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# VERIFICATION AND CERTIFICATION REPORT

### CAMCO International Carbon Assets Consulting (Beijing) Co., Ltd.

## **Jilin Taonan Wind Power Project**

Reporting period from 1 Dec 2006 to 24 Nov 2007

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Project Title	Organisational Unit:
Jilin Taonan Wind Power Project	SGS United Kingdom Limited
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01	CAMCO International Carbon Assets Consulting (Beijing) Co., Ltd.

#### Summary:

SGS United Kingdom Ltd has performed the periodic verification of the CDM project Jilin Taonan Wind Power Project (UNFCCC reference 0599). This is the 2<sup>nd</sup> periodic verification for the monitoring period from 01/12/2006 up to 24/11/2007. The verification includes confirming the implementation of the monitoring plan of the registered PDD Ref. 0599 and the application of the monitoring methodology as per ACM0002 Version 06, dated on 19 May 2006. A site visit was conducted to verify the data submitted in the monitoring report.

The Project involves the installation of total 58 turbines, each of which has a rated output of 850kW, providing a total installed capacity of 49.3MW. The project is designed to deliver 103,216 MWh of electricity to the North East Power Grid (NEPG) in China per year by using renewable energy source of wind power, replacing fossil fuel consumption and thus reducing GHG (CO<sub>2</sub>) emissions.

SGS confirms that the project is implemented in accordance with the validated and registered Project Design Document. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 93539 tCO<sub>2</sub>e during period from 01/12/2006 up to 24/11/2007.

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CDM Project Verification		Ind	Indexing terms			
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#### Abbreviations

CO2Carbon dioxideCO2eCarbon dioxide equivalentDNADesignated National AuthorityDOEDesignated Operational EntityETNElectricity Transaction NoteGHGGreen House Gas(es)GWPGlobal Warming PotentialIPCCIntergovernmental Panel on Climate ChangeMPMonitoring PlanMRMonitoring ReportNEPGNorth East Power GridNGONon-governmental OrganizationNIRNew Information RequestsODAOfficial Development AssistancePDDProject Design DocumentPPProject ParticipantPPAPower Purchase AgreementSGSSociété Générale de Surveillance
PPAPower Purchase AgreementSGSSociété Générale de SurveillanceUNFCCCUnited Nations Framework Convention on Climate Cha



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#### 1. Introduction

#### 1.1 Objective

SGS United Kingdom Ltd has been contracted by CAMCO International Carbon Assets Consulting (Beijing) Co., Ltd. to perform an independent verification of its CDM project Jilin Taonan Wind Power Project (UNFCCC reference 0599). CDM projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Certified Emission Reductions (CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The emissions report conforms with the requirements of the monitoring plan in the registered PDD and the approved methodology; and
- The data reported are complete and transparent.

#### 1.2 Scope

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity. The verification is based on the validated and registered project design document and the monitoring report. The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

SGS has, based on the recommendations in the Validation and Verification Manual, employed a riskbased approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

#### 1.3 Project Activity and Period Covered

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

Title of Project Activity:	Jilin Taonan Wind Power Project
UNFCCC Registration No:	0599
Monitoring Period Covered in this Report	01/12/2006 to 24/11/2007
Project Participants	Datang Jilin Wind Power Stockholding Company Ltd.
	Kommunalkredit Public Consulting GmbH (representing the Republic of Austria, Federal Minister of Agriculture, Forestry, Environment and Water Management)
Location of the Project Activity:	Taonan City, Jilin Province, the People's Republic of China

The project involves installation and operation of 58 sets of wind turbines, each of which has a rating capacity of 850 kW to reach total capacity of 49.3 MW.



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#### 2. Methodology

#### 2.1 General Approach

SGS's approach to the verification is a two-stage process.

In the first stage, SGS completed a strategic review and risk assessment of the 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 if relevant;
- 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 verification approach and the sampling plan.

