

VERIFICATION REPORT

INNER MONGOLIA YIHEWUSU PHASE II 49.5 MW WIND POWER PROJECT



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Summary:

Bureau Veritas Certification has made the Pre-CDM verification of Inner Mongolia Yihewusu Phase II 49.5 MW Wind Power Project (CDM Registration Number 3490), owned by Inner Mongolia Xinjin Wind Power Co., Ltd, which is located in Hangjin County, Ordos City, Inner Mongolia, P.R. China, and applying the methodology ACM0002 Version 10, on the basis of Voluntary Carbon Standard (VCS) Version 3.3, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification scope is defined as a periodic independent and objective 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.

In summary, Bureau Veritas Certification confirms that the Project is implemented as planned and described in the validated 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, and the emission reductions verified totalize 135,265 tons of CO₂e for the monitoring period.

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, deviation on the 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)
01/07/2009-31/12/2009	46,759	0	0	46,759
01/01/2010-24/11/2010	88,506	0	0	88,506
Total	135,265	0	0	135,265

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1 INTRODUCTION

1.1 Objective

EcoSecurities International Limited has commissioned Bureau Veritas Certification to verify the emission reductions of the Verified emission reduction (VER) of Inner Mongolia Yihewusu Phase II 49.5 MW Wind Power Project (hereafter referred to as “the Project”), which is located in Hangjin County, Ordos City, Inner Mongolia, P.R. China for the period from 01/07/2009 to 24/11/2010, prior to its first CDM crediting period.

Bureau Veritas Certification as the validation/verification body (VVB) 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 of “pre-CDM” emission reductions from a project activity is the independent review and ex post determination by VVB of the monitored reductions in GHG emissions during the period from the project start date until the date when the project was actually approved as a CDM project activity by the CDM Executive Board (CDM-EB).

The objective of verification is to verify the reported voluntary emission reductions generated by the Project for the period from 01/07/2009 to 24/11/2010 and to confirm that actual monitoring systems and procedures are in compliance with that described in the monitoring plan and the additional requirements stated by the VCS Association (VCSA).

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), VCS monitoring report (VCS-MR) and other relevant documents. The information in these documents is reviewed against VCS Version 3.3 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

Bureau Veritas Certification has undertaken a reasonable assurance engagement in accordance with VCS version 3.3. It requires a reasonable level of assurance in verification that GHG assertions are free of material errors, omissions and misrepresentations. The verification conclusion is based on the VCS-PD, VCS-MR, CDM-PDD, supporting evidences made available to the verifier and information collected through performing interviews and during the on-site inspection.

1.4 Summary Description of the Project

The Project is owned by Inner Mongolia Xinjin Wind Power Co., Ltd (hereafter referred to as “the PP”) and is located in Hangjin County, Ordos City, Inner Mongolia, P.R. China. The Project consists of 66 sets of wind turbine generators (WTGs, Type: Jinfeng S50/750) with a unit installed capacity of 750kW, providing a total installed capacity of 49.5MW. The annual expected electricity supplied to North China Power Grid (NCPG) is 101,689MWh and the annual estimated emission reductions are 107,267tCO₂e.

The Project has been registered on 25/11/2010 (UNFCCC ref. No. 3490) under approved CDM methodology ACM0002 Version 10 “Consolidated methodology for grid-connected electricity generation from renewable sources”. The Project Start Date is 25/06/2009, when the Project started electricity generation to the NCPG^[13]. The crediting period for the Project under the VCS is from 01/07/2009 to 24/11/2010. It's before the starting date of the 1st renewable CDM crediting period 25/11/2010.

Project title:	Inner Mongolia Yihewusu Phase II 49.5 MW Wind Power Project
UNFCCC Ref number:	3490
CDM Registration Date:	25/11/2010
VCS Monitoring Period:	01/07/2009 to 24/11/2010
Project Participants:	China (host): Inner Mongolia Xinjin Wind Power Co., Ltd
Methodologies used	ACM0002 Version 10
Location of the Project:	Hangjin County, Ordos City, Inner Mongolia, P.R. China
Geo coordinates:	Longitude: 107°31'42" E, Latitude: 40°07'02" N
UNFCCC link:	http://cdm.unfccc.int/Projects/DB/KFQ1268810735.04/view

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

Method and Criteria:

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

Bureau Veritas Certification verified the information contained in the documents reviewed against the requirements set in VCS Standard Version 3.3 effective as the 04/10/2012^[3] and the Clean Development Mechanism Validation and Verification Standard version 3.0^[2], issued by CDM Executive Board at its 70th meeting on 23/11/2012.

