delivered to its onsite 35kV/110kV substations, and then exported to the Laiyuan 110kV substation, which connected to NCPG.

When the Project fails to generate power or under maintenance, the Project will import electricity from the grid via the 110kV line, and if the 110kV line is in fault, the Project will import electricity from the grid via the backup power line.

[Metering System]

Five meters were involved in the metering system:

- The main meter (M1) was installed at the high voltage side of the onsite 35kV/110kV substation. It can measure the bi-directional electricity supplied to the grid and consumed by both wind farm projects. No malfunction of the M1 occurred in the monitoring period, thus the reading of M1 has applied in the determination of the emission reduction.
- The meter (M2) was installed as the backup meter of meter M1 at the high voltage side of the onsite 35kV/110kV substation. It can measure the bi-directional electricity supplied to the grid and consumed by both wind farm projects.

- The meter (M3) was installed at the low voltage side of the onsite 35kV/110kV substation. It can measure the bi-directional electricity supplied to the grid and consumed from the grid via 110kV line.
- For the third phase project, the meter (M4) was installed at the low voltage side of the onsite 35kV/110kV substation. It can measure the bi-directional electricity supplied to the grid and consumed from the grid via 110kV line of the third phase project.
- The meter (M5) was installed at the backup power line, which is the line for importing electricity by the project and the third phase project during the 110kV line in fault.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Monitoring has been carried out in accordance with the monitoring plan contained in the VCS-PD^[6] and the registered CDM-PDD^[4].

[Parameters and information flow]

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

Parameters monitored:

$EG_{\text{facility},y}$: Quantity of net electricity generation supplied by the project plant to the grid in year y

The net electricity delivered to the grid by the Project (EG_{facility}) is the electricity supplied to the grid by the Project minus the electricity imported from the grid by the Project. Therefore EG_{facility} can be calculated as below:

$$EG_{\text{facility}} = EG_{\text{export}} - EG_{\text{import}} - EG_{\text{backupline},y} = EG_{\text{export},y,1} \times EG_{\text{export},y,3} / (EG_{\text{export},y,3} + EG_{\text{export},y,4}) - EG_{\text{import},y,1} \times (EG_{\text{import},y,3} / (EG_{\text{import},y,3} + EG_{\text{import},y,4}) - EG_{\text{backupline},y})$$

Where:

EG_{export} : The electricity supplied to the grid by the Project

EG_{import} : The electricity imported from the grid by the Project

$EG_{\text{export},y,1}$: The electricity exported to the grid by the project and the third phase project measured by the meter M1;

$EG_{\text{export},y,3}$: The electricity exported to the grid by the project which is directly measured by M3;

$EG_{\text{export},y,4}$: The electricity exported to the grid by the third phase project which is directly measured by M4.

$EG_{\text{import},y,1}$: The electricity imported from the grid by the project and the third phase project which is directly measured by M1;

$EG_{\text{import},y,3}$: The electricity imported from the grid by the project which is directly measured by M3;

$EG_{\text{import},y,4}$: The electricity imported from the grid by the third phase project which is directly measured by M4.

$EG_{\text{backupline},y}$: The electricity consumed by the project and the third phase project through the backup line measured by the meter M5;

The readings of all the meters are monitored continuously and recorded monthly, which form the Monthly reading records (MRR). The cut-off time is 24:00 on the 24th each month, and based on readings of Meter M1, M3, M4 and M5, the grid company issued sales receipts for the Project. The PP has crosschecked the sales receipts with the MRR to validate the data are appropriate, and then confirmed the sales receipts with the grid company. The readings of the meters on 24:00 of the end of every year have also been confirmed in separate sales receipts^[24] issued by the grid company. Both the MRR^[23] and the sales receipts^[24] can cover the monitoring period from 01/09/2009 to 31/05/2011 and the data are consistent.

The verification team has verified the values provided in the monitoring report against the relevant documented evidences i.e. MRR^[23] and sales receipts^[24] and found them consistent with the evidences. All the evidence can cover the monitoring period.

