
VERIFICATION AND CERTIFICATION REPORT

Datang Zhangzhou Wind Power Co., Ltd

Fujian Zhangpu Liuaio 45MW Wind Power Project

Fourth Monitoring period: 28/05/2010 to 27/05/2011 (both days inclusive)

SGS Climate Change Programme

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Fujian Zhangpu Liuaio 45MW Wind Power Project			
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SGS United Kingdom Limited		Datang Zhangzhou Wind Power Co., Ltd	
Publication of Monitoring Report:			
Monitoring Period:		from 28/05/2010 to 27/05/2011	
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Final Monitoring Report Version and Date:		Version 03, 07/08/2012	
Summary:			
SGS United Kingdom Limited has performed the 4th verification of the GS-CDM project Fujian Zhangpu Liuaio 45MW Wind Power Project (UNFCCC Ref. Number 1318 and GS Project ID. GS375). The verification includes confirming the implementation of the monitoring plan of the registered PDD Version 06 dated 12/11/2007 and the application of the monitoring methodology as per ACM0002 Version 06, dated 19/05/2006 and sustainability monitoring plan. A site visit was conducted to verify the data submitted in the monitoring report. SGS confirms the following has been reviewed; (a) The registered PDD, including the monitoring plan, the GS Passport, the Sustainability Matrix (and monitoring data) and the corresponding validation report; (b) Monitoring report, emission reduction spreadsheet, the previous verification reports; (c) The applied monitoring methodology; (d) Relevant decisions, clarifications and guidance from the CMP and the Gold Standard Secretariat and CDM Executive Board/VCS Board. (e) All information and references relevant to the project activity's resulting in emission reductions Fujian Zhangpu Liuaio 45MW Wind Power Project utilizes wind to generate electricity. The electricity generated from the project is fed to the East China Power Grid (ECPG). As per the registered PDD of the project, the project involves the installation of 36 sets of wind turbines with unit capacity of 1,250kW reaching a total installed capacity of 45MW. 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 71,812 tCO₂e emission reductions during period 28/05/2010 up to 27/05/2011.			
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Gold Standard Verification			
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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 ₂ e	Carbon Dioxide Equivalent
CL	Clarification Request
DRR	Daily Reading Records
ECPG	East China Power Grid
ERs	Emission reductions
ETNs	Electricity Transaction Notes
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS	Gold Standard
MP	Monitoring Plan
MR	Monitoring Report
MRR	Monthly Reading Records
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
SGS	SGS United Kingdom Limited
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1. Introduction

1.1 Objective

SGS United Kingdom Limited has been contracted by Datang Zhangzhou Wind Power Co., Ltd to perform an independent verification of its GS-CDM project Fujian Zhangpu Liuaio 45MW Wind Power Project. GS 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 (qualitative and quantitative) 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 Gold Standard version 2.1, Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

SGS has, based on the recommendations in the Gold Standard Requirement, Gold Standard Toolkit and the Validation and Verification Manual employed a risk-based 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:	Fujian Zhangpu Liuaio 45MW Wind Power Project
UNFCCC Registration Number:	UNFCCC Ref. No. 1318
Gold Standard Registry Number:	GS Project ID. GS375
Monitoring Period Covered in this Report	28/05/2010 to 27/05/2011
Project Participants	Datang Zhangzhou Wind Power Co., Ltd (P.R.China - host) RWE Supply & Trading Netherlands B.V. (Netherlands) RWE Supply & Trading Netherlands B.V. (Switzerland)
Location of the Project Activity:	Liuaio Town, Zhangpu County, Fujian Province, P. R. China

Fujian Zhangpu Liuaio 45MW Wind Power Project utilizes wind to generate electricity. The electricity generated from the project is fed to the East China Power Grid (ECPG). As per the registered PDD, the project involves the installation of 36 sets of wind turbines with unit capacities of 1,250kW reaching a total installed capacity of 45MW. The first set of wind turbine started operation on 25/06/2007. All 36 sets of wind turbines were put into operation in January 2008. The net electricity delivered to the grid from 28/05/2010 to 27/05/2011 is taken into account of emission reductions calculation in this monitoring period (/2/).