Document Review:

The Project Description (VCS-PD)^[6], the CDM Project Design Document (CDM-PDD)^[4] and the Monitoring Report (VCS-MR)^[8] submitted by EcoSecurities International Limited 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.

Furthermore, cross checks were made between information provided in the VCS-PD, CDM-PDD and information from sources other than those used.

The validation conclusions presented in this report relate to the project as described in the VCS-PD version 2 dated 24/01/2013.

Site Inspection and Interviews:

On 26/12/2012, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Inner Mongolia Xinjin Wind Power Co., Ltd and EcoSecurities International Limited were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Inner Mongolia Xinjin Wind Power Co., Ltd (The Project Owner)	↗ 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
EcoSecurities International Limited (the Consultant)	↗ Applicability of selected methodology. ↗ Baseline determination. ↗ Emission reductions calculation. ↗ Emission reduction monitoring plan.

Resolution of Any Material Discrepancy:

The objective of this phase of the validation is to resolve issues that require further elaboration, research or expansion prior to Bureau Veritas Certification's positive conclusion on the project design.

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

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable, verifiable and additional emission reductions;
- (b) The applicable VCS requirements have not been met;
- (c) There is a risk that emission reductions cannot be monitored or calculated.

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

A Forward Action Request (FAR) may also be raised during validation, to identify issues related to project implementation that require review during the first verification of the project activity.

To guarantee the transparency of the validation process, the issues raised, the responses provided by the project participants, the means of validation of such responses and references to any resulting changes in the VCS-PD or supporting annexes are documented in the Appendix A.

2.2 Validation Findings

2.2.1 Gap Validation

According to the VCS standard Version 3.3 for projects validated under the CDM, the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description Template shall be completed. A validation/verification body shall undertake a validation of same, to provide a gap validation for the project's compliance with the VCS rule. The approved GHG program validation i.e. CDM validation shall be completed within the relevant validation deadline. Non-AFOLU projects shall complete validation within two years of the project start date.

The validation report that is submitted to request for CDM registration has been issued on 08/03/2010, therefore within two years of the project start date i.e. 25/06/2009.

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 Energy Industries (renewable source). The Project is not a grouped project.	OK
1.3 Project Proponent	VCS-PD, CDM-PDD, CDM Validation Report, LOA, UNFCCC website, PPA	The Project owner is Inner Mongolia Xinjin Wind Power Co., Ltd.	OK
1.5 Project Start Date	VCS-PD, Inspection Report issued by grid company,	The project starting date in VCS Version 3.3 is defined as the date when the Project began generating GHG emission reduction or removals. As per the Inspection Report issued by Grid Company^[16], all the Wind turbine and generator commenced to deliver	OK

CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
		electricity to the grid on 25/06/2009.	
1.6 Project Crediting Period and	VCS-PD, Inspection Report issued by Grid Company, CDM- PDD, CDM Validation report, UNFCCC website	The Project starting date is 25/06/2009 the project was registered as CDM on 25/11/2010 and the first crediting period is started from 25/11/2010. The VCS crediting period is from 01/07/2009 to 24/11/2010.	OK
1.7 Project Scale and Estimated GHG Emission Reductions or Removals	VCS-PD, CDM-PDD, CDM Validation report	The Project is expected to achieve 107,267tCO ₂ e of emission reductions per year. It is thus categorized as ' Project ' as per VCS 3.3 definition.	OK
1.9 Project Location	Site visit, VCS-PD, CDM-PDD, CDM Validation report	The project site is located in Hangjin County, Ordos City, Inner Mongolia, P.R. China. The Project coordinates of Longitude: 107°31'42" E, Latitude: 40°07'02" N have 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 that local electricity service is provided by the North China Power Grid (NCPG), which is dominated by fossil-fuel fired power plants. The Project involves the installation of 66 wind turbines with unit capacity of 750kW. The total installed capacity of the Project is 49.5 MW. The purpose of the project is to generate renewable power by wind energy to replace power from North China Power Grid which is dominated by fossil-fuel fired power plants.	OK

CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
		Since the project does not generate GHG emissions, the implementation of the Project was not to generate GHG emissions primarily for the purpose of its subsequent removal or destruction.	
1.12.1 Right of use	Business License, Operation License, Approvals of FSR and EIA, LoA, PPA and purchasing contracts	Inner Mongolia Yihewusu Phase II 49.5 MW Wind Power Project is developed by Inner Mongolia Xinjin Wind Power Co., Ltd. The letter of Approval (No.2048) issued by National Development and Reform Commission of the P.R. China ^[11] is provided to demonstrate the right of use of the Project. Information has also been verified by checking the Business license ^[10], Operation License ^[11], Approvals of FSR and EIA ^[12], purchasing contracts ^[17] and PPA signed with the grid company^[12].	OK
1.12.2 Emission Trading Programs and Other Binding Limits	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	The Project has been registered as a CDM project on 25/11/2010 which is also the starting date of the first crediting period. Only GHG emission reductions achieved from the date 01/07/2009 to 24/11/2010 could be verified as VCUs under the VCS version 3.3. It has been verified that the project is not included in any emission trading programs or any other mechanism that includes GHG allowance trading from 01/07/2009 to 24/11/2010.	OK
1.12.3 Participation under Other GHG Programs	VCS-PD, CDM-PDD, CDM Validation Report, UNFCCC website	The Project has been registered as a CDM project (UNFCCC Reference No.3490) on 25/11/2010 which is also the starting date of the first crediting period.. Only GHG emission reductions achieved from the date 01/07/2009 to 24/11/2010 could be verified as VCUs under the VCS	OK

CRITERIA OF VCS-PD	Ref	COMMENTS	Concl.
		Version 3.3 program.	
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 25/11/2010 on.	OK
1.13 Additional Information Relevant to the Project	VCS-PD,	N/A.	OK

2.2.2 Methodology Deviations

No methodology deviation has been applied to the Project

2.2.3 Project Description Deviations

The deviation on the monitoring plan contained in the registered CDM PDD has been identified during the validation. According to the registered CDM PDD, there are five electricity meters involved. The revenue meter M1 shall be installed on the end of the transmission line (at the substation of Grid Company) to monitored the amount of electricity supplied to and imported from the grid. And the meter M1 is shared by the Project and Yihesuwu Phase I Project¹ and Wujier Project² which means that the electricity monitored by meter M1 is the total electricity supplied to and imported from the grid by above three projects. The net electricity supplied by the Project $EG_{\text{facility},y}$ will be calculated based on the records of the those five meters according to the requirement of the monitoring plan in the registered CDM PDD. However, the records of the meter M1 required by the registered CDM PDD are not available during this monitoring period. The following deviation on the monitoring plan was adopted by the PP, the meter installed at the high voltage side of the on-site transformer of the Project is used to obtain the amount of electricity supplied to and imported from the grid by the Project directly. The meter with the accuracy as 0.2S is calibrated yearly at least. To be conservative, the line loss from the high voltage side of the on-site transformer to the substation of the Grid Company has been deducted in the calculation of emission reductions. The meter recording value should be crosschecked with the Electricity Transaction Notes (ETNs) issued by Grid Company. Bureau Veritas Certification confirms that the deviation adopted during this monitoring period is only on the monitoring plan, the deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, and the Project remains in compliance with

¹ Inner Mongolia Hangjin Yihewusu Wind Power Project with the CDM registration ref. 3936.

² Inner Mongolia Wujier Phase I Wind Power Project with the CDM registration ref. 3387.

the applied methodology, and the deviation has also been described and justified in the monitoring report version 2.

Comparing with the registered CDM PDD, the accuracy of the meter used to measure the supplied electricity is changed from within 0.5% to 0.2S, which is more accurate than that in the monitoring plan contained in the registered CDM PDD. And the supplied electricity is directly measured by one meter installed onsite instead of calculated based on the records of five meters, which could avoid the error in calculation or the measurement of other meters. Furthermore, the line loss rate in transmission identified by the Grid Company has been considered in the calculation of the emission reductions. Bureau Veritas Certification has verified nameplate^[16] and calibration certificates of the meter^[17] and confirmed the accuracy of the meter is 0.2S which is more accurate than the one in the monitoring plan of the registered CDM PDD. Bureau Veritas Certification has also verified the statement on the line loss rate issued by the Grid Company^[23] and meter reading records^[21] and ETNs^[22] and could confirm that the line loss rate identified by the grid company was applied in the emission reductions. Hence, the change of the monitoring system does not affect the accuracy and conservativeness of the emission reductions.

2.2.4 New Project Activity Instances

Not applicable since Inner Mongolia Yihewusu Phase II 49.5 MW Wind Power Project is not a grouped project.

2.3 Validation Conclusion

The review of the project design documentation and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant VCS version 3.3 requirements and the relevant host country criteria. Bureau Veritas Certification thus requests registration of the project as a VCS project.