Parameters determined ex-ante:

EF_{grid,CM,y}, combined emission factor of the grid

The emission factor of the crediting period of the Project has been determined ex-ante in the registered CDM-PDD^[4]. The emission factor used in the monitoring report has been verified against the CDM-PDD and found same.

[Calibration]

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

Table 2 Calibration records of the meters^[18]

Meter ID	Serial number	Accuracy	Calibration date	Calibration validity	Calibration entity
M1	94827520	0.2%	21/05/2009 22/05/2010 18/05/2011	Yes	Hebei power research institute with certificate NO. (JI) Fa Ji [2007]D030 and (JI) Fa Ji [2011]D030 ^[19]
M2	94827519	0.2%	21/05/2009 22/05/2010 18/05/2011	Yes	
M3	94316768	0.2%	01/02/2009 31/01/2010 30/01/2011	Yes	
M4 ¹	94316769	0.2%	31/01/2010 30/01/2011	Yes	
M5	20070130030 114	0.5%	12/08/2009 10/08/2010	Yes	Laiyuan Power Supply Co., Ltd. with certificate

¹ The third phase project had been operated since 16/12/2010 as per its implementation log^[13].

					No.(Bao) FaJi [2009]D002 ^[20]
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According to the MP, the electricity meters should be calibrated and checked annually and their accuracy of meter (M1, M2, M3 and M4) should be no less than 0.5S, and the accuracy of meter M5 should be no less than 1.0.

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 monitoring plan and are in compliance with the industry standard *Technical Administrative Code of Electric Energy Metering (DL/T 448-2000)*^[21]. The calibration frequency fulfills the requirement as described in the monitoring plan and is in compliance with the national standard *Verification Regulation of Electrical Energy Meter with Electronics (JJG 596-1999)*^[22].

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

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

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

As per the methodology ACM0002 Version 12.1.0^[1] and the VCS-PD^[6], the emission reductions for the Project are calculated as the baseline emissions minus the project emissions. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y - PE_y - L_y$$

Where,

ER_y: Emission reductions

BE_y: Baseline emissions

PE_y: Project emissions

L_y: Leakage

[Baseline emissions]

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

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

EF_{grid, CM, y}: GHG emission factor of the NCPG, calculated ex ante in the registered CDM-PDD as 0.99174 tCO₂e/MWh

EG_{facility, y}: net electricity supplied to the grid by the Project

In this monitoring report, the values of the monitoring parameter $EG_{import,y,1}$ are used as values of the $EG_{import,y}$, i.e. $EG_{import,y} = EG_{import,y,1}$. Since the calculation method required by the monitoring period means that the $EG_{import,y,1}$ are no lower than the $EG_{import,y}$, this calculation method $EG_{import,y} = EG_{import,y,1}$ used in this monitoring period is a conservative method to calculate the emission reductions. As the $EG_{import,y,1}$ is measured by meter M1, whose accuracy is the same as the accuracy of the meters M3 and M4 which are used to measure the $EG_{import,y,3}$ and $EG_{import,y,4}$, the accuracy for the parameter $EG_{import,y}$ is not impacted. Therefore the emission reductions calculated in this monitoring period are not overestimated

Therefore, the net electricity should be calculated as:

$$EG_{facility,y} = EG_{export,y} - EG_{import,y} - EG_{backupline,y} = EG_{export,y,1} \times EG_{export,y,3} / (EG_{export,y,3} + EG_{export,y,4}) - EG_{import,y} - EG_{backupline,y}$$

The verification team has cross-checked the electricity supplied to and imported from the grid from the MRR^[23] with the sales receipts^[24] issued by the grid company from 01/09/2009 to 31/05/2011. The conservative data have been applied in the emission reduction calculation. And the MRR and sales receipts for the EG_{import} and $EG_{backupline,y}$ are consistent. The verified values are shown in the following Table 3.

