

VERIFICATION REPORT FOR HANGJIN YIHEWUSU PHASE I 49.5MW WIND POWER PROJECT



RINA

Document Prepared By RINA Services S.p.A. (RINA)

Project Title	Hangjin Yihewusu Phase I 49.5MW Wind Power Project
Version	Version 1.2
Report ID	2013-SH-16-MD

Report Title	Verification report for Hangjin Yihewusu Phase I 49.5MW Wind Power Project
Client	Climate Bridge Ltd.
Pages	20
Date of Issue	24-09-2013
Prepared By	RINA Services S.p.A. (RINA)
Contact	Address: Via Corscia 12, 16128 Genova, Italy Phone: (39) 01053851 Email: ghg.services@ring.org Website: http://www.rina.org
Approved By	Laura Severino 
Work Carried Out By	Team leader and Verifier – Jun Zhou Training TL/Verifier – Fanlin Ran Verifier – Qing HE

Summary:

RINA Services S.p.A. (RINA), commissioned by Climate Bridge Ltd., has verified the greenhouse gas emission reductions reported for the project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, CDM Registration Reference N° 7221, for the period 28/12/2011 to 06/09/2012, with regard to the relevant requirements for CDM and VCS activities. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS/CDM requirements in order to be certified.

The project was validated by Japan Consulting Institute (JCI) (validation report N° JCI-CDM-VAL-11-140 version No.00 of 04/09/2012) and it was registered on 07/09/2012. The GHG emission reductions were calculated on the basis of the approved methodology ACM0002, version 12.3.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" of 02/03/2012, and the monitoring plan included in the registered Project Design Document, version 2.0 of 01/08/2012.

During the verification process, no Corrective Action Requests (CARs) and 1 Clarification Request (CL) is identified related to the monitoring, implementation or operations of the proposed CDM project activity (Monitoring Report version 01 of 30/08/2013) in relation to all relevant VCS and UNFCCC requirements and all relevant host Party criteria and the applied baseline and monitoring methodology; and the CL is successfully closed after necessary corrections/clarifications by the client.

In conclusion, it is RINA's opinion that the project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project", in China, as described in the Monitoring Report version 02 of 17/09/2013, meets all relevant requirements for VCS/CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, version 12.3.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" of 02/03/2012. Hence RINA is able to certify that the emission reductions from the project during the monitoring period 28/12/2011 to 06/09/2012 amount to 58,339 tCO₂e.

Table of Contents

	Table of Contents.....	3
1	Introduction	4
1.1	Objective	4
1.2	Scope and Criteria	4
1.3	Level of assurance	4
1.4	Summary Description of the Project	5
2	Validation Process, Findings and Conclusion	6
2.1	Validation Process	6
2.2	Validation Findings.....	7
2.2.1	Gap Validation	7
2.2.2	Methodology Deviations	9
2.2.3	Project Description Deviations.....	9
2.2.4	New Project Activity Instances	10
2.3	Validation Conclusion.....	10
3	Verification Process	10
3.1	Method and Criteria.....	10
3.2	Document Review	10
3.3	Interviews	11
3.4	Site Inspections.....	12
3.5	Resolution of Any Material Discrepancy	12
4	Verification Findings.....	15
4.1	Project Implementation Status	15
4.2	Accuracy of GHG Emission Reduction or Removal Calculations	15
4.3	Quality of Evidence to Determine GHG Emission Reductions or Removals	19
4.4	Management and Operational System	19
5	Verification conclusion	20

1 INTRODUCTION

Climate Bridge Ltd. has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” in China, CDM Registration Reference N° 7221, for the period 28/12/2011 to 06/09/2012. This verification aims to assess and verify the emission reduction occurred before the registration of the “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” as a CDM project activity. This report summarizes the findings of the verification of the project, performed on the basis of VCS requirements and UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the pre-registered CDM project activity during the period from the date when the project started to operate until the date when the project was actually registered as a CDM project activity by the CDM-EB. Certification is the written assurance by the DOE that, during a specific time period, a proposed VCS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

The objective of this verification/certification was to verify and certify pre-registration emission reductions, reported for the “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” project in China for the period 28/12/2011 to 06/09/2012 (pre-CDM registration).

1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable UNFCCC criteria for CDM and VCS in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

The VCS criteria refer to VCS Standard: VCS Version 3.3/08/ and VCS Programme Guide: VCS Version 3.4 /09/.

As the VCS recognizes the CDM as a GHG Program that meets its VCU Verification Criteria, this verification report thus only addresses VCS specific and unique criteria in terms of project design, applicability to the adopted methodology and additionality that have not been so far addressed in the Validation Report as per CDM requirements.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for VCS and CDM validation and verification.

The verification team and the technical reviewers consist of the following personnel:

Role	Last Name	First Name	Country
------	-----------	------------	---------

Team Leader, Verifier	ZHOU	Jun	China
Training TL, Verifier	RAN	Fanlin	China
Verifier	HE	Qing	China
Technical Reviewer	TONG	Yan	China

1.4 Summary Description of the Project

The purpose of the project is to generate electricity from wind resources by using wind power generation technology, and to deliver the electricity to the North China Power Grid. In the absence of the project, it would have resulted in equivalent power generation from grid-connected power plants and the addition of new generation sources. Therefore, the baseline scenario of the project is identified as the equivalent electricity service would be provided by the power grid.