Using the Periodic Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the monitoring report. This verification report describes the findings of this assessment.

#### 2.2 Verification Team for this Assessment

Name	Role	SGS Office
Sarah Ruan Sha	Lead Assessor	SGS China
Joe Sun Guozhong	Assessor	SGS China

#### 2.3 Means of Verification

#### 2.3.1 Review of Documentation

The validated PDD, the monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 8 of this report.



#### 2.3.2 Site Visits

As part of the verification, the following on-site inspections have been performed

<b>Location:</b> Taonan City, Jilin Province, the People's Republic of China	
Date: 4 Dec 2007	
Coverage	Source of information / Persons interviewed
An interview with project participants, including reviewing Installation Plan and Key Physical Components, CDM Monitoring Plan	Mr. Gao Zhen, Datang Jilin Wind Power Stockholding Company Ltd.
and Training Record;	Mr. Fang Wenbin, Datang Jilin Wind Power Stockholding Company Ltd.
A review of performance records, for example, Maintenance Log of turbine control system, daily and monthly report of readings of meters;	Mr. Lan Guofeng, Datang Jilin Wind Power Stockholding Company Ltd.
Collection of Calibration and Test Records of meters, Electricity Transaction Notes & Invoices due to electricity exchanged with the grid.	Mr. Zhang Yuzhong, CAMCO International Carbon Assets Consulting (Beijing) Co., Ltd.
Observations of established practices and testing of the accuracy of monitoring equipment.	

#### 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 team shall raise a New Information Request (NIR) specifying what additional information is required.

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

- the verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;
- II. the verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

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.



Corrective Action Requests and New Information Requests are detailed in Periodic Verification Checklist. The Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

#### 2.5 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment Team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.



#### 3. Verification Findings

#### 3.1 Project Documentation and Compliance with the Registered PDD

This is the second periodic verification. The monitoring period is from 1 Dec 2006 to 24 Nov 2007, which is consistent with the first crediting period indicated on the UNFCCC website: 01 Jan 2006 - 31 Dec 2012 (Renewable) and following the end date of last monitoring period 30 Nov 2006.

The project was registered against ACM0002 Version 06. The monitoring methodology has been correctly applied and the documents for this second periodic verification are complete and transparent. QA/QC procedures stipulated in the registered PDD have been strictly followed.

The project boundary is consistent with the registered PDD. Turbines with total capacity of 49.3MW have been put into commercial operation on 28 Mar 2006.

No findings were raised in this regard.

#### 3.2 Monitoring Results

According to the registered PDD (Reference /1/), parameter needs to be monitored is EG<sub>y</sub>: the net electricity supplied to the North East Power Grid (NEPG) by the project.

According to the Power Purchase Agreement (PPA), the readings from the gateway meter installed at the 66kV substation are used to determine the electricity exchanged with the grid.

Electricity exchanged with the grid is continuously monitored in the wind farm. Data from the gateway meter are read and manually recorded by assigned person in the wind farm once an hour. The exported electricity till 24:00 on 24<sup>th</sup> in each month is aggregated and reported to the gird company. Besides, data from the gateway meter is also monitored by the grid company through telemetric downloaded and used to check the reported data from the wind farm, once the reported data can be confirmed, the grid company issues Electricity Transaction Notes (ETNs) to wind farm confirming the amount of electricity and wind farm issues invoices accordingly.

Imported electricity by the wind farm is invoiced by the grid company once a month.

Readings of the gateway meter is used as the basis for calculation of net supplied electricity and emission reductions. Double checks were made through the ETNs and invoices.

In addition, there exists an agricultural power line as the backup line for emergency use. Consumed electricity through the backup line will be measured by the meter installed in the 10kV Power Distribution Room in the wind farm. Reading recording, operation and maintenance of this meter is implemented by local Agriculture Power Bureau, a confirmation issued by this Bureau stating that no electricity consumption through this backup line till 30 Nov 2007 was verified by SGS (Reference /9/).