Table 3 The verified data of parameters EG_{export}, EG_{import} and EG_{backuptline, y} (MWh)

Period	MRR			Data of EG _{export} by MRR	Data on the sale receipts	Verified data of EG _{export}	Verified data of EG _{import}	Verified data of EG _{backuptline, y}
	EG _{export,y,1}	EG _{export,y,3}	EG _{export,y,4}					
	A	B	C					
01/09/2009- 24/09/2009	5,602.960			5,602.960	21717.000	21717.000	23.760	0.000
25/09/2009- 24/10/2009	6,772.480			6,772.480			17.600	0.000
25/10/2009- 24/11/2009	9,341.560	-	-	9,341.560			19.360	0.000
25/11/2009- 24/12/2009	11,487.000	-	-	11,487.000	11,487.000	11,487.000	10.560	0.000
25/12/2009- 31/12/2009	3,546.400	-	-	3,546.400	3,546.400	3,546.400	0.000	0.000
Sub-total in 2009	-					36,750.400	71.280	0.000
01/01/2010- 24/01/2010	11,127.600	-	-	11,127.600	11,127.600	11,127.600	3.520	0.000
25/01/2010- 24/02/2010	11462.000	-	-	11462.000	11462.000	11462.000	7.920	0.000
25/02/2010- 24/03/2010	9020.880	-	-	9020.880	9021.000	9020.880	7.920	0.000
25/03/2010- 24/04/2010	9553.540	-	-	9553.540	9554.000	9553.540	8.800	0.000
25/04/2010- 24/05/2010	9948.140	-	-	9948.140	9948.000	9948.000	7.040	0.000
25/05/2010- 24/06/2010	4325.720	-	-	4325.720	4326.000	4325.720	23.760	0.000
25/06/2010- 24/07/2010	2838.880	-	-	2838.880	2839.000	2838.880	32.560	0.000
25/07/2010-	2858.240	-	-	2858.240	2858.000	2858.000	22.000	0.000

24/08/2010								
25/08/2010-24/09/2010	3750.030	-	-	3750.030	3750.000	3750.000	47.520	0.000
25/09/2010-24/10/2010	4661.360	-	-	4661.360	4661.000	4661.000	11.440	0.000
25/10/2010-24/11/2010	13438.480	-	-	13438.480	13438.000	13438.000	7.040	0.000
25/11/2010-15/12/2010	15/12/2010*	13981.440	-	13981.440	19180.000	19179.928	2.640	0.000
16/12/2010-24/12/2010	24/12/2010	7481.760	5223.960	5198.488				0.000
25/12/2010-31/12/2010	31/12/2010	5,794.800	3,634.260	3,696.182	3,696.000	3,696.000	0.000	0.000
Sub-total in 2010	-					105,859.548	182.160	
01/01/2011-24/01/2011	24,475.440	13,055.700	11,605.860	12,957.169	12,945.000	12,945.000	13.200	0.000
25/01/2011-24/02/2011	17615.840	9195.900	8572.200	9117.098	9117.000	9117.000	22.000	0.000
25/02/2011-24/03/2011	26729.120	12843.600	14085.120	12748.401	12748.000	12748.000	19.360	0.000
25/03/2011-24/04/2011	18678.000	8245.020	10577.700	8181.627	8182.000	8181.627	28.160	0.000
25/04/2011-24/05/2011	19644.240	8406.300	11387.460	8342.800	8343.000	8342.800	5.280	0.000
25/05/2011-31/05/2011	4,210.800	1,840.860	2,401.980	412.539	380.499	380.499	21.120	0.000
Sub-total in 2011	-					51,714.926	109.120	0.000
Total	-					194,324.874	362.560	0.000

Note: * The third phase project had been operated since 16/12/2010 as per its implemenaton log^[13].

Table 4 The baseline emissions of the Project

Period	EG _{export} (MWh)	EG _{import} (MWh)	EG _{backupline, y} (MWh)	EG _{facility} (MWh)	Emission Factor (tCO ₂ e/MWh)	Baseline Emission (tCO ₂ e)
	F	G	H	I=F-G-H	J	K=I*J
01/09/2009-31/12/2009	36,750.400	71.280	0.000	33132.720	0.99174	36,376
01/01/2010-31/12/2010	105,859.548	182.160	0.000	105527.788		104,804
01/01/2011-31/05/2011	51,714.926	109.120	0.000	55301.806		51,179
TOTAL	194,324.874	362.560	0.000	193,962.314	-	192,359

[Project emissions]

As per the methodology ACM0002 Version 12.1.0, for the windfarm project, the project emission is zero.

