
Verification Report and VCU Certification Statement

Carbon Resource Management Ltd.

Inner Mongolia Chifeng Saihanba East
45.05MW Windfarm Project

Reporting period: 01 October 2006 to 14 December
2006

PROJECT No. Vol0060-1

DATE: 08 JUL 2007

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Approved by: Siddharth Yadav	Organisational unit: SGS Climate Change Programme
Client: Carbon Resource Management Ltd.	Client ref.: Ms. Qian Yiwen

Summary:

SGS United Kingdom Ltd was contracted by Carbon Resource Management Ltd to verify the reduction in greenhouse gas emissions through the implementation of the "Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project" (the project) in Keshiketengqi County, Chifeng City, Inner Mongolia, P.R.China for the period from 01 October 2006 to 14 December 2006 according to Voluntary Carbon Standard.

The objective of this project is to generate renewable electricity using wind power resources and to sell the generated electricity to the Northeast China Power Grid. The project activity generates greenhouse gas (GHG) emission reductions by avoiding CO2 emissions from electricity generation by fossil fuel power plants that is supplied to Northeast China Power Grid

The project activity was monitored and emissions reduction were calculated on the basis of the approved CDM baseline and monitoring methodologies ACM0002, a monitoring report and relevant documentation were presented to SGS for verification.

In our opinion, the GHG emission reductions as reported in the monitoring report are fairly stated. As a consequence, SGS assessors were able to verify the emission reductions for the period from 01 October 2006 to 14 December 2006 amount to 10293 tones of CO2 equivalent.

This report presents the findings of the assessment and provides justification for the verification process and the verification and certification opinion

Report No.: Vol 0060-1	Subject Group: GHG project verification	
Report title: Verification of Saihanba East 45.05 MW Windfarm Voluntary Project		
Work carried out by: Elton Chen, Robin Wang		
Work verified by: Marco van der Linden		
Date of this revision: 08 Jul, 2007	Rev. No.: 02	Number of pages: 25

Indexing terms

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reductions
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
GHG	Green House Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
NCPG	North China power grid
NGO	Non-governmental Organization
NIR	New Information Requests
ODA	Official Development Assistance
PDD	Project Design Document
RMB	Ren Min Bi, Chinese Currency.
SGS	SGS United Kingdom Ltd
VCS	Voluntary Carbon Standard

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1. INTRODUCTION

SGS United Kingdom Ltd was contracted by Carbon Resource Management Ltd to verify the reductions in greenhouse gas emissions through the implementation of the three wind projects, namely, Inner Mongolia Chifeng Saihanba West 30.6 MW Windfarm Project, Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project, and Inner Mongolia Chifeng Saihanba North 45.05 MW Windfarm Project (hereinafter, referred as Saihanba West, Saihanba East and Saihanba North respectively) according to Voluntary Carbon Standard. This report covers the monitoring period from 2006-10-01 to 2006-12-14 of Saihanba East. This report presents the findings of the first periodic assessment and provides justification for the verification process and the verification and certification opinion

The verification team considered of the following personnel:

Elton Chen	SGS China	Lead Assessor
Robin Wang	SGS China	Assessor
Marco van der linden	SGS Netherlands	Technical reviewer

1.1 Objective

The client has commissioned an independent verification by SGS United Kingdom Ltd. of its reported greenhouse gas emission reductions from the Saihanba East 45.05 MW Windfarm Project. The verifiers have reviewed the GHG data collected to date for the period between 1 Oct 2006 to 14 Dec 2006.

The purposes of this verification exercise are, by review of objective evidence, to independently review :

- Whether the project has resulted in emission reductions as declared by the organisation or GHG project's GHG assertion
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

1.2 Scope

This engagement covers verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the 'Saihanba East 45.05MW Windfarm Project', criteria in proposed Voluntary Carbon Standard (VCS) has been taken into account for this verification.

Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

1.3 Description of the Project Activity

Sectoral scope 1: Energy industries

Project Parties:	Datang Chifeng Saihanba Wind Power Generation Co., Ltd. (P.R.China) Carbon Resource Management Ltd. (UK)
Title of project activity:	Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project
Project Entity:	Datang Chifeng Saihanba Wind Power Generation Co., Ltd.
Location of the project activity:	The project is located in south tableland of Zhirui village, Keshiketenqi County, Chifeng City in Inner Mongolia, in the P.R.China.

The project is located to the northwest of Chifeng City, Inner Mongolia. A decision has been made to install a total of 53 wind turbines, each with a power output of 850kW providing a total capacity of 45.05 MW. At time of verification, total 52 wind turbines have been installed and put into operation in 2006.