The gateway meter was calibrated by Jilin Electric Power Company under the authorization of Jilin Bureau of Quality and Technology Supervision. The meter on the backup line was calibrated by Taonan Agricultural Power Company under the authorization of Jilin Bureau of Quality and Technology Supervision. Calibration records and certificate of official authorization of calibration have been verified as well (Reference /3/; /4/; /5/). According to the calibration records, the gateway meter are found in conformity with relevant national regulation DL/T614-1997; and the meter on the backup line are found in conformity with relevant national regulation JJG307-88.

No fossil fuel was used for project activity.



NIR1 was raised because the invoice about imported electricity by the project issued by the grid company in Nov 2006 was absent. NIR2 was raised because the official Electricity Transaction Notes of the grid company were absent. NIR3 was raised for requesting evidence that no electricity was imported through the backup line. After all these requested materials having been received (Reference /6/; /7/; /8/; /9/) and checked, these three NIRs were closed out.

Besides, a typing mistake had been found by SGS assessor in previous version 1 of the Monitoring Report (MR). It is in the imported electricity for operating wind turbines, office operation and other activities in Apr 2007. SGS assessor found the correct figure should be 11088kWh instead of 11880kWh, The electricity transaction periods for December 2006, January 2007 and February 2007 were not totally correct, these mistakes have been corrected in current MR Version 3 (Reference /2/). And this correction made the claimed emission reduction increased from 93538tCO<sub>2</sub>e (MR Version 1) to 93539 tCO<sub>2</sub>e (MR Version3).

#### 3.3 Remaining Issues, CAR's, FAR's from Previous Validation or Verification

No open issues from validation process.

This is the second periodic verification. No remaining issues from previous verification.

#### 3.4 Project Implementation

Project was implemented and equipment installed as described in the registered PDD (Reference /1/);

During on-site visit, the physical and spatial configuration of the project is found completed in line with the description in the PDD (Reference /1/). The project boundary was consistent with the PDD (Reference /1/). Total 58 sets of 850 kW wind turbines reached total capacity of 49.3MW were commissioned. The first wind turbines operates since 28 Nov 2005, and electricity generated after last monitoring period and within this first crediting period was taken into consideration.

No findings were raised in this regard.

#### 3.5 Completeness of Monitoring

The reporting procedures reflect the content of the monitoring plan. The monitoring mechanism is effective and reliable.

No findings were raised in this regard.

#### 3.6 Accuracy of Emission Reduction Calculations

The calculation of emission reductions in the revised monitoring report (Reference /2/) is found to be correct. No CARs were raised, the response to NIRs was satisfactory and these were closed. The details of the reported and the verified values for all parameters are listed in section 4.

No findings were raised in this regard.

#### 3.7 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed above in section 3.2 above. All the data recorded is in compliance with the monitoring report version 3 (Reference /2/).

#### 3.8 Management System and Quality Assurance

The management structure covering quality assurance and internal review for CDM monitoring plan implementation has been stipulated in the monitoring manuals and implemented during daily operation by assigned staffs.



In order to verify quality of data, mainly for the net electricity supplied to grid, operational and management structure was checked by interviewing concerned staffs and reviewing documentation. We can affirm that the management system of the CDM project is in place, with the responsibilities properly identified based on monitoring plan in registered PDD (Reference /1/) and monitoring manual.

No findings were raised in this regard.

#### 3.9 Data from External Sources

Based on the information in registered PDD (Reference /1/), the baseline emission factor (EF) was exante determined according to the version 06 of the approved methodology ACM0002 and is fixed in this crediting period. The value of baseline emission factor (0.929 tCO<sub>2</sub>/MWh) used in the monitoring report (Reference /2/) is the same with the one in the registered PDD (Reference /1/).

No findings were raised in this regard.