The proposed project is a newly-built wind farm project involves the installation of total capacity of 49.5 MW power plant (33 sets of wind turbines and generators with unit capacity 1.5MW). It is estimated that the net electricity supplied to the grid by the proposed project is 117,784MWh annually, which generates emission reductions of total 105,520tCO₂e as estimated in the CDM PDD /06/. The project also contributes to sustainable development of the local community with environmental and economic benefits.

The project is a renewable resource based on wind power project without GHG emissions during operation period. Therefore, it was confirmed that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction.

The main information of the project is summarized in the table below.

Project Proponent	Inner Mongolia Guodian New Energy Co.,Ltd. (Project Owner)		
Other entities involved in the project	Climate Bridge Ltd.(VER Buyer)		
Project Title	Hangjin Yihewusu Phase I 49.5MW Wind Power Project		
Location of the project	Hangjin County, Ordos City, in the western part of the Inner Mongolia Autonomous Region in China		
Methodology(ies)	ACM0002, version 12.3.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" of 02/03/2012 /03/		
Sectoral Scope(s)	01	RINA's Technical Area(s)	1.2
Registered PDD	2.0 of 01/08/2012		
Date of CDM registration	07/09/2012	CDM Registration Reference N°	7221
Starting date of the crediting period	28/12/2011 (Pre-CDM VCS Verification)		
Project's crediting period	28/12/2011 to 06/09/2012 (Pre-CDM VCS Verification)		
Commissioning date	28/12/2011 /19/		
Monitoring period	28/12/2011 to 06/09/2012 (Pre-CDM VCS Verification)		
Project documentation link	http://cdm.unfccc.int/Projects/DB/JC11346997827.74/view		

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

2.1 Validation Process

Method and Criteria: Validation was conducted using RINA procedures in line with the requirements specified in the VCS Standard, i.e. VCS Version 3 Requirements Document, v3.3 of 04/10/2012/08/.

Document Review: The VCS Project Description, version 01 of 30/08/2013, version 02 of 17/09/2013 and version 03 of 24/09/2013 /04/, was assessed as part of the verification. The following table lists the documentation that was reviewed during the validation.

/01/	Climate Bridge Ltd.: VCS Monitoring report (MR) for project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, version 01 of 30/08/2013 and version 02 of 17/09/2013 related to the monitoring period 28/12/2011 to 06/09/2012
/02/	Climate Bridge Ltd.: VCS ER calculation Sheet for Hangjin Yihewusu Phase I 49.5MW Wind Power Project, "ER calculation spreadsheet_Yihewusu I Wind Farm Project version 01 of 30/08/2013 and version 02 of 17/09/2013 related to the monitoring period 28/12/2011 to 06/09/2012
/03/	CDM Executive Board: ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.3.0 of 02/03/2012
/04/	Climate Bridge Ltd.: Project Description (PD) for project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, version 01 of 30/08/2013, version 02 of 17/09/2013 and version 03 of 24/09/2013 related to the monitoring period 28/12/2011 to 06/09/2012
/05/	CDM Executive Board: Clean Development Mechanism Validation and Verification Standard, version 04.0 of 29/07/2013
/06/	Climate Bridge Ltd: Registered CDM PDD Hangjin Yihewusu Phase I 49.5MW Wind Power Project, in China, version 2.0 of 01/08/2012 Linkage: http://cdm.unfccc.int/Projects/DB/JCI1346997827.74/view , English language and retrieved on 12/09/2013
/07/	Japan Consulting Institute (JCI): Validation Report for project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, validation report N° JCI-CDM-VAL-11-140, version No.00 of 04/09/2012
/08/	VCSA, VCS Standard: VCS Version 3 Requirements Document, version 3.3 of 04/10/2012
/09/	VCSA, VCS Program Guide: VCS Version 3 Requirements Document, version 3.4 of 04/10/2012
/10/	CDM Executive Board: Tool for the demonstration and assessment of additionality. version 07.0.0 of 23/11/2012
/11/	VCSA: Registration and Issuance Process: VCS Version 3 Procedural Document, version 3.4 of 04/10/2012
/12/	VCSA: Program Definitions: VCS Version 3 Requirements Document, version 3.4 of 04/10/2012
/13/	VCSA: VCS Project Description Template, version 3.1 of 04/10/2012
/14/	VCSA : VCS Monitoring Report Template, version 3.2 of 04/10/2012
/15/	Economic and Trade Commission of P.R. China, DL/T448-2000 Technical administrative code of electric energy metering, dated 03/11/2000
/16/	Inner Mongolia Guodian New Energy Co.,Ltd., Business Licence, valid period from 22/11/2010 to 22/11/2060
/17/	Inner Mongolia Development and Reform Commission, Project approval, dated 14/04/2008
/18/	National Development and Reform Committee, Letter of Approval for "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" As a Clean Development Mechanism Project by National Development and Reform Commission of the People's Republic of China, dated 15/06/2012
/19/	Inner Mongolia Guodian Energy Co.,Ltd., Acceptance Record indicating the commissioning date of the electricity generation on 28/12/2011, dated 27/07/2012