2. Methodology

2.1 General Approach

SGS' 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. The strategic review and risk assessment and verification of parameters is undertaken by means of a combined verification protocol.

Using the Verification protocol, 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

Assessment Team	
Name	Role
Yolanda Zheng Yue	Lead Assessor/Team Leader
Michael Wu Shimin	Sectoral Scope Expert (TA1.2) /Local Assessor
Rocky Sun Rui	Assessor

Technical Review Team	Role
Linda Hu Mudan	Technical Reviewer / Sectoral Scope Expert TA1.2

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 by assessor, local assessor and sectoral scope expert.

Location: Liua Town, Zhangpu County, Fujian Province, P. R. China	
Date: 15/12/2011	
Coverage:	Source of Information / Persons Interviewed
1. Assessment of the implementation and operation of the project activity as per the registered PDD and monitoring plan;	Zhai Wenfeng, Datang Zhangzhou Wind Power Co., Ltd;
2. Review of information flows for generating, aggregating and reporting the monitoring parameters;	Jiang Lifang, Datang Zhangzhou Wind Power Co., Ltd;
3. Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan.	Chen Litang, Datang Zhangzhou Wind Power Co., Ltd;
4. A cross-check between information provided in the monitoring report and data from other sources such as MRRs, DRRs and sales receipts;	Chen Lili, Datang Zhangzhou Wind Power Co., Ltd;
5. A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology;	Chen Qiuxiang, Datang Zhangzhou Wind Power Co., Ltd;
6. Review of calculations and assumptions made in determining the GHG data and emission reductions;	Yan Haiying, China National Water Resources & Electric Power Materials & Equipment Co., Ltd;
7. Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.	Meng Qing, China National Water Resources & Electric Power Materials & Equipment Co., Ltd.

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 Clarification Request (CL) 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:

- I. Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- II. Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;

- III. Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

The verification process may be halted until this information has been made available to comply with the Gold Standard requirements or the requirements of the CDM Executive Board/GS Board. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A clarification request (CL) will be raised if information is insufficient or not clear enough to determine whether the applicable Gold Standard and CDM/GS requirements have been met. All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.

Corrective Action Requests and Clarification requests are raised in the Periodic Verification Checklist. The Project Developer is given the opportunity to “close” outstanding CARs and respond to CLs and Observations.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period. 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.

All CARs, CLs and FARs for this verification period are included in this report.

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 Implementation - General

Referring to the project information on the UNFCCC website (/5/), the project was registered on 21/01/2008 against ACM0002 version 06 (/1/). The first crediting period is from 21/01/2008 to 20/01/2015 (renewable). From the information available on the Gold Standard website, <https://gs2.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=375>, the project is also approved as a GS-CDM project with GS Project ID of GS375. The monitoring period under GS-CDM verification is the fourth GS-CDM monitoring period. The start date of this monitoring period is 28/05/2010, which is the day after the end date of the third monitoring period (27/05/2010). The end date of this monitoring period is 27/05/2011, which is within the first crediting period.

The project boundary is verified to be in compliance with the one indicated in the registered PDD version 06 dated 12/11/2007. Project was implemented and equipment installed as described in the registered PDD (/4/). Required facilities and equipments have been installed before start of this monitoring period. The project started on 28/12/2006, the first set of wind turbine started operation on 25/06/2007 and all 36 sets of wind turbines were put into operation in January 2008, which was verified through reviewing the operation log of wind turbines (/13/).