#### 4. Calculation of Emission Reductions

	Reported value (KWh)			Verified value (KWh)		
Period	E <sub>EX</sub>	EIM	E <sub>G</sub>	E <sub>EX</sub>	EIM	E <sub>G</sub>
	Α	В	C=A-B	D	E	F=D-E
01/12/2006-31/12/2006	5,850,000	63,360	5,786,640	5,850,000	63,360	5,786,640
1/12/2006-31/01/2007	4,660,000	69,696	4,590,304	4,660,000	69,696	4,590,304
1/02/2006-24/02/2007*	9,110,000	27,720	9,082,280	9,110,000	27,720	9,082,280
25/02/2007-24/03/2007	11,790,000	29,304	11,760,696	11,790,000	29,304	11,760,696
25/03/2007-24/04/2007	10,760,000	11,088	10,748,912	10,760,000	11,088	10,748,912
25/04/2007-24/05/2007	14,450,000	792	14,449,208	14,450,000	792	14,449,208
25/05/2007-24/06/2007	7,770,000	1,584	7,768,416	7,770,000	1,584	7,768,416
25/06/2007-24/07/2007	4,750,000	9,504	4,740,496	4,750,000	9,504	4,740,496
25/07/2007-24/08/2007	5,560,000	39,600	5,520,400	5,560,000	39,600	5,520,400
25/08/2007-24/09/2007	4,890,000	29,304	4,860,696	4,890,000	29,304	4,860,696
25/09/2007-24/10/2007	10,140,000	8,712	10,131,288	10,140,000	8,712	10,131,288
25/10/2007-24/11/2007	11,280,000	31,680	11,248,320	11,280,000	31,680	11,248,320
Total	101,010,000	322,344	100,687,656	101,010,000	322,344	100,687,656

Table 1: Reported and verified data. (Unit: kWh)

\*Note: The cut off date of determining the monthly electricity supplied to grid was changed to 24<sup>th</sup> since Feb 2007. Original records of monthly statistics were verified and found to be consistent.

Where,

E<sub>EX</sub> is the electricity generated and exported to NEPG (kWh);

E<sub>IM</sub> is the electricity imported from NEPG for operating wind turbines, office operation and other activities (KWh);

EG is the net electricity supplied by the project.

Therefore, the emission reductions (ERs) achieved in this monitoring period are calculated as follows: EG =  $E_{EX} - E_{IM} = 101,010,000 - 322,344 = 100,687,656kWh$ 



 $ER = E_G \times EF = 100,687,656 \text{kWh} \times 0.929 \text{tCO}_2 \text{e}/\text{MWh} / 1000 = 93539 \text{ tCO}_2 \text{ e}$ 

#### 5. Recommendations for Changes in the Monitoring Plan

No recommendation was made during this verification.

#### 6. Overview of Results

#### Assessment Against the Provisions of Decision 17/CP.7:

Is the project documentation in accordance with the requirements of the registered PDD and relevant provision of decision 17/CP.7, EB decisions and guidance and the COP/MOP?

Yes. The results of the compliance assessment are recorded in the verification checklist which is used as an internal report only.

Have on-site inspections been performed that may comprise, inter alia, a review of performance records, interviews with project participants and local stakeholders, collection of measurements, observations of established practices and testing of the accuracy of monitoring equipment?

Yes. Sarah Ruan Sha and Joe Sun Guozhong visited the sites and undertook interviews, collected data, audited the implementation of procedures, checked calibration certificates and checked data, inter alia.

The results of the site visits are recorded in the verification checklist which is used as an internal report only.

The evidences have been checked and collected. The revised monitoring report (Reference /2/) is attached with this verification report.

Has data from additional sources been used? If yes, please detail the source and significance.

Baseline emission factor 0.929 tCO<sub>2</sub>e/MWh was determined based on external sources at validation stage and it is fixed for this crediting period.