Interviews: The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	10/09/2013	Hu Lijiao, Project Manager	Climate Bridge Ltd.	Project description, Monitoring Report, Emission Reductions Calculation
/b/	10/09/2013	Fu Chongbin	Inner Mongolia Guodian New Energy Co.,Ltd.	Project activity description, Quality control and quality assurance procedures, Monitoring equipments, Calibration, Monitoring Procedures and records
/c/	10/09/2013	Zhao Jian, Engineer	Yihewusu Windfarm	Quality control and quality assurance procedures, Monitoring equipments, Calibration, Monitoring Procedures and Data records

Site Inspections: On 10/09/2013, RINA visited the project site in Hangjin County, Ordos City, in the western Inner Mongolia of China. During the on-site assessment of the project RINA assessed the implementation and operation of the proposed project activity, accessed the installed equipment directly, interviewed key personnel of the plant to confirm the implementation of the monitoring plan. The RINA was able to confirm that the type of technology employed in the Project and the monitoring plan principles matched with that stated in the VCS PD/04/.

Resolution of Any Material Discrepancy: The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the project description. To guarantee transparency any findings raised regarding to the verification are incorporated in the report.

2.2 Validation Findings

2.2.1 Gap Validation

In accordance with the requirements of section 3.11.8 of VCS Standard, v3.3, RINA performed a gap validation for the project on the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.3, 1.12.4 and 1.13 of the VCS Project Description Template to confirm its compliance with the VCS rules, as the proposed project activity has been registered (UNFCCC Ref. No. 7221) /06/ under an approved GHG program – CDM program under Kyoto Protocol.

Cover Page

The Cover page of the VCS project description of the project/04/ is verified to be completed in line with the VCS Project Description Template/13/ and correct in respect to the project title etc.

Sectoral Scope and Project Type:

According to the VCS Version 3 Requirements Document, and the list of Sectoral Scopes of the UNFCCC, and confirmed by review of the registered CDM PDD /06/ and the applied CDM methodology ACM0002 /03/, there is no additional instances of the project activity added subsequent to the project validation, hence the project is not a grouped project and is applicable under the following sectoral scope:

- Sectoral Scope 01: Energy industries (renewable-/non-renewable sources)

Project Proponent:

The Project Proponent is Inner Mongolia Guodian New Energy Co.,Ltd. as the project owner from China.

Project Start Date and Project Crediting Period:

The start date of the project activity was on 28/12/2011 when the project activity started commissioning /19/. Based on the information available on UNFCCC website /06/, the project has been registered with the first 7 years crediting period from 07/09/2012 to 06/09/2019. The project was commissioned on 28/12/2011 and it represents the date from which the emissions reductions under VCS will be claimed. And the CDM emission reduction start date was on the date of CDM registration, i.e. 07/09/2012 /06/. Therefore RINA confirmed that the project crediting period for VCS validation is from 28/12/2011 to 06/09/2012.

The start date of this monitoring period is 28/12/2011 which is the project start date and the end date of this monitoring period is 06/09/2012 which is prior to the CDM crediting period. RINA thus confirmed that the monitoring period for VCS validation is within the valid crediting period under VCS regulation /08//09//11//12//13//14/.

Based on the information above, RINA confirmed that the period from the project start date 28/12/2011 to the registration date of the CDM project on 07/09/2012 is within two years and therefore confirmed the CDM validation has been completed within two years of the project start date. Therefore RINA confirmed that the completion of project validation fully satisfied the requirement of section 3.7.2 of VCS Standard: VCS Version 3 Requirements Document, version 3.3 of 04/10/2012/08/ and the criteria iii) of a) of section 4.1.5 of Registration and Issuance Process: VCS Version 3, v3.3 /11/.

Project Scale and Estimated GHG Emission Reductions or Removals:

The proposed project activity was categorized as Project, since the estimated average annual GHG emission reductions is 105,520tCO₂e, which is less than 300,000tCO₂e per year as per the registered CDM PDD /06/ and VCS Standard/08/.

Project Location:

The project is located in Hangjin County, Ordos City, in the western Inner Mongolia of China. The geographical coordinates of the centre of the project area are E 107.5411°, N 40.0589°. This has been crosschecked by GPS measures during site visit.

The project boundary has been identified in the registered CDM PDD /06/ as the geographical extent project boundary of the project, consisting of the project site and all power plants connected physically to the electricity system that the project power plant is connected to, i.e. NCPG. The physical site visit confirmed that the project boundary in place is consistent with the registered CDM PDD /06/ and the registered validation report /07/.

Conditions Prior to Project Initiation:

Prior to the proposed project initiation, the electricity consumed was imported from the NCPG, which is dominated by fossil fuel-fired power plants. These conditions have been validated by the validation DOE in the registered CDM validation report /07/.

Right of Use:

Proof of Title: The owner of the emission reductions generated by the proposed project is Inner Mongolia Guodian New Energy Co.,Ltd., Ltd. It is verified that the project participant had obtained all relevant permits for operating the project including the business license /16/, the approval of the project by Government /17/, Letter of Approval (LoA) for CDM issued by the Chinese DNA /18/ and the Power Purchase Agreement with the Grid Company/26/. It was thus confirmed that Inner Mongolia Guodian New Energy Co.,Ltd. possesses the ownership that allows the implementation of the project, including the plants, equipments and the process that generate the emission reductions.