3 VERIFICATION PROCESS

3.1 Method and Criteria

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

The Project was verified against the requirements set in VCS Standard Version 3.3 effective as the 04/10/2012^[3] and the Clean Development Mechanism Validation and Verification Standard version 3.0^[2], issued by CDM Executive Board at its 70th meeting on 23/11/2012.

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 VCS monitoring report (MR) version 2 dated 24/01/2013, VCS-PD version 2 dated 24/01/2013 and emission reduction calculation spreadsheet version 2 dated 24/01/2013 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][6] [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)^{[19] [20]}.

3.3 Interviews

On 26/12/2012, Bureau Veritas Certification performed an on-site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review.

Representatives of Inner Mongolia Xinjin Wind Power Co., Ltd and EcoSecurities International Limited were interviewed (see References).

Table 2 Interview topics

Interviewed organization	Interview topics
Inner Mongolia Xinjin Wind Power Co., Ltd (the Project Owner)	➤ Project Design and implementation ➤ Technical equipment, calibration and operation ➤ Monitoring Plan and management procedures ➤ Monitoring data ➤ Data uncertainty and residual risks (QA/QC) ➤ Environmental Impacts ➤ Compliance with National Laws and Regulations
EcoSecurities International Limited (the Consultant)	➤ Monitoring Plan ➤ Monitored data and Monitoring Report ➤ GHG Calculations

3.4 Site Inspections

Please refer to section 3.3 above.

3.5 Resolution of Any Material Discrepancy

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

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

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

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

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

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

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

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]. 66 sets of WTGs (Type: Jinfeng S50/750) ^[15] with a unit capacity of 750kW, providing a total installed capacity of 49.5MW as described in the registered PDD have been in operation.

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

According to the the Inspection Report issued by the Grid Company on 30/06/2009^[13], all the Wind turbine and generator commenced to deliver electricity to the grid on 25/06/2009, which has been defined as the Project Start Date of the Project.

[Power System]

As shown in the diagram of the power connection system ^[14], the electricity generated by the Project is delivered to on-site 35kV/220kV substation, and then delivered to NCPG.

[Metering System]

There is one meter installed for the Project.

- The revenue meter (bidirectional meter) has been installed at the high-voltage side of onsite substation to measure the electricity exported to and imported from the grid by the Project.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Monitoring has been carried out in accordance with the deviation on the monitoring plan contained in the registered CDM-PDD^[4] as described in above section 2.2.3.

[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 to the grid in year y.

The quantity of net electricity generation supplied by the Project is the electricity exported to the grid minus the electricity imported from the grid to the Project which is measured by the bidirectional revenue meter. Therefore $EG_{\text{facility},y}$ can be calculated as below:

$$EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y}$$

$EG_{\text{export},y}$, electricity exported to the grid by the Project in year y;

$EG_{\text{import},y}$, electricity imported from the grid to the Project in year y.

As described above, the meter has been installed in accordance with the deviation on the monitoring plan contained in the registered CDM PDD. The verification team has on-site checked the location of the meters against the diagram of power connection system and found them to be consistent.

The readings of the meters are continuously monitored and monthly recorded by the PP and the grid company. 24:00 o'clock on the end day of each month is the cut-off time to calculate the monthly electricity exported to and imported from the grid by the Project (except for Nov. 2010, the data are recorded at 24:00PM of 24th). The grid company provided the PP monthly with the ETNs which contain the electricity exported to and imported from the grid by the Project. After a cross-check with its own Monthly Reading Records (MRR), the project owner archived the copy of these statements and receipts.

The verification team has verified the values provided in the monitoring report and ER spreadsheet against the relevant documented evidences i.e. the MRRs^[21] and the ETNs^[22] and found them to be consistent with the evidences. The MRRs and the ETNs can cover this monitoring period from 01/07/2009 to 24/11/2010.

Parameters determined ex-ante:

$EF_{\text{grid},\text{CM},y}$, 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 of 1.05485 tCO₂e/MWh used in the monitoring period has been verified against the registered CDM PDD and found consistent.

[Calibration]

The deviation on monitoring plan contained in the registered CDM PDD requires that the meter has accuracy of 0.2S and calibrated annually at least.

During this monitoring period, the installed measuring instruments have been operating well and were duly calibrated. The calibration records are shown in Table 3 below.