The QA/QC procedures described in the registered PDD have been followed in the actual monitoring of the project. Relevant procedures are documented in monitoring plan of the project (/17/). Parameters monitored and monitoring approach reported in the monitoring report are consistent with the registered PDD in terms of unit, measurement procedures and monitoring frequency. The data used in anthropogenic emission reductions calculation are consistent with those contained in the registered PDD and monitoring plan. Emergency Plan and Staff Training Plan are set up. Staffs are well trained and qualified. Through the document review and onsite visit, it is confirmed by the verification team that the actual monitoring of the project is in accordance with the monitoring plan in the registered PDD and the monitoring plan is in accordance with the methodology applied ACM0002 version 06. No events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

The verified emission reductions achieved by the project in this monitoring period are 71,812 tCO₂e. The estimated emission reductions were calculated as 84,130 t CO₂e based on the data in the registered PDD. The actual emission reductions in this monitoring period are lower than the estimates in the registered PDD because of the actual wind source variation for this monitoring period.

SD indicators, Employment (number and quality), Replantation and noise control, were monitored for the project as per the annex to the PDD. The detailed information could be referred to section 3.4.

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

This is the fourth monitoring period. By checking against the validation report and previous verification reports (/6//7//8/), there are no any remaining issues raised during 3rd periodic verification. All findings from previous verifications had already been closed out. Also, CDM Registry administrator has been instructed to issue 71,812 CERs of the fourth monitoring period from 28/05/2010 to 27/05/2011 for the CDM project activity "Fujian Zhangpu Liuaio 45MW Wind Power Project" on 27/04/2012.

3.3 Compliance of the monitoring plan with the monitoring methodology.

The project was registered against the approved methodology ACM0002 version 06. In accordance with paragraphs 199-203 of the *Validation and Verification Manual* version 01.2, SGS confirms that the registered monitoring plan is in accordance with the approved methodology ACM0002 version 06. The documents for this monitoring period are complete and transparent.

3.4 Completeness of Monitoring

Monitoring of reductions in GHG emissions resulted from the registered project activity have been implemented in accordance with the monitoring plan contained in the registered PDD version 06 dated 12/11/2007 (/4/). The monitoring mechanism is effective and reliable.

3.4.1 Baseline emission

According to the registered PDD Version 06 dated 12/11/2007 of the project, parameter EGy, net electricity delivered to the grid during year y needs to be monitored.

Net electricity delivered to the grid is the electricity exported to the Grid by the project minus the electricity imported from the Grid by the project.

As per the registered PDD of the project and the Power Purchase Agreement (PPA) (/16/) signed between the wind farm company and Fujian Province Zhangpu County Electric Power Company (the Grid Company), one bidirectional meter (main meter with SN: 02069159) has been installed at the wind farm to measure the electricity exported to the Grid and the electricity imported from the Grid. A backup meter (02077812) has been installed at the wind farm for reference when the main meter is out of order.

Designated personnel read the readings of the two meters (SN: 02069159 and SN: 02077812) and manually transcribed the readings into Daily Reading Records (DRRs) (/11/) on a daily basis. Accumulated data were transcribed into Monthly Reading Records (MRRs) (/12/) on a monthly basis.

At designated time of every month, both the grid company and the wind farm company read and recorded the readings of the meter(s), usually at 00:00 hour on the 28th day of every month (at 00:00 on the 26th day of February). Based on the readings of the meter(s), the Grid Company issued Electricity Transaction Notes (ETNs) to the wind farm company for the exported and imported electricity. After confirming the numbers on the ETNs for the exported electricity to the Grid by the project, the wind farm company issued sales invoices to the Grid Company subsequently on a monthly basis. The Grid Company issued sales receipts to the wind farm company for the imported electricity by the wind farm based on the readings of the meter(s).

Data in the Monthly Reading Records (MRRs) were used to calculate the net electricity delivered to the Grid by the project. ETNs and sales invoices, serving as sales receipts (/14//15/), were used for cross check by SGS assessors. Data in the Daily Reading Records (DRRs) and the logbooks of wind turbine generation (/13/) were randomly checked for a cross reference.