The generated electricity is exported to Wudan substation of Northeast Power Grid via the 220kV transmission lines. The project therefore help reduce GHG emissions versus the high-growth, coal-dominated business-as-usual scenario.

The project boundary is defined as the site of the project activity and the Northeast Power Grid. The baseline is determined as the electricity exported to the grid by the project that would have otherwise been generated by other grid-connected power plants and by new addition of generation sources.

Three wind projects, namely Inner Mongolia Chifeng Saihanba West 30.6 MW Windfarm Project, Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project, and Inner Mongolia Chifeng Saihanba North 45.05 MW Windfarm Project, share the same power transmission line and meter at the grid side. Check meters were installed at each project site for measuring electricity generated by a specific project. The respective amount of electricity exchanged with the grid from these three projects are calculated according to the reading at the grid side and multiplied by respective electricity generation percentage.

The project was commissioned on 2006-09-10. In the period of 2006-10-01 to 2006-12-14 the total net electricity supplied to the grid amounts to 10051.9MWh. The grid emissions factor is calculated ex-ante to be 1.024tCO₂/MWh. The emission reductions reported from the project for the period from 2006-10-01 to 2006-12-14 equates to 10293tonnes of CO₂ equivalent.

2. METHODOLOGY

The verification process is a two-stage process.

In the first stage, SGS completed a strategic review and risk assessment of projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;

- Means of verifying reported data; and
- Compilation of the monitoring report.

At the end of this stage, SGS produced:

- A Periodic Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the periodic verification protocol.
- Corrective Action Requests and New Information Requests, if necessary.

In the second stage, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question, using the Periodic Verification Checklist. This involved site visit and a desk review of the monitoring report.

At the end of this stage, SGS produced this verification report which will form the basis of verification statement.

Verification team

Lead auditor: Elton Chen SGS China

Auditor : Robin Wang SGS China

Duration of verification

Preparations: *From 8-03-2007 to 9-03-2007*

On-site verification: *From 12-03-2007 to 13-03-2007*

Reporting: *From 19-03-2007 to 18-04-2007*

2.1 Review of Documentation

The verification is performed primarily as a document review of the monitoring report, the project design document against the approved CDM methodology ACM0002 version 06. The assessment is performed by trained assessors using a verification protocol. The verification team have also assessed the operational records, invoices of electricity sales and purchases, calibration records of the electricity meters for the period of 01 October 2006 to 14 December 2006, and the working requirement for the operation staff and training records of the operation staff.

2.2 Site Visits

Robin Wang visited the site at Datang Chifeng Saihanba Wind Power Generation Co., Ltd. on 07-03-13. During the site visit, the following personnel were interviewed or participated in the interview:

Name

Name	Position /Organization
Mr. Shi Xiangfeng	Project Manager of Carbon Resource Management
Mr. Song Baigang	Vice Director of Plannng Department of Datang Chifeng Saihanba Wind Power Generation Co., Ltd
Mr. Xing Dehai	Vice Director of Operation Department of Datang Chifeng Saihanba Wind Power Generation Co., Ltd

Ms. Sun Lei	Project Manager of Planning Department of Datang Chifeng Saihanba Wind Power Generation Co., Ltd
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Main topics covered by the interview were: Installation plan, Project management and monitoring; Operational issues and records, Evidences of electricity exchanged with the grid, GHG source, Data archiving...etc

2.3 Assessment

The parameters and values presented in the monitoring report were assessed through review of detailed project documentation and production records, interviews with personnel at Datang Chifeng Saihanba Wind Power Generation Co., Ltd, check of log book, collection of electricity bills, observation of established monitoring and reporting practices and assessment of the reliability of measuring equipment. Data for determination of the grid emission factor have also been assessed.

Information which was not available during site visit were reported as New Information Request (NIR), following submission of additional information, monitoring and operational records, the reconsolidation of all reported data was assessed again.

2.4 Reporting of Findings

As an outcome of the verification process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- I. mistakes have been made with a direct influence on project results;
- II. validation protocol requirements have not been met; or
- III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity..