Table 3 The calibration records of the meters^[17]

Meter ID	Serial number	Accuracy	Calibration date	Validity	Calibration entity
Revenue meter	00000345	0.2S	04/06/2009 23/12/2009	Yes	A

Entity A: Electricity Measurement and Test Center of Inner Mongolia Electric Power Research Institute (Meng) Fa Ji (2009) No.15021^[18].

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)*.

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)*.

[Assessment data and calculation]

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 quantity of net electricity generation supplied by the Project to the grid ($EG_{\text{facility},y}$). 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 2.

As per the methodology ACM0002 Version 10^[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:

$$ER_y = BE_y - PE_y$$

Where,

ER_y : Emission reductions

BE_y : Baseline emissions

PE_y : Project emissions

[Baseline emissions]

The baseline emissions are the baseline emission reductions factor times the quantity of net electricity generation supplied by the Project plant 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 and VCS-PD as 1.05485 tCO₂e/MWh

$EG_{facility, y}$: Quantity of net electricity generation supplied by the Project to the grid

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

$$EG_{facility, y} = EG_{export, y} - EG_{import, y}$$

$EG_{export, y}$, electricity supplied to the grid by the Project in year y;

$EG_{import, y}$, electricity delivered from the grid to the Project in year y.

The verification team has cross-checked the values from the MRRs^[21] and found they are fully consistent with the ETNs^[22] for the period from 01/07/2009 to 24/11/2010. The verified values are used for emission reductions calculation and are shown in the following Table 4 and Table 5.

Table 4 The verified net electricity generation supplied by the Project to the grid $EG_{\text{facility},y}$ (MWh)

Period	MRRs			ETNs			Verified $EG_{\text{facility},y}$
	$EG_{\text{export},y}$	$EG_{\text{import},y}$	$EG_{\text{facility},y}$ (considering line loss)	$EG_{\text{export},y}$	$EG_{\text{import},y}$	$EG_{\text{facility},y}$	
	a	b	$c=a*(1-0.518\%) - b*(1+0.518\%)$	d	e	f=d-e	g=min(c,f)
01/07/2009- 31/07/2009	6,278.096	32.736	6,212.670	6,278.096	32.736	6,245.360	6,212.670
01/08/2009- 31/08/2009	6,285.664	40.656	6,212.238	6,285.664	40.656	6,245.008	6,212.238
01/09/2009- 30/09/2009	6,495.280	43.824	6,417.583	6,495.280	43.824	6,451.456	6,417.583
01/10/2009- 31/10/2009	9,696.544	43.648	9,602.442	9,696.544	43.648	9,652.896	9,602.442
01/11/2009- 30/11/2009	7,679.936	47.520	7,592.388	7,679.936	47.520	7,632.416	7,592.388
01/12/2009- 31/12/2009	8,397.664	63.184	8,290.653	8,397.664	63.184	8,334.480	8,290.653
Subtotal in 2009	/	/	/	/	/	/	44,327.973
01/01/2010- 31/01/2010	6,586.624	76.208	6,475.903	6,586.624	76.208	6,510.416	6,475.903
01/02/2010- 28/02/2010	5,446.848	52.272	5,366.091	5,446.848	52.272	5,394.576	5,366.091
01/03/2010- 31/03/2010	10,416.912	30.624	10,332.170	10,416.912	30.624	10,386.288	10,332.170

01/04/2010-30/04/2010	11,356.576	25.872	11,271.743	11,356.576	25.872	11,330.704	11,271.743
01/05/2010-31/05/2010	12,541.760	25.168	12,451.495	12,541.760	25.168	12,516.592	12,451.495
01/06/2010-30/06/2010	7,709.504	41.536	7,627.818	7,709.504	41.536	7,667.968	7,627.818
01/07/2010-31/07/2010	7,808.592	34.144	7,733.823	7,808.592	34.144	7,774.448	7,733.823
01/08/2010-31/08/2010	5,277.712	52.624	5,197.477	5,277.712	52.624	5,225.088	5,197.477
01/09/2010-30/09/2010	3,339.248	33.968	3,287.807	3,339.248	33.968	3,305.280	3,287.807
01/10/2010-31/10/2010	6,124.624	57.200	6,035.402	6,124.624	57.200	6,067.424	6,035.402
01/11/2010-24/11/2010	8,189.632	22.880	8,124.211	8,189.632	22.880	8,166.752	8,124.211
Subtotal in 2010	/	/	/	/	/	/	83,903.938
Total	/	/	/	/	/	/	128,231.912

Vintage 2009: $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y} = 44,327.973 \text{ MWh}$

Vintage 2010: $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y} = 83,903.938 \text{ MWh}$

Total: $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y} = 128,231.912 \text{ MWh}$

Table 5 The baseline emissions of the Project

Period	EG _{facility,y} (MWh)	EF _{Grid,CM,y} (tCO ₂ e/MWh)	BE _y (tCO ₂ e)
	g	h	i=g*h
01/07/2009 - 31/12/2009	44,327.973	1.05485	46,759
01/01/2010 - 24/11/2010	83,903.938		88,506
Total	128,231.912	-	135,265

[Project emissions]

As per the methodology ACM0002 Version 10, for the wind farm project, the project emission is zero.