Line losses were deducted from the electricity exported to the grid on the sales receipts from 28/05/2010 to 27/05/2011, which has been stated on page 10 of the PPA valid from 28/11/2008 between the project owner and Grid Company which has been provided to the verification team. Original meter readings and sales receipts for electricity exported to and imported from the grid in this monitoring period have been provided by the PP and checked by the assessment team. It has been verified that the reported values of electricity exported to and imported from the grid in the monitoring report are accurate and the PP adopted a conservative approach by using the smaller values for electricity exported to the grid between the two sources of meter readings and sales receipts for the ERs calculation. Supporting references and data required to determine the net electricity delivered to the grid by the project is found to be complete and transparent.

It is found that the electricity and ERs on 28-31 Dec are included into the following year. The PP was requested to include this clarification in the MR for transparency. CAR #2 was raised in this regard. After checking the revised MR version 03 dated 07/08/2012, it has been verified by the assessment team that the clarification about the electricity and ERs on 28-31 Dec being included into the following year has been added on pages 9-10. CAR #2 is closed.

3.4.2 Project emissions

As per page 18 of the PDD and applied methodology ACM0002 version 06, the project emission is zero. There were no fossil fuels used for electricity generation by the project activity during the monitoring period.

3.4.3 Leakage

As per page 18 of the PDD and applied methodology ACM0002 version 06, no leakage needs to be considered.

3.4.4 SD indicators, Employment (number and quality), Replantation and Noise Control

1. Employment (number and quality)

Employment (number and quality) was monitored by the employment contracts, salary payment sheets and records of social welfare (/22/).

Sixty-six temporary job positions were offered by the project during the construction period of the project. A total of 871,500Yuan RMB was paid to the sixty-six employees (/22/).

Eleven permanent employees have been employed by the project company for the operation and maintenance of the project. During this monitoring period, the annual salary for the eleven staffs is 45,000yuan/person (/22/).

It is stated in the GS-Annex submitted during validation that the construction of the power plant is estimated to provide around 300 jobs and a dozen jobs are created for power plant operation and maintenance. The PP clarified that 300 jobs are the number of job opportunities that may be provided by the Liuaao Wind Farm which includes three phases. The Fujian Zhangpu Liuaao 45MW Wind Power Project is the phase 2 project. It was a misunderstanding about the project activity at validation stage. 66 jobs were created during construction and 7 jobs during the operation and maintenance during the first two monitoring periods. The supporting materials have been provided to and verified by SGS.

Taking into account of the actual numbers of job opportunities provided by the project activity, it is verified that the initial sustainable development assessment carried out during validation is not significantly affected by this difference.

2. Replantation

Replantation was prescribed in the construction contract for replantation signed on 20/09/2008 between the Datang Zhangzhou Wind Power Co., Ltd and Zhangpu County Forestry Bureau (/33/) and implemented by Zhangpu County Forestry Bureau, which was verified by the verification team during the periodic verification. The construction contract for replantation has been finished and accepted in October 2009 and the vegetation maintenance confirmed by the assessment team during on-site visit was kept by Datang Zhangzhou Wind Power Co., Ltd constantly. Datang Zhangzhou Wind Power Co., Ltd signed service contract for road maintenance, flood control, typhoon prevention, and reinforcement with Xiamen Fengsheng Trading Co., Ltd on 30/12/2009 (/24/). Xiamen Fengsheng Trading Co., Ltd is responsible for the vegetation maintenance from 10/03/2010 to 09/03/2011. It has also been verified by the assessment team that Zhangpu Yongfu Flower Plantation is responsible for planting shrubs and grass to improve soil and water conservation of wind farm from 17/06/2011-25/06/2011 according to the Plant Protection Engineering Contract signed on 05/06/2011 (/26/).

3. Noise Control

During the onsite visit and document review, it has been found that the noise in the area 200 meters of the project has been under control according to the data from the noise monitoring report issued by Fujian Environmental Monitoring Center (/25/).