Emissions Trading Programs and Other Binding Limits:

The project activity contributes to reductions in CO₂ emissions by displacing electricity generation based on fossil fuels in the North China Power Grid (NCPG). It was confirmed by the proponent

that no rejection was received by other GHG programs as per on-site interview. The CDM Program is a GHG program approved by the VCS program. Emission reductions since the CDM registration date will be claimed by proponent as CERs under the CDM program in accordance with the LoA issued by Chinese DNA /18/. Therefore RINA confirmed that the GHG emission reductions generated by the project have not and will not be used in the emissions trading program or for the purposed of demonstrating compliance with the binding limits that are in place in that jurisdiction or sector.

The proposed project activity has been registered under CDM programs of Kyoto Protocol. The registration number is 7221 with registration date 07/09/2012 /06/. There is no other form of GHG-related environmental credit generated by the proposed project activity.

Eligibility Criteria, Leakage Management, Commercially Sensitive Information:

As confirmed above, the project activity is not a grouped project, the eligibility criteria is not applicable to the project.

No leakage is applicable under the applied methodology ACM0002 /03/ for the project since the main emissions potentially giving rise to leakage in the context of hydropower projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use which are neglected and this is in accordance with the registered CDM PDD/06/, therefore no leakage management is considered.

All information in the project documents is available for the public review, as claimed by proponent in the VCS Project Description /04/.

2.2.2 Methodology Deviations

There is no methodology deviations applied to the project.

2.2.3 Project Description Deviations

There is no project design deviations applied to the project activity confirmed by the onsite visit by the RINA verification team.

The actual monitoring information of the proposed project is a bit different with the monitoring plan in the registered CDM PDD.

The name of the substation where the meter M_s and M_s' actually locate is named Kubuqi Substation, instead of Balagong Substation that was described in the registered PDD. Balagong is the name of the township in which the project locates. The different names indeed point to the same substation. It's confirmed by RINA verification team by the onsite visit and interview with the personnel working in the Kubuqi Substation.

The location of the meter M_l (unidirectional meter) measured the electricity imported from the 10kV backup power line for emergencies, is located in the on-site substation in the project site, instead of the Yihewusu Substation described in the registered PDD. It's confirmed during the onsite visit that the location of this meter is determined by the grid company and out of the proponent's control. Further, the backup meter M_l was installed for the power use in the construction and trial operation period and the emergencies when the wind turbines are under normal operation. During this monitoring period, this backup meter M_l was only used in the first month after the project was put into operation, confirmed by the power reading record/25/.

As the project design didn't change, the applicability of the methodology, additionality or the appropriateness of the baseline scenario is not impacted confirmed by the verification team.

The actual accuracy of the meters didn't change compared with the description in the registered CDM PDD. The emission reduction calculation was not impacted also for the proposed monitoring period.

Thus, RINA could confirm that the revised Monitoring Report/01/ and Project Description/04/ correctly present the status of the project description.

2.2.4 New Project Activity Instances

NA

2.3 Validation Conclusion

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

3 VERIFICATION PROCESS

3.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Requirements, CDM M&P, the latest version of the CDM Validation and Verification Manual, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The verification consisted of the following three phases:

- Document review;
- On-site assessment including Interviews and Site Inspections;
- Resolution of Any Material Discrepancy and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

3.2 Document Review

The monitoring report (MR), version 01 of 30/08/2013 and version 02 of 17/09/2013 /01/, the emission reduction calculations provided in the form of a spreadsheet, "ER calculation spreadsheet_Yihewusu I Wind Farm Project version 01 of 30/08/2013 and version 02 of 17/09/2013 /02/, were assessed as part of the verification. In addition the registered Project Design Document (CDM PDD) /06/ in particular the baseline estimations and the monitoring plan, and the registered CDM validation report, version No.00 of 04/09/2012 /07/ for the project were reviewed.

The following table lists the documentation that was reviewed during the verification.

/01/	Climate Bridge Ltd.: VCS Monitoring report (MR) for project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, version 01 of 30/08/2013 and version 02 of 17/09/2013 related to the monitoring period 28/12/2011 to 06/09/2012
/02/	Climate Bridge Ltd.: VCS ER calculation Sheet for Hangjin Yihewusu Phase I 49.5MW Wind Power Project, "ER calculation spreadsheet_Yihewusu I Wind Farm Project version 01 of 30/08/2013 and version 02 of 17/09/2013 related to the monitoring period 28/12/2011 to 06/09/2012
/03/	CDM Executive Board: ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.3.0 of 02/03/2012
/04/	Climate Bridge Ltd.: Project Description (PD) for project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, version 01 of 30/08/2013, version 02 of 17/09/2013 and version 03 of 24/09/2013 related to the monitoring period 28/12/2011 to 06/09/2012
/05/	CDM Executive Board: Clean Development Mechanism Validation and Verification Standard, version 04.0 of 29/07/2013
/06/	Climate Bridge Ltd: Registered CDM PDD Hangjin Yihewusu Phase I 49.5MW Wind Power Project, in China, version 2.0 of 01/08/2012 Linkage: http://cdm.unfccc.int/Projects/DB/JC11346997827.74/view , English language and retrieved on 12/09/2013