[Leakage emissions]

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

[Emission reductions]

Therefore, the emission reductions during the monitoring period from 01/09/2009 to 31/05/2011 are calculated as:

Monitoring Period	Vintage	BE (tCO ₂ e)	PE (tCO ₂ e)	LE (tCO ₂ e)	Emission reductions (tCO ₂ e)
01/09/2009 to 31/05/2011	2009	36,376	0	0	36,376
	2010	104,804	0	0	104,804
	2011	51,179	0	0	51,179
Total		192,359	0	0	192,359

As per ex-ante calculation of the registered CDM-PDD, the average of annual emission reductions is 111,243tCO₂e. The estimated ERs during this period are 194,447 tCO₂e (=111,243*638/365), whereas the actual emission reduction accomplished by the project during this verification period is 192,359 tCO₂e. Comparing with the estimated ERs, the actual ERs were 1.07% lower than estimation.

4.4 Management and Operational System

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

The PP has operated the Project as per VCS-PD and the registered CDM-PDD. The monitoring organization has been set up, all monitoring staffs have been trained and quality control procedures are in place ^{[27][28]}. Reading records of all meters are based on continuous measurement and are monthly recorded by the PP and the grid company. The grid company issues monthly sales and purchase receipts to confirm the net electricity supplied to the grid.

5 VERIFICATION CONCLUSION

Bureau Veritas Certification has performed the verification of Hebei Yuxian Second Phase 49.5MW Wind Power Project, CDM Registration Reference Number 4789, owned by Hebei Construction Investment Yuzhou Wind Energy Co., Ltd., which is located in southwest of Yuxian County, Zhangjiakou City, Hebei Province, P.R.China, and applying the methodology ACM0002 Version 12.1.0. The verification was performed based on the requirements set by VCS Standard Version 3.2 effective as the 01/02/2012, UNFCCC criteria for the CDM and relevant guidance provided by CMP and the CDM Executive Board.

The verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders and onsite visit; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of Hebei Construction Investment Yuzhou Wind Energy Co., Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the project on the basis set out within the project Monitoring Plan in the registered PDD. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the Project, is the responsibility of the management of the Project.

Bureau Veritas Certification has verified the project Monitoring Report version 02 dated 30/01/2012 for the reporting period as indicated below. Bureau Veritas Certification confirms that the Project is implemented as described in validated and registered project design documents. Installed equipments being essential for generating emission reductions run reliably and are calibrated appropriately. The monitoring system is in place and the Project is generating GHG emission reductions. The Project also conforms with the verification criteria for projects and their GHG emission reductions or removals set out in the VCS rules.

Bureau Veritas Certification can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the projects' GHG emission and resulting GHG emission reductions reported and related to the validated and registered project baseline, monitoring plan and its associated documents. Based on the evidence and information that are considered necessary to guarantee that GHG emission reductions are appropriately calculated, Bureau Veritas Certification confirms the following statement:

Reporting period : 01/09/2009 to 31/05/2011

GHG Emission Reductions or Removals	2009	2010	2010	Total
Baseline Emissions(tCO ₂ e)	36,376	104,804	51,179	192,359
Project Emissions(tCO ₂ e)	0	0	0	0
Leakage(tCO ₂ e)	0	0	0	0
Net GHG emission reductions or removals(tCO₂e)	36,376	104,804	51,179	192,359

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Documents reviewed:

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[28]. Internal Training Records and Qualification Certificate of Operation Staff

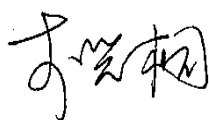
Persons interviewed:

/1/ Mr. Du Guang, Project Manager, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.

/2/ Mr. Zhou Xin, Project Manager, Hebei Construction Investment Yuzhou Wind Energy Co., Ltd.

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31/03/2012



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