According to Report for the Examination and Acceptance of Environmental Protection of Completed Project, four suggestions have been stated as below. The PP should strengthen the turbine maintenance to maintain its normal operation, and ensure that noise under control in the area 200 meters away from wind turbines beyond the environmental standard. 2. The PP is responsible for vegetation maintenance, ensure the survival of vegetation. If there is illegal construction, the PP should timely report to the relevant department

and remove. 3. The PP should strengthen routine maintenance and management of oil pollution resulted from overhaul or accident. 4. The manufacturer should recycle transformers that have been deserted. **CAR #1** is raised for the PP to clarify how these suggestions have been considered during this monitoring period and how the the project's impact on the environment has been mitigated according to the suggestions.

During the onsite visit and document review, it has been confirmed that 1) Designated personnel conducted the Turbine Maintenance Point Check and Regularly Repairing, in order to strengthen the turbine maintenance, so that the noise in the area 200 meters away from wind turbines is under control. 2) It has been found that Zhangpu County Forestry Bureau was responsible for vegetation maintenance for the project. During the onsite visit, the assessment team verified that the vegetation maintenance was conducted well by Datang Zhangzhou Wind Power Co., Ltd. 3) After checking the operation logbook (/21/) of the project, it can be found that the oil pollution resulted from overhaul or accident has been regularly checked by the PP. 4) During the onsite visit verification, there are no transformers that have been deserted. **CAR #1 is closed out.**

3.5 Accuracy of Equipment

According to the registered PDD, the accuracy of electricity meters monitoring EG_{export} and EG_{import} should be 0.2S. The calibration frequency is once per year. Calibration certificates of the metering equipments (/9/) and accreditation certificate for the calibration entity (/10/) have been checked by the verification team. The accuracy level of both the main meter and the backup meter is 0.2S. The meters have been calibrated annually in accordance with the monitoring plan and Chinese national technical standard DL/T448-2000.

The calibration information has been reported in the MR Version 03 of the monitoring report. Details are as follows:

Meters	Serial No.	Calibration date
Main meter (M2)	02069159	11/11/2009; 01/06/2010
Backup meter (M1)	02077812	11/11/2009; 01/06/2010
Calibration Entity:	Fujian Provincial Electric Power Company Metrological Verification Center	
National regulation	Technical administrative code of electric energy metering (DL/T448 - 2000)	
accreditation information	Quality and Technology Supervision Bureau of Fujian Province with Accreditation Certificate No.: (Min) FaJi(2006) 270021.	

3.6 Accuracy of Emission Reduction Calculations

According to the VVM version 01.2 para 208 – 209, the accuracy of emission reduction calculations has been verified by the assessment team. In accordance with the registered MP, a complete set of data for the specified monitoring period is available. The monitored data of the parameters reported in the monitoring report has been cross checked with sales receipts, and daily operation logbooks have been used for a cross reference. The ER calculation spreadsheet has been reviewed and found to be correct. Appropriate methods and formulae for calculating the baseline emissions have been followed. To conclude, the calculations of the baseline emissions and emission reductions are in accordance with the applied methodology and the registered PDD. The details of the reported and the verified values for the parameter are listed in section 4, "Calculation of Emission Reductions". No findings were raised about the accuracy of emission reduction calculations.

3.7 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed in section 3.4 above. All the data recorded is in compliance with the monitoring report.

3.8 Management System and Quality Assurance

The management system and quality assurance procedures have been stipulated in the CDM monitoring plan (/17/) and have been implemented during daily operation. This has been verified by the on-site visit and document review following the VVM (/18/). Therefore the assessment team can confirm that the management system of the CDM project is in place; with the responsibilities properly identified and in place.

3.9 Data from External Sources

The baseline emission factor (EF_y) was determined ex-ante and fixed for the first crediting period as per the registered PDD Version 06 dated 12/11/2007. The value of the baseline emission factor used in the monitoring report Version 03 dated 07 /08/2012 is 0.880 tCO₂e/MWh. It complies with the calculated value of the baseline emission factor in the registered PDD Version 06 dated 12/11/2007.

