
Verification Report and VCU Certification Statement

Carbon Resource Management Ltd.

Heilongjiang Mulan Windfarm Project

Reporting period: From 1 January 2004 to 31 December 2006

PROJECT No. VoL0068

DATE: 05 AUG 2007



Date of first issue: 05, Aug 2007	Project No.: Vol 0068
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 "Heilongjiang Mulan Windfarm Project" (the project) in Mulan County, Harbin City, Heilongjiang Province, P.R. China for the period from 01 January 2004 to 31 December 2006 according to Voluntary Carbon Standard version 1.

The objective of this project is to generate renewable electricity using wind power resources and to sell the generated electricity to the North East 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 North East China Power Grid.

The project activity has been monitored and emissions reduction were calculated on the basis of the approved CDM baseline and monitoring methodology AMS-I.D Version 10, monitoring report and relevant documentation were presented to SGS.

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 that emission reductions for the period from 01 January 2004 to 31 December 2006 amount to 64025 tonnes 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 0068	Subject Group: GHG project verification	
Report title: Verification of Heilongjiang Mulan Windfarm Voluntary Project		
Work carried out by: Robin Wang		
Work verified by: Irma Lubrecht , Elton Chen Wu (trainee)		
Date of this revision: 20 Aug 2007	Rev. No.: 01	Number of pages: 22

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
FSR	Feasibility Study Report
GHG	Green House Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
NEPG	North East China Power Grid
NGO	Non-governmental Organization
NIR	New Information Requests
ODA	Official Development Assistance
PDD	Project Design Document
PPA	Power Purchase Agreement
SGS	SGS United Kingdom Ltd
VCS	Voluntary Carbon Standard
VCUs	Voluntary Carbon Units

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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 wind project, namely, Heilongjiang Mulan Windfarm Project according to Voluntary Carbon Standard version 1. This report covers the monitoring period from 01-01-2004 to 31-12-2006. This report presents the findings of the assessment and provides justification for the verification for the verification process and the verification and certification opinion.

1.1 Objective

The client has commissioned an independent verification by SGS United Kingdom Ltd. of its reported greenhouse gas emission reductions from the Heilongjiang Mulan Windfarm Project. The verifiers have reviewed the GHG data collected to date for the period from 01 January 2004 to 31 December 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 project design document and monitoring report.
- 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 'Heilongjiang Mulan 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:	Heilongjiang Huafu Mulan Wind Power Co., Ltd. (P.R.China) Carbon Resource Management Ltd. (UK)
Title of project activity:	Heilongjiang Mulan Windfarm Project
Project Entity:	Heilongjiang Huafu Mulan Wind Power Co., Ltd. (P.R.China)
Location of the project activity:	The project is located in the Mulan County, Harbin City, Heilongjiang Province, P.R.China.

The project is located in the Mulan County, which is 110 km from Harbin City and in the west of Heilongjiang Province. A decision has been made to install a total of 20 wind turbines, each with a power output of 600KW providing a total capacity of 12 MW.

The generated electricity is exported to Suihua substation of Northeast China Power Grid via the 66kV 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 China 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.

The project has installed capacity of 12 MW (20 units of 600kW), power transmission line and three gateway meters at the project site. Check meters were installed at the project site for measuring the generated electricity. The amount of electricity exchanged with the grid by Heilongjiang Mulan Windfarm is calculated according to the invoices of electricity exported and imported.

The project was commissioned on 03-12-2003. During the period of 01-01-2004 to 31-12-2006, the total net electricity supplied to the grid amounts to 58199 MWh. The grid emissions factor is calculated ex-ante to be 1.1001tCO₂/MWh. Thus, the emission reductions reported from the project for the period from 01-01-2004 to 31-12-2006 calculated as 64025 tonnes 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: Robin Wang SGS China

Auditor: Sarah Ruan SGS China

Duration of verification

Preparations: From 20-06-2007 to 21-06-2007

On-site verification: From 27-06-2007 to 28-06-2007

Reporting: From 02-07-2007 to 05-08-2007

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 AMS-I.D.Version10. 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 January 2004 to 31 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 Heilongjiang Huafu Mulan Wind Power Co., Ltd. on 28 June 2007. During the site visit, the following people were interviewed or participated in the interview:

Name	Position /Organization
Mr. Shi Xiangfeng	Project Manager of Carbon Resource Management
MS. Li Ning	Project Manager of Carbon Resource Management
Mr. Wang Weibin	President of Heilongjiang Huafu Mulan Wind Power Co., Ltd.
Mr. Fang Yuming	Chief Engineer of Heilongjiang Huafu Mulan Wind Power Co., Ltd.
Ms. Zhang Xiaoyu	Dept. manager of Heilongjiang Huafu Electric Power Investment Co., Ltd.