3. VERIFICATION FINDINGS

Electricity delivered and imported from grid by three wind projects was measured by a meter installed at grid site. Each project has installed two check meters for measuring electricity generated by individual project, daily readings of these meters were recorded in log books, monthly statistics were used as reference by the grid company when calculating the specific amount of electricity delivered and imported by respective project, details as below:

Table 1. Reported values

Unit: MWh

Period	Measured at grid side		Measurd at project side			Allocated amount	
	Es.total	Ei.total	Eg.west	Eg.east	Eg.north	Es.east	Ei.east
Oct-06	12930	36.96	12500	530	70	523	1.5
Nov-06	15290	18.48	8450	6130	885.96	6060	7.3
1-14 Dec 06	7664	42.24	3691	3640	646	3497	19.3
Total	35884	97.68	24641	10300	1602	10080	28.1

Where:

Es.total is the total electricity sold to the grid.

Ei.total is the total electricity imported from the grid.

Eg.west is the electricity generated by Saihanba West

Eg.east is the electricity generated by Saihanba East

Eg.north is the electricity generated by Saihanba North

Es.east is the allocated amount of sold electricity to Saihanba East.

$$Es_{east} = Es_{total} * [Eg_{east} / (Eg_{west} + Eg_{east} + Eg_{north})]$$

Ei.east is the allocated amount of imported electricity to Saihanba East.

$$Ei_{east} = Ei_{total} * [Eg_{east} / (Eg_{west} + Eg_{east} + Eg_{north})]$$

Data of Es.total, Ei.total, Eg.west, Eg.east and Eg.north were crosschecked with meter reading records. The allocated amounts of electricity sold and imported by Saihanba East were crosschecked against invoices and bills. Results are as below:

Table 2. Verified values

Unit: MWh

Period	Verified value electricity exported	Verified value electricity imported
Oct 1-31, 2006	523	1.486404
Nov 1-30, 2006	6060	7.324317
Dec 1-14, 2006	3497	19.265620
Total	10080	28.076341

Minor discrepancies were found between reported values and verified values, it was caused by the place of decimal digit of data in different records, project proponent used the conservative values to calculate the emission reduction.

Hence, net electricity delivered to grid by Saihanba East in this period is:
10080-28.1=10051.9MWh

After on-site visit, below findings have been raised, all of them were successfully closed after project proponent submitted new information.

No.	Type	Issue
1	NIR1	Please provide generation records of turbines as from 1 Oct 2006 to 14 Dec 2006.
Date: 20 Mar 2007 [Comments] The electricity generation records from 01-10-06 to 31-12-06 of all wind turbines derived from each turbine's metering system have been provided.		
Date: 21 Mar 2007 E.Chen [Acceptance and close out]: The generation records have been crosschecked with corresponding invoices, data were found OK, NIR is closed.		

No.	Type	Issue
2	NIR2	Please provide the list of wind turbines in Saihanba East Windfarm to distinguish them from turbines of Saihanba West and Saihanba North
Date: 20 Mar 2007 [Comments] The allocation diagram with all wind turbines numbers has been provided.		
Date: 21 Mar 2007 E.Chen [Acceptance and close out]: The turbines have been separated according to the list, and turbines generation records have been checked for each concerned windfarms. NIR is closed.		

No.	Type	Issue
3	NIR3	It was declared that 2 check meters have been installed in every project, and total 6 calibration records of meters have been provided, however, please provide project name in accordance with the S/N of meters.
Date: 13 April 2007 [Comments]		
No.		Project name
256		Saihanba West
258		Saihanba West
74		Saihanba East
78		Saihanba East
76		Saihanba North
77		Saihanba North
Date:14 April 2007 [Acceptance and close out]: Closed out.		

The grid emissions factor is calculated ex-ante to be 1.024tCO₂/MWh as per the registered PDD, please refer to <http://cdm.unfccc.int/Projects/DB/DNV-CUK1155680126.47/view.html>

3.1 Remaining Issues, CARs, NIRs from Previous Validation or Verification

No remaining issues.

3.2 Project Implementation

With the first wind turbine started to operate since 2006-09-10, total 53 wind turbines started operation in 2006.

3.3 Completeness of Monitoring

The monitoring of the project activity is found to be in conformity with monitoring methodology described in ACM0002 and monitoring plan indicated in PDD of project activity.

The required metering systems have been installed and operational. The meters comply with appropriate quality standards applicable for this technology.

The sustaining records were sufficient to enable verification of emission reductions.

3.4 Accuracy of Emission Reduction Calculations

Data of electricity delivered to the grid are telemetric download. Total uncertainty of metering system is properly addressed by using conservative values.

Emission factor of the grid is assessed as per ACM0002.

Formula used to calculate the emission reduction is checked and found correct.