[Leakage emissions]

No leakage needs to be considered according to ACM0002 Version 10.

[Emission reductions]

Therefore, the emission reductions during the monitoring period from 01/07/2009 to 24/11/2010 are calculated as:

Table 6 The emission reductions of the Project

Period	Vintage	BE _y (tCO ₂ e)	PE _y (tCO ₂ e)	ER _y (tCO ₂ e)
		i	j	k= i-j
01/07/2009 to 24/11/2010	2009	46,759	0	46,759
	2010	88,506	0	88,506
	Total	135,265	0	135,265

[Comparison of ERs]

As per ex-ante calculation of the registered CDM-PDD, the average of annual emission reductions is 107,267tCO₂e. The estimated ERs during this period are 150,467 tCO₂e (=107,267*512/365), whereas the actual emission reduction accomplished by the project during this verification period is 135,265 tCO₂e. Comparing with the estimated ERs, the actual ERs were lower than estimation.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

All necessary documentation is collected, referenced and is easily accessible in hard-copy or electronic format. The data pertaining to the monitored parameters are maintained in the identified internal records and consistent with the values stated in the Monitoring Report version 2. Key data have been cross-checked via external sources, such as ETNs and sales receipts.

4.4 Management and Operational System

The PP has operated the Project as per deviation on the monitoring plan of the registered CDM-PDD and VCS-PD. The monitoring organization has been set up, all monitoring staffs have been trained ^[25] and

quality control procedures are in place. 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 ETNs monthly to confirm the net electricity supplied to the grid.

The verification team confirms that the quality management system for the Project is in place. The documented instructions including the responsibilities have been properly implemented and in line with the deviation on the monitoring plan in the registered CDM PDD. Internal review being a regular practice ensures the quality assurance of the monitoring procedures. The management of PP is responsible for data protection exclusively with access restrictions.

5 VERIFICATION CONCLUSION

Bureau Veritas Certification has performed the Pre-CDM verification of Inner Mongolia Yihewusu Phase II 49.5 MW Wind Power Project, CDM Registration Reference Number 3490, owned by Inner Mongolia Xinjin Wind Power Co., Ltd, which is located in Hangjin County, Ordos City, Inner Mongolia, P.R. China, and applying the methodology ACM0002 Version 10. The verification was performed based on the requirements set by VCS Standard Version 3.3 effective as the 04/10/2012, as well as criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of Inner Mongolia Xinjin Wind Power Co., Ltd is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the project on the basis set out within the deviation on the project Monitoring Plan in the registered CDM 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 2 dated 24/01/2013 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.

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, deviation on the monitoring plan in the registered CDM PDD 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 : **01/07/2009 to 24/11/2010**

GHG Emission Reductions (tCO ₂ e)	2009	2010	Total
Baseline Emissions	46,759	88,506	135,265
Project Emissions	0	0	0
Leakage	N/A	N/A	N/A
Net GHG emission reductions	46,759	88,506	135,265

6 REFERENCES

Documents reviewed:

- [1]. Approved methodology ACM0002 ver. 10 – “Consolidated methodology for grid-connected electricity generation from renewable sources”
- [2]. Validation and Verification Standard Version 3.0 dated 23/11/2012
- [3]. VCS Standard Version 3.3 effective as the 04/10/2012
- [4]. Registered CDM-PDD version 3 dated 08/01/2010, CDM Ref No. 3490
- [5]. VCS-PD Version 1, dated 24/12/2012
- [6]. VCS-PD Version 2, dated 24/01/2013
- [7]. VCS-MR Version 1, dated 24/12/2012
- [8]. VCS-MR Version 2, dated 24/01/2013
- [9]. CDM Validation Report Version 01.5, dated 08/03/2010;
- [10]. ERs calculation sheet
- [11]. Business License of the PP;
- [12]. Operation License of the PP;
- [13]. Approvals of FSR and EIA
- [14]. LoA of the Project (No.2048) issued by National Development and Reform Commission of P.R. China in Jun. 2009;
- [15]. Signed Power Purchase Agreements (PPAs) between the PP and the grid company;
- [16]. Inspection Report of the Project issued by the grid company;
- [17]. Diagram of power system connection and monitoring points of the Project;
- [18]. Wind turbine generators purchase contract;
- [19]. Nameplate of the meter;
- [20]. Calibration Certificates of the meter;
- [21]. Accreditation Certificate to Electricity Measurement and Test Center of Inner Mongolia Electric Power Research Institute. (the code of (Meng) Fa Ji (2009) No.15021) with the valid period from 02/01/2009 to 01/01/2014;
- [22]. Technical Administrative Code of Electric Energy Metering (DL/T 448-2000);
- [23]. Verification Regulation of Electrical Energy Meters with Electronics (JJG 596-1999);
- [24]. Monthly Meters Reading Records of the Project;
- [25]. ETNs issued by the grid company;
- [26]. Statement on the line loss rate issued by the Grid Company;
- [27]. Registration Page of the Project in UNFCCC website:
<http://cdm.unfccc.int/Projects/DB/KFQ1268810735.04/view;>

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

Persons interviewed:

Inner Mongolia Xinjin Wind Power Co., Ltd

- | | | |
|-----|----------------|---------------------------------|
| /1/ | Mr. Zou Jiyu | Director of CDM Department |
| /2/ | Mr. Zhang Ning | Vice Director of CDM Department |
| /3/ | Mr. Xu Anning | Director of the wind farm |

EcoSecurities International Limited

- | | | |
|-----|----------------|-----------------|
| /4/ | Mr. Yin Yufeng | Project Manager |
|-----|----------------|-----------------|

7 CURRICULA VITAE OF THE DOE'S VERIFICATION TEAM MEMBERS

Mr. Lucas Dou Yonghua	Bureau Veritas Certification, China	Team Leader, Climate Change Lead Verifier, He holds a Master Degree in Materials Science. Before joining BV in 2009, he gained two and a half years of CDM technical working experience in P.R China. He obtained the certificate of CDM Lead Verifier and Auditor for ISO 14064.
Ms.Zhang Chen	Bureau Veritas Certification, China	Team Leader, Climate Change Lead Verifier, She holds Master Degree in Environmental Economics and Environmental Engineering. Before joining BV in 2010, she has gained various experiences in project financing evaluation, policy cost-benefit analysis and environmental management. She is a member of Sino-Franco Urban Sustainable Development Association. She obtained the certificate of ISO 14064.



Mr. Lucas Dou Yonghua
Team Leader



Ms.Zhang Chen
Internal Technical Reviewer

APPENDIX A: RESOLUTION OF CORRECTIVE ACTION /CLARIFICATION / FORWARD ACTION REQUESTS

Draft report clarifications and corrective action requests by verification team	Reference to checklist question	Summary of project owner response	Verification team conclusion
CAR-1 The Project Description should be updated per the requirement of the latest version of VCS as the project has been registered as a CDM project.	PD	The VCS PD has been updated.	Bureau Veritas Certification confirms the revised VCS PD is in compliance with the requirement of the latest version of VCS. CAR-1 is closed.
CAR-2 The definition of project scale is not in compliance with the requirement of latest version VCS. And the provided estimated GHG emission reductions are wrong.	PD section 1.7	The project scale has been revised to "Project".	Bureau Veritas Certification confirms the correct project scale is provided in the revised VCS PD. CAR-2 is closed.
CAR-3 The monitoring system described in the PD version 1 and MR version 1 is different with the one in the registered CDM PDD, i.e. only one meter involved in the PD version 1 and MR version 1, and five meters involved in the registered CDM PDD.	MR section 2.2 MR section 3.2 MR section 3.3	PP's 1 st response: Since the data of M1 during this monitoring period as required by the registered CDM PDD is not available, the monitoring system has to be deviated. The meter located at the high voltage side of the on-site transformer is used to measure the export and import electricity data. And the line loss from the meter to the grid company substation is deducted in the calculation.	DOE's 1 st comment: Clarification is request on whether the accuracy and conservativeness of the emission reductions would be affected by the change of the monitoring system. DOE's final response: Bureau Veritas Certification has verified nameplate and calibration certificates of the meter and confirmed the accuracy of the meter is 0.2S which is more