4. Calculation of Emission Reductions

Table 4.1 Reported and verified data of electricity exported to the grid (EG_{export})

Period	Electricity exported to the grid (EG _{export})	
	Reported Value in MR version 01 (MWh)	Verified Value in MR version 03 (MWh)
28/05/2010-27/06/2010	5,491.291	5,491.291
28/06/2010-27/07/2010	3,118.712	3,118.712
28/07/2010-27/08/2010	3,035.047	3,035.047
28/08/2010-27/09/2010	3,644.162	3,644.162
28/09/2010-27/10/2010	9,596.290	9,596.290
28/10/2010-27/11/2010	10,060.961	10,060.961
28/11/2010-27/12/2010	6,115.026	6,115.026
2010	41061.488	41,061.488
28/12/2010-27/01/2011	11,149.342	11,149.342
28/01/2011-25/02/2011	8,580.515	8,580.515
26/02/2011-27/03/2011	10,982.734	10,982.734
28/03/2011-27/04/2011	6,830.094	6,830.094
28/04/2011-27/05/2011	3,330.750	3,330.750
2011	40873.435	40,873.435

Table 4.2 Reported and verified data of electricity imported from the grid (EG_{import})

Period	Electricity imported to the grid (EG _{import})	
	Reported Value in MR version 01 (MWh)	Verified Value in MR version 03 (MWh)
28/05/2010-27/06/2010	25.784	25.784
28/06/2010-27/07/2010	60.544	60.544
28/07/2010-27/08/2010	42.592	42.592
28/08/2010-27/09/2010	61.160	61.160
28/09/2010-27/10/2010	13.244	13.244
28/10/2010-27/11/2010	4.444	4.444
28/11/2010-27/12/2010	20.460	20.460
2010	228.228	228.228
28/12/2010-27/01/2011	4.224	4.224
28/01/2011-25/02/2011	8.668	8.668
26/02/2011-27/03/2011	21.384	21.384
28/03/2011-27/04/2011	30.360	30.360
28/04/2011-27/05/2011	36.520	36.520
2011	101.156	101.156

Table 4.3 Reported and verified data of net electricity delivered to the grid (EG_y)

Period	Net electricity delivered to the grid (EG _y = EG _{export} - EG _{import})	
	Reported Value in MR version 01 (MWh)	Verified Value in MR version 03 (MWh)
28/05/2010 - 27/12/2010	40,833,260	40,833.260
28/12/2010 - 27/05/2011	40,772,279	40,772.279

The baseline emission factor (EF_y) is 0.880tCO₂e/MWh;

$$ER_y = BE_y - PE_y - L_y$$

$$= EG_y * EF_y$$

Where:

BE_y is the baseline emissions;

PE_y is the project emissions, PE_y equals zero as per registered PDD;

L_y is the leakage, L_y equals zero as per registered PDD;

EG_y is the net electricity delivered to the grid by the project

The ER also has been verified according to the calendar year:

Parameter	Calendar year 2010 (28/05/2010 - 27/12/2010)	Calendar year 2011 (28/12/2010 - 27/05/2011)*
EG_{export}(MWh)	41,061.488	40,873.435
EG_{import}(MWh)	228.228	101.156
EG_y(MWh)	40,833.260	40,772.279
ER(tCO₂e)	35,933	35,879

* The electricity and ERs on 28-31 Dec are included into the following year, which has been approved by GS registry on 13/09/2010.

5. Recommendations for Changes in the Monitoring Plan

No recommendation for changes in the monitoring plan was made during this (4th) 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. A site visit was undertaken, during which the following took place: interviews, collection of data, audit of the implementation of procedures, calibration certificates and data checked, inter alia.

The results of the site visit 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 is attached with this verification report.

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

Yes. Baseline emission factor, 0.880tCO₂e/MWh, was determined using external sources at validation stage. Baseline emission factor is ex-ante determined and fixed for the first crediting period, which is the key parameter for calculating the emission reduction.

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 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 GS 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 and monitoring plan. The emission reduction was 84,130 tCO₂ for the period 28/05/2010 to 27/05/2011 as per the estimation made in the registered PDD. The actual emission reduction has been verified as 71,812 tCO₂ 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.