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 Heilongjiang Huafu Mulan Wind Power 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 was reported as New Information Request (NIR) following submission of additional information, monitoring and operational records, and 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. verification protocol requirements have not been met; or
- III. there is a risk that the project would not be accepted as a VCS 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

Based on the information of the PDD and monitoring report, this reporting period of the project covers the period from 01 Jan 2004 to 31 Dec 2006 which is consistent with the submitted monitoring report.

The project was in pursuance of CDM methodology AMS-I.D version10. The monitoring methodology has been correctly applied and the documents for this verification are complete and transparent. QA/QC procedures stipulated in the PDD have been strictly followed.

During site visit, found the physical and spatial configuration of the project are completed and in line with the description in PDD. The project boundary was consistent with the PDD, total 12MW turbines of Nordex - N43 have been commissioned since 22 Aug 2004, and electricity generated after starting date of reporting period was taken into consideration.

The electricity generated by the project is transmitted to a 66 kV step-up substation in windfarm and then is delivered to Suihua Substation (grid owned) through a transmission line. The total electricity exported to the grid can be monitored by the meter A and B at two 10KV branch lines before being connected to the main line according to the signed Power Purchase Agreement (PPA) between the grid company and windfarm.

The electricity imported from the grid via the same transmission line can be monitored by the meter C at 66KV step-up substation in windfarm as per the PPA.

The net electricity supplied to the grid by the project is determined as follows:

Table 1. Reported values

Period	Electricity exported to the grid (MWh)	Electricity imported from the grid (MWh)	Net Electricity supplied to the grid (MWh)
01/01/2004~31/12/2004	14300	532	13768
01/01/2005~31/12/2005	23830	605	23225
01/01/2006~31/12/2006	21910	704	21206
Total	60040	1841	58199

The reported value was calculated based on the invoices which issued on a monthly basis. The verified values of electricity exported and imported by Heilongjiang Mulan Windfarm were crosschecked against invoices and meter reading records, the results are as below:

Table 2. Verified values

Period	Electricity exported to the grid (MWh)	Electricity imported from the grid (MWh)	Net Electricity supplied to the grid (MWh)
01/01/2004~31/12/2004	14300	532	13768
01/01/2005~31/12/2005	23830	605	23225
01/01/2006~31/12/2006	21910	704	21206
Total	60040	1841	58199

Therefore, the emission reductions reported from Heilongjiang Mulan Windfarm for this period is calculated as below table:

Table 3 Verified VCUs

Period	EGy (MWh)	Emission Factor	VCUs (tCO ₂ e)
01/01/2004 to 31/12/2004	13768	1.1001	15146
01/01/2005 to 31/12/2005	23225		25550
01/01/2006 to 31/12/2006	21206		23329
Total	58199		64025

After on-site visit, below finding was raised and successfully closed after project proponent submitted new information.

Date: 01st Aug, 2007

Raised by: Robin Wang

No.	Type	Issue	Ref
1	NIR1	For checking the additionality and environment impact requested by VCS version 1, please provide relevant documentation such like FSR, IRR spreadsheet and EIA as well as approves issued by EPA.	
Date: 02 nd Aug, 2007 [Comments] The founder member agreement, IRR spreadsheet, and the FSR and EIA approval are submitted to support the Additionality and relevant information described in the PDD.			
Date: 02 nd Aug, 2007 Robin Wang [Acceptance and close out]: The above documented evidences found substantial and complete to support the Additionality Demonstration. The NIR is closed.			

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

No. This is the first verification and no validation was done before.

3.2 Project Implementation

The physical components, project boundaries are in conformity with description in PDD and monitoring report. No additional emission sources used for project activity.

The first wind turbine started operation since 3 Dec 2003, the last wind turbine started operation since 22 Aug 2004, and total 20 turbines were put into operation.

3.3 Completeness of Monitoring

The monitoring of the project activity is found to be in conformity with monitoring methodology described in AMS-I.D 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. Calibration records or certificates have been presented for verification. Total uncertainty of metering system is properly addressed by using conservative values.

Emission factor of the grid is assessed as per AMS-I.D and ACM0002.

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

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 instruments, 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 Heilongjiang Mulan Wind Power 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

In the PDD, additionality is demonstrated using the Attachment A to Appendix B of the simplified modalities and procedures for small-scale project activities. Attachment A asks the project proponents to justify the additionality of the proposed project due to at least one of various barriers.

Investment Barrier is identified in the PDD. The project IRR without revenues from selling emission reduction is 7.28%, this is lower than the benchmark 8%, which is selected based on *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects* issued by former State Power Corporation of China.