/07/	Japan Consulting Institute (JCI): Validation Report for project activity “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” in China, validation report N° JCI-CDM-VAL-11-140, version No.00 of 04/09/2012
/08/	VCSA, VCS Standard: VCS Version 3 Requirements Document, version 3.3 of 04/10/2012
/09/	VCSA, VCS Program Guide: VCS Version 3 Requirements Document, version 3.4 of 04/10/2012
/10/	CDM Executive Board: Tool for the demonstration and assessment of additionality. version 07.0.0 of 23/11/2012
/11/	VCSA: Registration and Issuance Process: VCS Version 3 Procedural Document, version 3.4 of 04/10/2012
/12/	VCSA: Program Definitions: VCS Version 3 Requirements Document, version 3.4 of 04/10/2012
/13/	VCSA: VCS Project Description Template, version 3.1 of 04/10/2012
/14/	VCSA : VCS Monitoring Report Template, version 3.2 of 04/10/2012
/15/	Economic and Trade Commission of P.R. China, DL/T448-2000 Technical administrative code of electric energy metering, dated 03/11/2000
/16/	Inner Mongolia Guodian New Energy Co.,Ltd., Business Licence, valid period from 22/11/2010 to 22/11/2060
/17/	Inner Mongolia Development and Reform Commission, Project approval, dated 14/04/2008
/18/	National Development and Reform Committee, Letter of Approval for “Hangjin Yihewusu Phase I 49.5MW Wind Power Project” As a Clean Development Mechanism Project by National Development and Reform Commission of the People's Republic of China, dated 15/06/2012
/19/	Inner Mongolia Guodian Energy Co.,Ltd., Acceptance Record indicating the commissioning date of the electricity generation on 28/12/2011, dated 27/07/2012
/20/	Zhejiang Yunda Windfarm Power Generation Engineering Co., Ltd., Technical agreement of the main equipment Wind Turbines and Generators, dated 09/2008
/21/	Power Metering Centre of Inner Mongolia Electric Power Research Institute, Calibration Certificate of Main Meter Ms (SN 96913470) and Back-up Main Meter Ms(SN 96867840) dated 17/12/2011 and valid to 16/12/2012
/22/	Power Metering Centre of Inner Mongolia Electric Power Research Institute, Calibration Certificate of Meter M _I (SN 07301011037610) , dated 23/09/2011 and valid to 22/09/2012
/23/	Inner Mongolia Quality and Technology Supervision Bureau, Qualification Certificate for Power Metering Centre of Inner Mongolia Electric Power Research Institute, Meng (Faji) 15021, valid from 02/01/2009 to 01/01/2014
/24/	Inner Mongolia Guodian New Energy Co.,Ltd. Main meter data reading record and confirmation document by the grid company for the period of 28/11/2012 to 06/09/2012
/25/	Inner Mongolia Guodian New Energy Co.,Ltd., M _I meter data reading record and confirmation document by the grid company for the period of 28/12/2011 to 06/09/2012
/26/	Taorimu Windfarm Company (Project Company of Yihewusu windfarm and subsidiary of Inner Mongolia Guodian New Energy Co.,Ltd.) and Inner Mongolia Guodian Group Company, Power Purchase Agreement for Year 2012 dated 01/2012
/27/	Inner Mongolia Guodian New Energy Co.,Ltd., Training Records, dated during 28/12/2011-06/09/2012
/28/	Inner Mongolia Electricity (Group) Co., Ltd.: The power reading record of the main meter for the date of 31/12/2011, dated 15/09/2013

3.3 Interviews

The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	10/09/2013	Hu Lijiao, Project	Climate Bridge Ltd.	Project description, Monitoring Report, Emission Reductions

		Manager		Calculation
/b/	10/09/2013	Fu Chongbin	Inner Mongolia Guodian New Energy Co.,Ltd.	Project activity description, Quality control and quality assurance procedures, Monitoring equipments, Calibration, Monitoring Procedures and records
/c/	10/09/2013	Zhao Jian, Engineer	Yihewusu Windfarm	Quality control and quality assurance procedures, Monitoring equipments, Calibration, Monitoring Procedures and Data records

3.4 Site Inspections

On 10/09/2013, RINA visited the project site in Hangjin County, Ordos City, in the western Inner Mongolia of China. During the on-site assessment of the project RINA assessed the implementation and operation of the proposed project activity, accessed the installed equipment directly, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. .

3.5 Resolution of Any Material Discrepancy

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria.

The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- 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;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

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

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

CARs, CLs and FARs identified are included in the verification protocol in Appendix A of this report.