Since three wind projects, Saihanba West, Saihanba East and Saihanba North, share the same meter, monthly electricity delivered or purchased by individual project was calculated from the total amount multiplied by respective electricity generation percentage, this report accepted the ratio agreed by each projects as well as grid company, which was substantiated by electricity invoices/bills issued/paid by each of these three projects.

3.5 Quality of Evidence to Determine Emission Reductions

Operational records and other evidences have been documented, collected and archived in either hard-copies or electronic manners. Electricity is measured by calibrated instrument, data can be crosschecked through log book of turbines, meter readings at project side as well as at the grid side, and electricity bills. All values used in determining emission reduction are substantiated with proofs which are free from any material error.

3.6 Management System and Quality Assurance

GHG management organization of Datang Chifeng Saihanba Wind Power Generation Co., Ltd has been established, all related records have been documented. Team member responsibility has been allocated as per PDD and monitoring plan.

3.7 Additionality

The selected baseline is electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources connected to the Northeast China Grid.

This project was registered as CDM project on 15 Dec 1006 (reference number 0561), please refer to following website for more details:

<http://cdm.unfccc.int/Projects/DB/DNV-CUK1155680126.47/view.html>

According to the registered CDM PDD, the additionality of the project has been demonstrated as below:

Step 1: Identification of the alternatives to the project activity consistent with the current laws and regulations.

The alternate baseline scenarios for the project activity have been identified as,

- a. the project activity not undertaken as a CDM project activity;
- b. The thermal or hydro and other kind of power plant with the comparable capacity or electricity;
- c. Comparable capacity or electricity generation addition provided by Northeast China POWER Grid;
- d. Continuation of the current situation (no project activity or other alternatives undertaken) .

Step 2: Investment analysis

Benchmark analysis (option III of Step 2 of tool for the demonstration and assessment of additionality) is selected for conducting the investment analysis.

In China an IRR of 8% for total investment of a project is regarded as benchmark for investment in hydropower plants, fossil fuel fired plants and wind farm project. The project IRR without revenues from selling emission reduction is 6.81% which shows that the project is not financially attractive in absence of emissions reduction benefits.

Step 3: Barrier analysis

A barrier analysis has been conducted as supplementary to the investment analysis.

Investment barriers:

The investment cost per kW(RMB/kW) of wind power unit is presented as a barrier (10587 RMB/kW for the proposed project) The investment per kW of this project is much higher than that of coal fired units (typically around 5000RMB /kW); the high initial investment cost leads to higher investment risk and more difficulties in project financing.

Technological barriers:

The windfarm is located in a less economically developed region of China and skilled and properly trained labour to operate and maintain the technology is not available.

The Chinese wind power industry is still in early stages of development and some technological barriers exist. The technology risks associated with wind power in China are high due to the fact that most of wind turbines are foreign made and highly advanced. Therefore, windfarm operators would need to maintain larger operation and maintenance reserves for such eventualities. This is also true for the 850kW wind turbine used by the project, which is imported from Denmark.

Step 4: Common practice analysis.

The common practice shows that with the prevalent decrease of on-grid tariff for wind power projects in China, this windfarm is also facing the pressure that on-grid tariff will be adjusted to lower level. At present, the Saihanba East Windfarm and Saihanba West Windfarm have to apply for being the CDM project, because the very low on-grid tariff makes both projects face the financial barrier.

Step 5. Impact of emissions reduction revenues

With the sales of emission reductions, the investment return will increase and the investment risk will reduce directly.

Thus, according to the VCS and using the CDM additionality criteria, this wind project is additional.

4. TESTING ON VCU VERIFICATION CRITERIA

#	Criterion	Finding/Conclusion
1	Project Category	1. Energy Industries (Renewable/non-renewable)
2	Geographic Location	In conformity with the description in PDD.
3	Eligible GHGs	1. Carbon dioxide
4	Project Start Date	First turbine commissioned in Sep 2006.
5	Emission reduction start date	Emission Reduction start date is 01 Oct 2006.
6	Public Funding and Grants	No indication that project has employed Public Funding, grants or Official Development Assistance (“ODA”) for construction or running operations in the geographic location of the Project Activity.
7	Project Boundary/GHG Assessment Boundary	Chifeng Saihanba East Windfarm Project site and Northeast China Power Grid is selected as the project boundary.
8	Calculation Methodology	CDM methodology ACM0002 Version 06 has been correctly used.
9	Secondary Effects	To be a windfarm project, no significant secondary effects are foreseen.
10	Project Additionality	Confirmed, please refer to section 3.7 for details.
11	Quality of Reductions	Relevant permits have been obtained by project owner. Project’s design and implementation has been carried out in compliance with all relevant local and national environmental and social legislation in China.