SGS verifier checked the Feasibility Study Report (FSR), IRR spreadsheet and electricity invoices issued in the reporting period during site visit, the data used for financial analysis found to be consistent with them in PDD, and the parameter selection and IRR calculation are crosschecked and found appropriate. The IRR did not reach the benchmark, thus the project is not financially attractive in absence of emission reduction benefits.

Two technology barriers are identified in PDD:

1. The project located in the northernmost part of China, where is a less economically developed region of China and suffering severely cold winter.
2. As the project is the first wind farm project in Heilongjiang province, there is a lack of experienced technicians for the operation and maintenance of wind farm.

During site visit, the above mentioned situations were confirmed.

Based on review of the PDD and documented evidences presented by client, the investment and technology barriers described in PDD can be justified. With such significant barriers the project activity is not the baseline scenario and 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 on 03 Dec 2003.
5	Emission reduction start date	Emission Reduction starting date is 1 Jan 2004 which is after 31 Dec 1999.
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

#	Criterion	Finding/Conclusion
7	Project Boundary/GHG Assessment Boundary	Heilongjiang Mulan Windfarm Project site and North East China Power Grid is selected as the project boundary.
8	Calculation Methodology	CDM methodology AMS-I.D Version 10 has been correctly applied.
9	Secondary Effects	To be a wind farm 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 AMS-I.D version 10 has been used, sustaining records were sufficient to enable verification of emission reductions.

5. VERIFICATION AND CERTIFICATION STATEMENT

Reporting period: From 01 Jan 2004 to 31 Dec 2006

Verified emission in the above reporting period:

Project emissions 0 t CO₂ equivalents

Baseline emissions 64025 t CO₂ equivalents

Emission reductions 64025 t CO₂ equivalents

Hereinto:

15146 tCO₂e from 01-01-2004 to 31-12-2004,

25550 tCO₂e from 01-01-2005 to 31-12-2005,

23329 tCO₂e from 01-01-2006 to 31-12-2006

Introduction

SGS United Kingdom Ltd. has been engaged by Carbon Resource Management Ltd to verify and certify the greenhouse gas (GHG) emission reductions reported from the Heilongjiang Mulan Windfarm Project for the period from 01-01-2004 to 31-12-2006, equating to 64025 tonnes of CO₂ equivalents.

Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported for the period 01-01-2004 to 31-12-2006 and the verification testing conducted against the monitoring report of the Carbon Resource Management Ltd, and the PDD of Heilongjiang Mulan 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 01-01-2004 to 31-12-2006 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 verification 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 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 given period, prepared on the basis of the Monitoring Report, are fairly stated.

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 emissions reduction achieved has been determined correctly for the given period from the baseline figure.

Certification Statement

Based on process and procedures conducted, in our opinion, Carbon Resource Management Ltd's monitoring report on emission reductions for the Heilongjiang Mulan Windfarm Project during the reporting period 01-01-2004 to 31-12-2006 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 AMS-I.D version 10.

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 Heilongjiang Mulan Windfarm Project, certified as VCUs, during the reporting period 01-01-2004 to 31-12-2006 is 64025 VCUs.

30 Jul 2007



Robin Wang Jing
GHG Lead Assessor

6. REFERENCES

- /1/ *Voluntary Carbon Standard, Version 1.*
- /2/ *Approved consolidated monitoring methodology AMS-I.D Version 10.*
- /3/ *Project Design Document, version2.2, 6 Junc,2007.*
- /4/ *Monitoring report of Heilongjiang Mulan Windfarm Project, 1 Jan 2004 to 31 Dec 2006 Version 1.2, see appendix*
- /5/ *Calibration Certificates*
- /6/ *Reading records both of electricity exported and imported by the project*
- /7/ *Invoices list both of electricity exported and imported by the project*
- /8/ *Feasibility Study Report and IRR spreadsheet*

7. APPENDIX



MONITORING REPORT

Heilongjiang Mulan Windfarm Project

Start monitoring period: 1 January 2004
End monitoring period: 31 December 2006



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1 INTRODUCTION

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 VCUs.

1.1 Monitoring period

1 January 2004 to 31 December 2006

1.2 Verification standard applied

This Monitoring Report is based on the Voluntary Carbon Standard Version 1.