In conclusion, no Corrective Action Requests (CARs) and 1 Clarification Requests (CLs) are identified related to the monitoring, implementation or operations of the proposed CDM project activity (Monitoring Report version 01 of 30/08/2013) and the CL is successfully closed after necessary corrections/clarifications by the client as following:

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
CL1 The substations where the main meters (including Ms and Ms') and the meter M_I locate observed during the onsite visit by the verification team are not in line with the description in the registered PDD and VCS PD. Please clarify.	B.3.2	The name of the substation where the meter Ms and Ms' actually locate is named Kubuqi Substation, instead of Balagong Substation that was described in the registered PDD. Balagong is the name of the location. The correction does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario. The location of the meter M_I (unidirectional meter) measured the electricity imported from the 10kV backup power line for emergencies, is located in the on-site substation in the project site, instead of the Yihewusu Substation that was described in the registered PDD. The meter is owned by the grid company and this change of location of meter is beyond project proponents' control. This change does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario.	The actual monitoring information of the proposed project is different with the monitoring plan in the registered CDM PDD. The name of the substation where the meter Ms and Ms' actually locate is named Kubuqi Substation, instead of Balagong Substation that was described in the registered PDD. Balagong is the name of the township in which the project locates. It's confirmed by the onsite visit and interview with the personnel working in the Kubuqi Substation. The location of the meter M_I (unidirectional meter) measured the electricity imported from the 10kV backup power line for emergencies, is located in the on-site substation in the project site, instead of the Yihewusu Substation described in the registered PDD. It's confirmed during the onsite visit that the location of this meter is determined by the grid company and out of the PP's control. Further, the backup meter M_I is installed for the power use in the construction and trial operation period and the emergencies when the wind turbines are under normal operation. During this monitoring period, this backup meter M_I was only used in the first month after the project was put into operation, confirmed by the power reading record. As the project design didn't change, the applicability of the methodology, additionality or the appropriateness of the baseline scenario is not impacted confirmed by the

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
			verification team. The actual accuracy of the meters didn't change compared with the description in the registered CDM PDD. The emission reduction calculation was not impacted also for the proposed monitoring period. CL1 is closed.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

RINA confirmed that the project implementation is in line with the description in registered CDM PDD /06/ by site visit. RINA has performed a site visit on 10/09/2013 to verify the real implementation of the project against the description in its registered PDD /06/ and found that: 33 sets of turbines and generators of 1.5MW unit capacity with a total installed capacity of 49.5MW have been put into operation, which is in line with the registered PDD /06/. Other facilities and equipment as mentioned in the registered PDD are also in place and operated by the proponent in line with the description in the registered PDD. The project started commissioning on 28/12/2011/19/ before CDM registration. All the generators and other equipment were in normal operation at the time of the physical site visit by RINA. Crosschecking with the nameplates of the equipment and the technical agreement /20/, the model of the wind turbines is WD82-1500 and the technical information of the equipment was consistent with that described in registered PDD. By the physical site visit, the electricity generated by the project is connected to Kubuqi Substation (The name of the substation in the registered PDD is Balagong, this typo have been justified in the PD and MR. The verification team could confirm the Balagong and Kubuqi are the same substation by the onsite visit and interview with the personnel working in the substation) through transmission line and then delivered to NCPG, which is in line with the description in the MR /01/ and registered PDD /06/. Two bidirectional electricity meters (including the main meter and backup main meter) were installed at the substation, used for both measuring the electricity supplied to and imported from the grid, which is in line with the registered monitoring plan /06/. The location of the meter M_i (unidirectional meter) for measuring the electricity imported from the 10kV backup power line for emergencies, is located in the on-site substation in the project site, instead of the Yihewusu Substation described in the registered PDD. It's confirmed during the onsite visit by the verification team. Also, the location of this meter is determined by the grid company and out of the proponent's control. Further, the backup meter M_i was installed for the power use in the construction and trial operation period and the emergencies when the wind turbines are under normal operation. During this monitoring period, this backup meter M_i was only used in the first month after the project was put into operation, confirmed by the power reading record/25/. The location description error of meter M_i has no effect on the accuracy of the emission reductions calculation confirmed by the verification team. The description in MR Version 02 /01/ is also consistent with the actual implementation confirmed as above. Therefore RINA confirmed that there is no material discrepancy between the actual project information and the project description. Based on the review of registered CDM validation report /07/, no FAR was raised during the validation and/or no FAR to be addressed during previous verification since this is the only one Pre-CDM VCS verification before the CDM crediting period.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

Emission Reductions Calculation:

According to the applied methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 12.3.0 of 02/03/2012 /03/ and the registered PDD /06/, the emission reductions have been calculated based on the following formula:

Emission Reductions:

$$ER_y = BE_y - PE_y - L_y$$

Where:

ER_y is the emission reductions in year y ;

BE_y is the baseline emissions in year y ;

PE_y is the project emissions in year y ;

L_y is the leakage in year y ;

Baseline emissions:

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

Where:

$EG_{\text{facility},y}$ is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y ;

$EF_{\text{grid},CM,y}$ is the combined margin CO_2 emission factor of NCPG in year y .

Project emissions:

According to the ACM0002 version 12.3.0 /03/ and the registered PDD /06/, the project emissions PE_y is ZERO

Leakage emissions:

No leakage is applicable under this methodology and in accordance with the registered PDD /06/. RINA was able to confirm that the methodology for determining emission reductions is in line with the applied methodology ACM0002 version 12.3.0 /03/ and the registered PDD /06/.