12	Monitoring Process	CDM monitoring methodology ACM0002 version 06 has been used, sustaining records were sufficient to enable verification of emission reductions.
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5. VERIFICATION AND CERTIFICATION STATEMENT

Reporting period: From 01 Oct 2006 to 14 Dec 2006

Verified emission in the above reporting period:

Project emissions	0	t CO ₂ equivalents
Baseline emissions	10293	t CO ₂ equivalents
Emission reductions	10293	t CO ₂ equivalents

Verification Statement

Introduction

SGS United Kingdom Ltd. has been engaged by Carbon Resource Management Ltd to examine the greenhouse gas (GHG) emission reductions reported from the Saihanba East 45.05 MW Windfarm Project for the period, equating to 10293tonnes of CO2 equivalents.

Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported for the period 01-10-2006 to 14-12-2006 and the verification testing conducted against the GHG Assertion of the Carbon Resource Management Ltd, and the PDD of Saihanba Wwest 45.05 MW Windfarm Project.

Responsibilities of Carbon Resource Management Ltd. and SGS United Kingdom Ltd.

The management of the Carbon Resource Management Ltd. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring and Verification Plan. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Carbon Resource Management Ltd.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions from the project for the period 01-10-2006 to 14-12-2006 and on the calculation of GHG emission reductions from the project based on the verified emissions for the same period.

Basis of GHG verification opinion

Our verification approach was based on the requirements as defined in Voluntary Carbon Standard version 1.

Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for given period.

We planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that the amount of GHG emission reductions for the reporting period, prepared on the basis of the Monitoring Plan, are fairly stated.

We conducted our verification with regard to the client's / GHG projects GHG assertion which included Saihanba West 45.05 MW Windfarm Project's project plan, baseline applied and baseline GHG emissions or removals, Monitoring Plan, GHG Emission reductions, removal enhancements. This assessment included:

- Collection of evidence supporting the reported data

- Checking whether the provisions of the Monitoring Plan in the PDD, were consistently and appropriately applied

We have verified whether the information included in the attached appendix representing the project baseline is current and has been correctly extracted from the GHG Assertion statement that the emissions reduction achieved has been determined by correctly subtracting emissions for the reporting period from the baseline figure for the comparable period.

Certification Statement

Based on process and procedures conducted, in our opinion, Carbon Resource Management Ltd's GHG assertion on emission reductions for the Saihanba East 45.05 MW Windfarm Project during the reporting period 01-10-2006 to 14-12-2006 is materially correct and is a fair representation of the GHG data and information and the emission reductions are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved monitoring methodology ACM0002 version 06.

Therefore, SGS United Kingdom Limited is able to certify that the project is in full compliance with the Voluntary Carbon Standard Version 1, and the reported emission reductions achieved by Saihanba East 45.05 MW Windfarm Project, certified as VCUs, generated in the above reporting period, is 10293VCUs.

08-July-2007



Elton Chen Wu

6. REFERENCES

- /1/ *Voluntary Carbon Standard, Version 1*
- /2/ *Approved consolidated monitoring methodology ACM0002 Version 06.*
- /3/ *Project Design Document, version 1.3, 8 June, 2006.*
- /4/ *Monitoring report of Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project*
- /5/ *Calibration Certificates*
- /6/ *Monthly Electricity Transaction Notes (ETN)*

7. APPENDIX



MONITORING REPORT OF Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project

**Start monitoring period: 1 October 2006
End monitoring period: 14 December 2006**

UNFCCC EB Project Reference number: 0561



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1. INTRODUCTION

This Monitoring Report is based on THE VOLUNTARY CARBON STANDARD Version 1, and the purpose of this Monitoring Report is to calculate the emission reductions achieved by the project activity in the period covered by this report, and to serve as the basis for the verification of these reductions and issuance of the VCU.

1.1 Monitoring period

1 October 2006 to 14 December 2006

8. PROJECT DESCRIPTION

2.1 Title

Inner Mongolia Chifeng Saihanba East 45.05 MW Windfarm Project

2.2 Project summary

The Saihanba East Windfarm is located to the northwest of Chifeng City, Inner Mongolia. A decision has been made to install a total of 53 wind turbines, each with a power output of 850 kW to best suit the local conditions. The total power capacity, therefore, of the Chifeng Saihanba East Windfarm is 45.05 MW. The expected net supplied power to the grid is 111,000 MWh per year.

A more detailed description is available in the PDD and related documentation.