Please review the monitoring results and verify that the monitoring methodologies for the estimation of reductions in anthropogenic emissions by sources have been applied correctly and their documentation is complete and transparent.

Yes. The monitoring methodology has been correctly applied and the monitoring report (Reference /2/) and supporting references are complete and transparent.

Have any recommendations for changes to the monitoring methodology for any future crediting period been issued to the project participant?

No.

Determine the reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the CDM project activity, based on the data and information using calculation procedures consistent with those contained in the registered project design document and the monitoring plan.

The data used in anthropogenic emission reduction calculation is consistent with those contained in the registered PDD (Reference /1/) and monitoring plan. The emission reduction was 101930 tCO<sub>2</sub> for the period 01/12/2006 to 24/11/2007 as per the estimation made in the registered PDD (Reference /1/). The actual emission reduction has been verified as **93539** tCO<sub>2</sub> for the same period.





Identify and inform the project participants of any concerns related to the conformity of the actual project activity and its operation with the registered project design document. Project participants shall address the concerns and supply relevant additional information.

Yes, three NIRs raised by SGS assessors were addressed by PP.

Post monitoring report on UNFCCC website

Yes, the monitoring report is available at ref. 0599 on UNFCCC website http://cdm.unfccc.int/Projects/DB/DNV-CUK1158906995.23/view



#### 7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by CAMCO International Carbon Assets Consulting (Beijing) Co., Ltd. to perform the verification of the emission reductions reported for the CDM project Jilin Taonan Wind Power Project (UNFCCC reference 0599) in the period from 01/12/2006 up to 24/11/2007.

The verification is based on the validated and registered project design document and the monitoring report for this project. Verification is performed in accordance with section I of Decision 3/CMP.1, and relevant decisions of the CDM EB and CoP/MoP. The scope of this engagement covers the verification and certification of greenhouse gas emission reductions generated by the above project during the above mentioned period, as reported in "Monitoring Report of Jilin Taonan Wind Power Project" Version 3 dated 8 February 2008 (Reference /2/).

The management of the CAMCO International Carbon Assets Consulting (Beijing) Co., 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 Report Version 3 dated 8/02/2008. Calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Jilin Taonan Wind Power Project. The development and maintenance of records and reporting procedures are in accordance with the monitoring report.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/12/2006 to 24/11/2007 based on the reported emission reductions in the Monitoring Report Version 3 dated 08/02/2008 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, SGS 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 this reported amount of GHG emission reductions for the period is fairly stated.

SGS confirms that the project is implemented as described in the validated and registered project design documents. Based on the information we have seen and evaluated, we confirm the following:

Name and Reference	Jilin Taonan Wind Power Project (UNFCCC reference
Number of Project	0599)
Registered PDD and Approved Methodology used for Verification	PDD Version 07 dated 21 Aug 2006 ACM0002 Version 06
Applicable Period	From 01/12/2006 up to 24/11/2007
Total GHG Emission Reductions Verified	93539 tCO2e

#### Signed on behalf of the Verification Body by Authorized Signatory

iddhill

Signature: Name: Siddharth Yadav Date: 11-02-2008



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#### 8. Document References

- /1/ Registered PDD Version 07 dated 21 Aug 2006
- /2/ Monitoring Report Version 3 dated 8 February 2008
- /3/ Accreditation of the Entity doing Calibration issued by Jilin Bureau of Quality and Technology Supervision
- /4/ Calibration Certificate of the gateway meter issued by Jilin Electric Power Company (Number of Certificate: 2005060)
- /5/ Calibration Certificate of the meter on the backup line issued by Taonan Agricultural Power Company (Number of Certificate: 00005)
- /6/ Monthly Reading Records of the gateway meter
- /7/ Electricity Transaction Notes (ETNs)
- /8/ Invoices due to electricity export and import
- /9/ Confirmation of No Power Consumption (Taonan Agriculture Power Bureau, dated 07/12/07)

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