Parameters available at Validation and Data Fixed Ex-ante:

DATA/PARAMETER	Source of data	Reported value for the project period	Assessment/Observation
$EF_{\text{grid},CM,y}$	Registered PDD /06/	0.8959tCO ₂ /MWh	Calculated according to the procedure outlined in B.6.1 of the registered CDM PDD

Parameters and Data Monitored:

DATA/PARAMETER	$EG_{\text{facility},y}$	
Data Unit	MWh	
Description	Quantity of net electricity delivered to the grid by the proposed project	
Source of data to be used	Monitoring electricity meter	
Value data for the monitoring period	65,118.53	
Measuring frequency	Continuous measurement, monthly recording	
Reporting frequency and recording procedure	All the parameters of the electricity power are recorded monthly as per the on-site metering records and the electricity data confirmation document/24//25/ confirmed by the grid company, then summarized and reported monthly, which is in line with the registered monitoring plan.	
Type of monitoring equipment	Meter	Main meter (Ms)
	Model	ZMQ202C

	<table><tr><td>SN</td><td>96913470</td></tr><tr><td>Accuracy</td><td>0.2S</td></tr></table>		SN	96913470	Accuracy	0.2S				
	SN	96913470								
	Accuracy	0.2S								
	<table><tr><td>Meter</td><td>Back-up Main meter (Ms')</td></tr><tr><td>Model</td><td>ZMQ202C</td></tr><tr><td>SN</td><td>96867840</td></tr><tr><td>Accuracy</td><td>0.2S</td></tr></table>		Meter	Back-up Main meter (Ms')	Model	ZMQ202C	SN	96867840	Accuracy	0.2S
	Meter	Back-up Main meter (Ms')								
	Model	ZMQ202C								
	SN	96867840								
	Accuracy	0.2S								
	<table><tr><td>Meter</td><td>Meter (M_I)</td></tr><tr><td>Model</td><td>DSSD566</td></tr><tr><td>SN</td><td>07301011037610</td></tr><tr><td>Accuracy</td><td>0.5S</td></tr></table>		Meter	Meter (M _I)	Model	DSSD566	SN	07301011037610	Accuracy	0.5S
	Meter	Meter (M _I)								
	Model	DSSD566								
	SN	07301011037610								
	Accuracy	0.5S								
	The accuracy of the main meter and back-up main meter (Ms, Ms') is 0.2S and the accuracy of the meter for measure the electricity imported from the power grid (M _I) is 0.5S, which is in line with Chinese national standard DL/T448-2000/15/ and also in line with the registered monitoring plan. Therefore the accuracy of the measurement equipment was addressed and deemed appropriate.									
	Is accuracy of the monitoring equipment as stated in the PDD?									
Calibration frequency/interval										
The accuracy of the meters is in line with that indicated in the registered monitoring plan /06/.										
<table><tr><td>Meter</td><td>Main Meter Ms SN 96913470</td></tr><tr><td>Calibration Entity</td><td>Power Metering Centre of Inner Mongolia Electric Power Research Institute</td></tr><tr><td>Calibration Date</td><td>17/12/2011</td></tr><tr><td>Validity</td><td>17/12/2011~16/12/2012</td></tr></table>		Meter	Main Meter Ms SN 96913470	Calibration Entity	Power Metering Centre of Inner Mongolia Electric Power Research Institute	Calibration Date	17/12/2011	Validity	17/12/2011~16/12/2012	
Meter	Main Meter Ms SN 96913470									
Calibration Entity	Power Metering Centre of Inner Mongolia Electric Power Research Institute									
Calibration Date	17/12/2011									
Validity	17/12/2011~16/12/2012									
<table><tr><td>Meter</td><td>Back-up Main Meter Ms' SN 96867840</td></tr><tr><td>Calibration Entity</td><td>Power Metering Centre of Inner Mongolia Electric Power Research Institute</td></tr><tr><td>Calibration Date</td><td>17/12/2011</td></tr><tr><td>Validity</td><td>17/12/2011~16/12/2012</td></tr></table>		Meter	Back-up Main Meter Ms' SN 96867840	Calibration Entity	Power Metering Centre of Inner Mongolia Electric Power Research Institute	Calibration Date	17/12/2011	Validity	17/12/2011~16/12/2012	
Meter	Back-up Main Meter Ms' SN 96867840									
Calibration Entity	Power Metering Centre of Inner Mongolia Electric Power Research Institute									
Calibration Date	17/12/2011									
Validity	17/12/2011~16/12/2012									
<table><tr><td>Meter</td><td>Meter (M_I)</td></tr></table>		Meter	Meter (M _I)							
Meter	Meter (M _I)									

		SN 07301011037610
	Calibration Entity	Power Metering Centre of Inner Mongolia Electric Power Research Institute
	Calibration Date	23/09/2011
	Validity	23/09/2011~22/09/2012
Is the calibration interval in line with the monitoring plan of the PDD?	Calibration of above meters was conducted in accordance with the Chinese regulation DL/T448-2000 and in line with the registered monitoring plan and the validity period covers the third monitoring period from 28/12/2011 to 06/09/2012. The calibration certificate /21//22/ confirmed proper functioning of monitoring equipment and valid for the whole monitoring period.	
How were the values in the monitoring report verified and cross-checked?	The electricity was monitored by meters and also supervised by the grid company as per the signed Power Purchase Agreement by the project developer with the grid company /26/. RINA has verified the data in the VCS MR /01/ and the ERCS /02/ against the records of on-site (the meter reading records), the data reading record confirmed by the grid company by cross-checking and found to be correct. In conclusion, the values in the monitoring report are consistent with the site records and the value recording was in line with the registered monitoring plan.	
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	RINA has verified the data management system on the project site and confirmed that: The maintenance and calibration of this meter was in line with the registered monitoring plan and in accordance with the Chinese regulation DL/T448-2000/15/. Before this monitoring period, Meter Ms, Ms', M_i were calibrated by Power Metering Centre of Inner Mongolia Electric Power Research Institute on 17/12/2011 and 23/09/2011/21//22/. Therefore the maintenance and calibration of this meter is deemed appropriate. Reading records of the main meter M_s, including the reading records of electricity supplied by the project and the reading records of electricity supplied by NCPG, were provided by the grid company monthly and were confirmed by the project owner, and records for sold and purchased electricity were issued accordingly. RINA confirmed that the data management was in line with the registered monitoring plan and ensured correct transfer of data.	