2.3 Category of project activity

Using the agreed methodology ACM0002 the category of the project activity is:

- Sectoral scope 1: Energy industries
- Category: Renewable electricity generation in grid connected applications

9. PROJECT TIMELINE

Starting date of the project activity	10 September 2006
Date project registered	15 December 2006

Start of monitoring period	1 October 2006
End of monitoring period	14 December 2006

Table 1 lists the commissioning dates of 53 wind turbines installed in the Saihanba East Windfarm Project.

Table 1 Commissioning dates of turbines

No.	Commissioning Date	No.	Commissioning Date
#1	2006-9-28	#27	2006-10-2
#2	2006-9-29	#28	2006-10-3
#3	2006-10-2	#29	2006-10-4
#4	2006-10-2	#30	2006-10-5
#5	2006-10-5	#31	2006-11-30
#6	2006-10-6	#32	2006-11-19
#7	2006-9-16	#33	2006-11-17
#8	2006-11-27	#34	2006-9-30
#9	2006-9-17	#35	2006-11-19
#10	2006-9-22	#36	2006-11-20
#11	2006-9-25	#37	2006-11-20
#12	2006-9-27	#38	2006-9-13
#13	2006-9-23	#39	2006-9-13
#14	2006-9-28	#40	2006-10-31
#15	2006-10-14	#41	2006-9-18
#16	2006-9-15	#42	2006-9-17
#17	2006-10-20	#43	2006-9-10
#18	2006-10-21	#44	2006-9-14
#19	2006-10-14	#45	2006-9-19
#20	2006-10-20	#46	2006-10-5
#21	2006-10-21	#47	2006-11-15
#22	2006-10-15	#48	2006-10-20
#23	2006-10-14	#49	2006-10-20
#24	2006-9-29	#50	2006-10-17
#25	2006-10-2	#51	2007-1-7
#26	2006-10-1	#52	2006-11-13
		#53	2006-11-3

10. BASELINE

4.1 Methodology

The project participants use the approved baseline and monitoring methodology ACM0002 (version 6) "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

Using ACM0002, the emission reductions achieved by the project activity can be calculated by multiplying the net electricity supplied to the grid and the appropriate emissions factor of the grid.

4.2 Calculations

The emission reductions ER_y by the project activity during a given year y is

$$ER_y = E_{Gy} * EF_y$$

where E_{Gy} is the net electricity supplied to the grid, EF_y is the CO_2 emission factor of the grid.

The emission factor EF_y of the grid is represented as a combination of the Operating Margin and the Build Margin, and was fixed for the duration of the crediting period in the PDD.

The Operating Margin emission factor EF_{OMy} was calculated in the PDD as 1.106 tCO₂e/MWh. The Build Margin emission factor EF_{BMy} was calculated as 0.775 tCO₂e/MWh. The weighted average of Operating and Build Margin emission factors is:

$$EF = w_{OM} * EF_{OM} + w_{BM} * EF_{BM} = 0.75 * 1.106 + 0.25 * 0.775 = 1.024 \text{ tCO}_2/\text{MWh}$$

11. MONITORING METHODOLOGY AND PLAN

5.1 Monitored data and calculation

As the emissions factor is fixed for the whole period, only the net electricity supplied to the grid (NE) is needed to calculation the baseline emissions.

The net electricity supplied to the grid (NE) can be calculated from these data below:

ID	Variable
1	ES: electricity supplied to the grid
2	EP: electricity purchased from the grid

$$NE = ES - EP$$

Saihanba East Windfarm shares the power transmission line and the same meter in the same substation with Saihanba West and Saihanba North windfarm, the total electricity from these three windfarms can be monitored by the meter, and the respective electricity supplied, electricity purchased can be calculated from the total number multiplied by respective electricity generation (EG) percentage as the formula listed below. The electricity generation of each turbine and the total number of electricity generation (EG_{west} , EG_{east} , EG_{north}) of Saihanba West, Saihanba East and Saihanba North is monitored respectively, these numbers are verified by Chifeng Electric Power Company and then the invoices reflecting these numbers are stamped by Chifeng Electric Power Company.

$$ES_{east} = ES_{total} * [EG_{east} / (EG_{west} + EG_{east} + EG_{north})]$$

$$EP_{east} = EP_{total} * [EG_{east} / (EG_{west} + EG_{east} + EG_{north})]$$

$$NE_{east} = ES_{east} - EP_{east}$$

5.2 Baseline data

5.2.1 NE: net electricity supplied to the grid

Table 2 Electricity supplied to the grid from Saihanba East Windfarm

Period	ES _{total} (MWh)	EG _{west} (MWh)	EG _{east} (MWh)	EG _{north} (MWh)	ES _{east} (MWh)
Oct-06	12930	12500	530	70	523
Nov-06	15290	8450	6130	885.96	6060
1-14 Dec 06	7664	3691	3640	646	3497
Total	35884	24641	10300	1602	10080

Source: ES and EG (from 1 to 14 Dec) are the total number of Dec multiplied by 14/31.