1.3 Document details

Version: 1.2

Date: 26 June 2007

2 PROJECT DESCRIPTION

2.1 Title

Heilongjiang Mulan Windfarm Project

2.2 Project summary

The Mulan Windfarm is located in Mulan county, Heilongjiang province in Northeastern China. A decision has been made to install a total of 20 wind turbines, each with a power output of 600 kW to best suit the local cold-climate conditions. The total power capacity, therefore, of the Mulan Windfarm is 12 MW. The expected net supplied power to the grid is 25,220 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 ASM-I.D the category of the project activity is:

- Type I: renewable energy projects
- Category I.D: Renewable electricity generation for a system

3 PROJECT TIMELINE

Starting date of the project activity	3 December 2003
Start of monitoring period	1 January 2004
End of monitoring period	31 December 2006

Table 1 lists the commissioning dates of 20 wind turbines installed in the Heilongjiang Mulan Windfarm Project.

Table 1 Commissioning dates of turbines

Turbine reference number	Date of commissioning
1	2004-8-19
2	2004-8-21
3	2004-8-20
4	2004-8-20
5	2004-8-18
6	2004-8-18
7	2004-8-17
8	2004-8-17
9	2004-8-22
10	2004-8-16
11	2004-8-16
12	2003-12-6
13	2003-12-5
14	2003-12-16
15	2003-12-6
16	2003-12-4
17	2003-12-3
18	2004-8-15
19	2004-8-22
20	2004-8-21

4 BASELINE

4.1 Methodology

The project participants use the approved methodology AMS-I.D (version 10, 23 December 2006) "Grid connected renewable electricity generation".

Using this methodology, 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

$$ER_y = EG_y * EF_y$$

where EG_y is the net electricity supplied to the grid, EF_y is the CO₂ 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 1.1983 tCO₂e/MWh. The Build Margin emission factor EF_{BMy} was calculated as 0.8056 tCO₂e/MWh. The weighted average of Operating and Build Margin emission factors is:

$$EF = w_{OM} * EF_{OM} + w_{BM} * EF_{BM} = 0.75 * 1.1983 + 0.25 * 0.8056 = 1.1001 \text{ tCO}_2/\text{MWh}$$

5 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 (EG) is needed to calculation the baseline emissions. The net electricity supplied to the grid is calculated as electricity supplied minus electricity purchased. These data are cross checked against sales receipts.

5.2 Baseline data

5.2.1 EG: net electricity supplied to the grid

Table 2 Net Electricity Supplied to the Grid from Mulan Windfarm

Year	Electricity supplied (MWh)	Electricity purchased (MWh)	EG (net electricity supply) (MWh)
2004	14,300	532	13,768
2005	23,830	605	23,225
2006	21,910	704	21,206
Total	60,040	1,841	58,199

6 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 ER Project Office of the Heilongjiang Huafu Mulan Wind Power Co., Ltd, as described in the PDD.

6.2 Training

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 Mulan Windfarm Project.

6.3 Calibrations

The Power Interchange Agreement 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 Suihua Electricity Power Metrological Verification Testing Institute with the records being supplied to Mulan Windfarm, and these records will be maintained by Heilongjiang Huafu Mulan 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 Suihua Electricity Power Metrological Verification Testing 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 Heilongjiang Huafu Mulan Wind Power Co., Ltd. and Northeast Power Grid shall jointly prepare an estimate of the correct reading; and (c) if Northeast Power Grid and Heilongjiang Huafu Mulan 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 Suihua Electricity Power Metrological Verification Testing Institute on the date given in Table 3 below.

Table 3 Dates of calibrations of monitoring equipment

Equipment	Dates of calibrations
Main metering equipments at substation owned by the Northeast Power Grid	05 December 2003
	25 October 2004
	27 November 2005
	23 December 2006
Back-up metering equipment at substation owned by the Northeast Power Grid	05 December 2003
	25 October 2004
	27 November 2005
	23 December 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

Mulan Windfarm carries out an internal audit on monthly readings and reports the readings to the DOE for annual verification as soon as possible.

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 Mulan Windfarm project, the project material and monitoring results will be indexed. All paper-based information will be stored by the technology department of Mulan Windfarm

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 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 substation installed in windfarm side, and cross checked with receipt from Northeast Power Grid.

7 EMISSION REDUCTION CALCULATIONS

7.1 Project emissions

As a renewable energy project, project emissions are zero.

7.2 Baseline emissions

Table 4 Baseline emissions for Mulan Windfarm

Year	EG	EF	BE (baseline emissions)
2004	13,768	1.1001	15,146
2005	23,225		25,550
2006	21,206		23,329
Total	58,199		64,025

7.3 Project emissions

As a renewable energy project, emissions from the project are considered zero.

7.4 Leakage emissions

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

7.5 Summary of emission reductions during the monitoring period

Table 5 Emission reduction calculation (tCO₂e) from Mulan Windfarm

Year	Baseline	Project	Leakage	Emission reductions
2004	15,146			15,146
2005	25,550	-	-	25,550
2006	23,329	-	-	23,329
Total	64,025	-	-	64,025

Annex 1: Contact details

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