Draft report clarifications and corrective action requests by verification team	Reference to checklist question	Summary of project owner response	Verification team conclusion
		PP's 2nd response: Comparing with the registered CDM PDD, the accuracy of the meter used to measure the supplied electricity is changed from within 0.5% to 0.2S, which is more accurate than that in the monitoring plan contained in the registered CDM PDD. And the supplied electricity is directly measured by one meter installed onsite instead of calculated based on the records of five meters, which could avoid the error in calculation or the measurement of other meters. Furthermore, the line loss rate in transmission identified by the Grid Company has been considered in the calculation of the emission reductions.	accurate than the one in the monitoring plan of the registered CDM PDD. Bureau Veritas Certification has also verified the statement on the line loss rate issued by the Grid Company and meter reading records and ETNs and could confirm that the line loss rate identified by the grid company was applied in the emission reductions. Hence, the change of the monitoring system does not affect the accuracy and conservativeness of the emission reductions. CAR-3 is closed.
CAR-4 The provided meter readings records are incomplete, the ETNs issued by the grid company are not provided.	MR section 4	All the meter records and the ETNs have been provided to DOE.	Bureau Veritas Certification has verified the MRRs and ETNs and confirmed that values applied in the ERs calculation sheet are same with the relevant evidences. CAR-4 is closed.
CAR-5 The detailed crosscheck process is	ERs sheet	The detailed crosscheck process has been provided in the Emission	Bureau Veritas Certification confirms the crosscheck process

Draft report clarifications and corrective action requests by verification team	Reference to checklist question	Summary of project owner response	Verification team conclusion
not provided in the Emission Reduction calculation sheet.		Reduction calculation sheet.	provided in the revised ERs calculation sheet is correct and the calculated ERs are correct and conservative. CAR-5 is closed.
CL-1 The project scenario should be briefly described.	PD section 1.10	The project scenario has been added in the revised PD.	Bureau Veritas Certification confirms the provided project scenario is consistent with registered CDM PDD. CL-1 is closed.
CL-2 More detailed description of the project scenario should be provided, i.e. type of the WTGs, unit capacity, estimated annual electricity supplied to the grid and the estimated annual emission reductions.	MR section 1.1	The description of the project scenario has been provided, i.e. type of the WTGs is Jinfeng S50/750 with a unit installed capacity of 750kW, providing a total installed capacity of 49.5MW. The annual expected electricity supplied to North China Power Grid (NCPG) is 101,689MWh and the annual estimated emission reductions are 107,267tCO ₂ e.	Bureau Veritas Certification confirms the provided information is consistent with VCS PD and registered CDM PDD. CL-2 is closed.
CL-3 The calibration date and validity of the electricity meter is not provided in the MR. And the provided calibration certificates can not cover the whole monitoring period.	MR section 3.2	All the calibration certificates have been provided to DOE. And the calibration date and validity of the meter have been added in the revised MR.	Bureau Veritas Certification has verified the calibration certificates and confirmed that the meter is valid in this monitoring period and the related description in the revised MR is consistent with the

Draft report clarifications and corrective action requests by verification team	Reference to checklist question	Summary of project owner response	Verification team conclusion
			evidences. CL-3 is closed.
CL-4 More detailed description of the monitoring system should be provided, i.e., exact location of the electricity meter, the cut-off time of the monthly reading records of the electricity meter and the crosscheck process of the meter reading records.	MR section 3.2	The detailed information has been added in the revised MR, i.e. the meter is installed at the high-voltage side of onsite substation of the Project, 24:00 o'clock on the end day of each month is the cut-off time (except for Nov. 2010, the data are recorded at 24:00PM of 24th). The grid company provided the PP monthly with the Electricity Transaction Notes (ETNs) which can be used for the cross-check of the Monthly Reading Records (MRR).	Bureau Veritas Certification confirms the provided information is consistent with the operation practice and same with the described deviation on the monitoring plan in the registered CDM PDD. CL-4 is closed.
CL-5 The Management structure and the detailed responsibilities is not provided in the MR.	MR section 3.2	The Management structure and the detailed responsibilities have been provided in the revised MR.	Bureau Veritas Certification confirms the provided management structure and the detailed responsibilities are consistent with the deviation on the monitoring plan in the registered CDM PDD. CL-5 is closed.
CL-6 The emission reductions of each year in this monitoring period should be	MR section 4	MR and ERs sheet have been revised.	Bureau Veritas Certification confirms the emission reductions of each year in this monitoring period have been correctly provided in the

Draft report clarifications and corrective action requests by verification team	Reference to checklist question	Summary of project owner response	Verification team conclusion
provided.	ERs sheet		revised MR and ERs calculation sheet. CL-6 is closed.