If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	All the data are available for this monitoring period.
---	--

Emission Reductions Achieved:

The emission reductions calculation reported in the VCS Monitoring Report version 02 /01/ and calculation spreadsheet version 02 /02/ have been verified to be correct. The emission reductions by the project activity for the monitoring period from 28/12/2011 to 06/09/2012 are equivalent to 58,339 tCO₂e (including 15 tCO₂e for year 2011 and 58,324 tCO₂e for year 2012), as reported in the VCS monitoring report version 02 /01/. The data presented in the VCS MR version 02 /01/ and ERCS /02/ was assessed by reviewing in detailed project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed in the above.

RINA compared the actual emission reductions with the estimates in the registered CDM PDD /06/ as follows:

The estimated annual emission reductions are 105,520 tCO₂e as per registered PDD. The actual emission reductions during this monitoring period are 58,339 tCO₂e. The monitoring period is from 28/12/2011 to 06/09/2012 which includes 254 days, thus the estimated emission reductions during this monitoring period are 73,430 tCO₂e (105,520 tCO₂e/365d*254d). Therefore, the actual value is less than the estimated emission reductions of the registered CDM-PDD during this monitoring period.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

RINA reviewed all the evidences to determine GHG emission reductions during the site visit. The original power purchase records were provided in paper format that indicating monthly electricity records /24/ made by the grid company and the power sales records confirmed by the grid company were used for the crosschecked /24//28/ with stamp seals. The monitoring records covered the entire monitoring period from 28/12/2011 to 06/09/2012.

RINA thereby ensured that the quantity of evidences to determine GHG emission reductions are sufficient and appropriate and these evidences are reliable as crosschecked consistency. RINA is of opinion that the electricity records used in the calculation are correct.

4.4 Management and Operational System

The project activity was managed during the monitoring period in accordance with the monitoring plan as reported in MR version 02 /01/. The monitoring and reporting of all parameters are in accordance with the registered monitoring plan. The site visit confirmed that the management system for the CDM project activity is in place and can be traced, such as the organizational structure with responsibilities, monitoring procedure and monitoring management, calibration and maintenance, internal audit and competence criteria of CDM personnel involved in the CDM project. The QA/QC system was established, including the daily data collecting performance, the calibration procedures, the training /27/, the emergency procedures and the internal audit to ensure the ex post report and the verification performance. By verifying the site records and the interview with the relevant staffs, RINA confirm that the data management and QA/QC procedures are sufficient. The records of calibration and maintenance /21//22/ and CDM training /27/, as well as the meter reading records, the grid company confirmed data reading documents /24/ were provided. A document control system was available and stored in a proper manner as per the physical site visit. The Monitored data will be kept until 2 years after the crediting period which is consistent with the requirement. Therefore RINA confirmed the suitability of the management system.

5 VERIFICATION CONCLUSION

RINA Service S.p.A (RINA) has performed verification of the emission reductions reported for the project activity "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China, CDM Registration Reference N° 7221, for the pre-CDM VCS monitoring period from 28/12/2011 to 06/09/2012, with regard to the relevant requirements for VCS and CDM activities. The project participants of the project are responsible for:

- the preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered CDM project design document version 2.0 of 01/08/2012
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the requirements of paragraph 62 of the CDM modalities and procedures and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered CDM PDD;
- the monitoring plan in the registered CDM PDD is as per the applied baseline and monitoring methodology.
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements;
- the monitoring complies with the monitoring plan in the registered CDM PDD;
- the monitoring plan in the registered CDM PDD is as per the applied baseline and monitoring methodology.

It is RINA's opinion that the GHG emission reduction stated in the VCS monitoring report version 02 of 17/09/2013 for the "Hangjin Yihewusu Phase I 49.5MW Wind Power Project" in China for the period from 28/12/2011 to 06/09/2012 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the baseline and monitoring methodology ACM0002, version 12.3.0, "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" of 02/03/2012.

Hence RINA is able to certify that the emission reductions from the project during the monitoring period 28/12/2011 to 06/09/2012 amount to 58,339 tCO₂e.

The verified GHG emission reductions or removals in the above reporting period as follows:

GHG Emission Reductions or Removals	tCO ₂ e
Net GHG emission reductions (28/12/2011-31/12/2011)	15
Net GHG emission reductions (01/01/2012-06/09/2012)	58,324
Net GHG emission reductions in total	58,339