Table 3 Electricity purchased from the grid in Saihanba East Windfarm

Period	EP _{total} (MWh)	EG _{west} (MWh)	EG _{east} (MWh)	EG _{north} (MWh)	EP _{east} (MWh)
Oct-06	36.96	12500	530	70	1.5
Nov-06	18.48	8450	6130	885.96	7.3
1-14 Dec 06	42.24	3691	3640	646	19.3
Total	97.68	24641	10300	1602	28.1

Source: EP (from 1 to 14 Dec) are the number of Dec, to be conservative.

Table 4 Net Electricity Supplied to the Grid from Saihanba East Windfarm

	ES(MWh)	EP(MWh)	NE(MWh)
1 Oct-14 Dec, 2006	10080	28.1	10051.9

12.QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

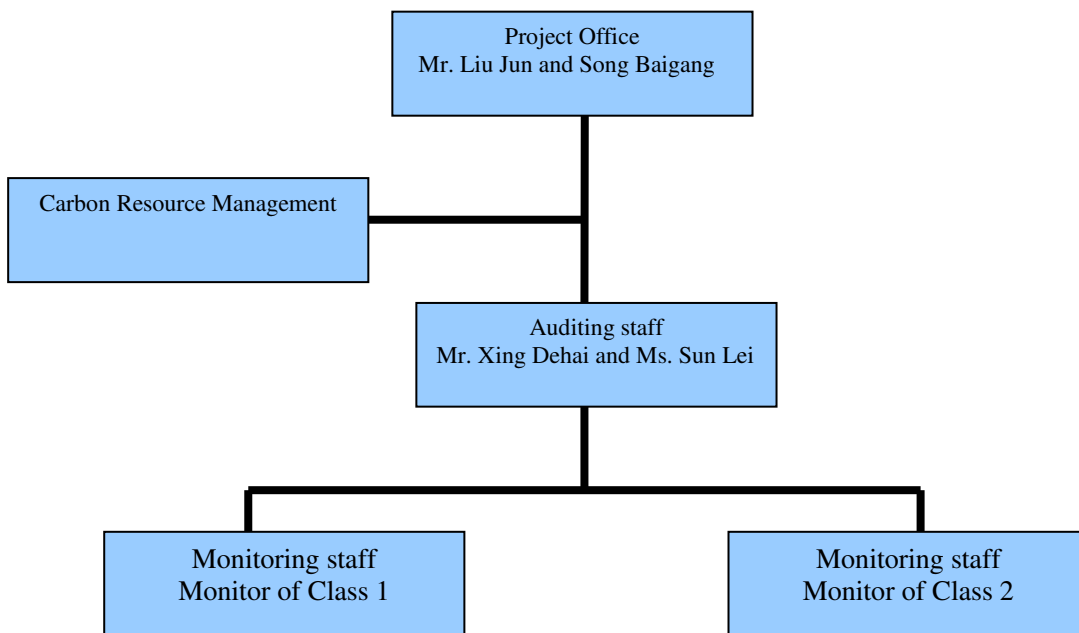
6.1 Roles and responsibilities

Overall responsibility for monitoring and carrying out the monitoring following this monitoring plan lies with the CDM and VER Project Office of the Datang Chifeng Saihanba Wind Power Co., Ltd as listed in the chart below.

Mr. Liu Jun and Mr. Song Baigang, head of planning department of Datang Chifeng Saihanba Wind Power Co., Ltd., are responsible for the CDM and VER project of the windfarm.

Mr. Xing Dehai and Ms. Sun Lei are responsible for inner auditing.

Two operation monitors of Saihanba East Windfarm are responsible for the daily monitoring and reporting.



6.2 Training

IT Power (shareholder of Carbon Resource Management) has advised the project developer on monitoring work.

The staff who are responsible for electricity meter reading and recording, and who are responsible for auditing these metered data have been trained according to the CDM monitoring and management manual for Saihanba East Windfarm Project.

6.3 Calibrations

The Power Interchange Agreement between Datang Chifeng Saihanba Wind Power Co., Ltd. and Northeast Power Grid Company Limited defines the metering arrangements and the required quality control procedures to ensure accuracy.

The metering equipment are calibrated and checked annually for accuracy. The metering equipment shall have sufficient accuracy so that any error resulting from such equipment shall not exceed 0.5% of full-scale rating. The net energy output registered by the meters alone will suffice for the purpose of billing and emission reduction verification as long as the error in the meters is within the agreed limits.

Calibration is carried out by Liaoning Electric Power Science Research Institute with the records being supplied to Saihanba East Windfarm, and these records will be maintained by Datang Chifeng Saihanba Wind Power Co., Ltd.

Both meters shall be jointly inspected and sealed on behalf of the parties concerned and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

All the meters installed shall be tested by Liaoning Electric Power Science Research Institute within 10 days after:

- the detection of a difference larger than the allowable error in the readings of both meters;
- the repair of all or part of meter caused by the failure of one or more parts to operated in accordance with the specifications; and/or

If any errors are detected the party owning the meter shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity.

Should any previous months reading of the main meter be inaccurate by more than the allowable error, or otherwise functioned improperly, the net energy output shall be determined by (a) first, by reading backup meter, unless a test by either party reveals it is inaccurate; (b) if the backup system is not with acceptable limits of accuracy or is otherwise performing improperly the Datang Chifeng Saihanba Wind Power Co., Ltd.. and Northeast Power Grid shall jointly prepare an estimate of the correct reading; and (c) if Northeast Power Grid and Datang Chifeng Saihanba Wind Power Co., Ltd.. fail to agree then the matter will be referred for arbitration according to agreed procedures.

No errors occurred during this monitoring period of the Wind farm, Calibration took place as per schedule. Calibrations were carried out by Liaoning Electric Power Science Research Institute on the date given in Table below.

Table 5 Dates of calibrations of monitoring equipment

Equipment	Dates of calibrations
Main metering equipment at substation	25 Aug 2005

owned by the Northeast Power Grid	21 Aug 2006
Back-up metering equipment at substation owned by Saihanba East Windfarm	2 July 2005
	1 July 2006

The calibration results show that all meters operate in accordance with the industry standards and are qualified to measure the electricity supplied to the grid and consumed by the windfarm.

6.4 Reporting

The steps required to meet the requirements for emissions reduction monitoring include:

Chifeng Electric Power Company reads main meter and backup meter remotely and supplies reading to Saihanba East Wind Farm monthly.

Saihanba East Wind Farm records readings from the backup meter and the output of each turbine monthly.

A 10KV back-up power line connected to the other substation of Chifeng power grid was installed during the construction period, after the construction period this 10KV back-up electricity consumption is zero, and although this back-up power will be seldom used by the windfarm during the operation period, this consumption data is also monitored and reported monthly.

Saihanba East Wind Farm carries out an internal audit on the readings and reports the readings to the DOE for verification, within 10 working days before the verification is conducted.

6.5 Data management system

Physical document such as paper-based maps, diagrams will be collated in a central place, together with this monitoring plan. In order to facilitate auditors' reference of relevant literature relating to Saihanba East Wind Farm project, the project material and monitoring results will be indexed. All paper-based information will be stored by the technology department of Saihanba East Wind Farm and all the material will have a copy for backup. And all data including calibration records is kept until 2 years after the end of the total crediting period of the CDM project.

6.6 Quality control

Monthly net generation data has been approved and signed off by staff that is responsible for recording meter reading in the 220kV substation installed in windfarm side, and cross checked with receipt from Northeast Power Grid.

13.EMISSION REDUCTION CALCULATIONS

7.1 Project emissions

As a renewable energy project, project emissions are zero.

7.2 Baseline emissions

Table 6 Emission reductions achieved from Saihanba East Windfarm

	NE(MWh)	EF(tCO ₂ e/MWh)	BE(tCO ₂ e)
1 Oct-14 Dec, 2006	10051.9	1.024	10293

7.3 Leakage emissions

As a relatively small renewable energy project, leakage from the project are considered zero.

7.4 Summary of emission reductions during the monitoring period

Table 7 Emission reduction calculation (tCO₂e) from Saihanba East Windfarm

	Project Emissions (tCO ₂ e)	Baseline Emissions (tCO ₂ e)	Leakage Emissions (tCO ₂ e)	Emission Reductions (tCO ₂ e)
1 Oct-14 Dec, 2006	0	10293	0	10293

Annex 1: Contact details

Project developer

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