No such non conformity of the actual project activity and its operation with the registered project design document has been observed.

7. Verification and Certification Statement

SGS United Kingdom Limited has been contracted by Datang Zhangzhou Wind Power Co., Ltd to perform the verification of the emission reductions reported for the GS/CDM project Fujian Zhangpu Liuaio 45MW Wind Power Project (UNFCCC Ref. No. 1318; GS Project ID GS375) in the period from 28/05/2010 to 27/05/2011.

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, VCS Board and CoP/MoP as well as all related Gold Standard Foundation guidance and decisions. 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 Version 03 dated 07/08/2012 of Fujian Zhangpu Liuaio 45MW Wind Power Project.

The management of Datang Zhangzhou Wind Power Co., Ltd is responsible for the preparation, calculation and determination of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring Report Version 03 dated 07/08/2012.

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 28/05/2010 to 27/05/2011 based on the reported emission reductions in the Monitoring Report Version 03 dated 07/08/2012 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:

Project Title:	Fujian Zhangpu Liuaao 45MW Wind Power Project	
UNFCCC Reference Number:	1318	
GS Registry Number:	GS375	
Registered PDD and Approved Used for Verification:	PDD Version 06 dated 12/11/2007	
Methodology Used for Verification:	ACM0002 Version 06 dated 19/05/2006	
Applicable Period:	28/05/2010 to 27/05/2011	
Total GHG Emission Reductions Verified:	71,812 tCO ₂ e	
	Calendar year 2010	Calendar year 2011
	35,933	35,879

Signed on behalf of the Verification Body by Authorized Signatory

Signature:



Name: Linda HU Mudan

Date: 09/08/2012

Signature:



Name: Yolanda Zheng

Date: 08/08/2012

8. Document References

/1/ ACM0002 Version 06 dated 19/05/2006

/2/ Monitoring Report Version 01 dated 26/10/2011, Version 02 dated 21/06/2012, Version 03 dated 07/08/2012

MR Version	Date of Revision	Main changes reason for Revision in section F of MR
01	26/10/2011	MR sent to SGS by client
02	21/06/2012	MR is revised based on the CAR #1 about SD indicators, Employment (number and quality), Replantation and Noise Control in section F
03	07/08/2012	MR is revised based on the CAR#2 about the clarification of the electricity and ERs on 28-31 Dec included into next year on page 9-10

/3/ ERs spreadsheet for this monitoring period, version 01 dated 26/10/2011, version 02 dated 21/06/2012

/4/ Registered PDD Version 06 dated 12/11/2007

(<http://cdm.unfccc.int/UserManagement/FileStorage/XVTJ5IQH8GAPD0BH1QC4MWCMMH6TMA7>)

/5/ Project information on the UNFCCC website:

<http://cdm.unfccc.int/Projects/DB/TUEV-SUED1188562976.71/view>

/6/ Validation report for Fujian Zhangpu Liuaio 45MW Wind Power Project dated 30/08/2007 Rev No. 2 Report No.948571

/7/ Verification reports for 'Fujian Zhangpu Liuaio 45MW Wind Power Project':

MP:	DOE	Date	Version Number
1	SGS	20/06/2008	0
2	SGS	04/08/2009	0
3	SGS	11/10/2010	0

/8/ Monitoring Reports for 'Fujian Zhangpu Liuaio 45MW Wind Power Project':

MP	Version	Date
1	02	18/06/2008
2	02	25/06/2009
3	02	08/10/2010

/9/ Calibration certificates of the main meter and backup meter issued by Fujian Provincial Electric Power Company Metrological Verification Center

/10/ Accreditation Certificate of Fujian Provincial Electric Power Company Metrological Verification Centre issued by Quality and Technology Supervision Bureau of Fujian Province ((Min)FaJi(2006) 270021)

/11/ Daily Reading Records (DRRs) of the wind farm (From 28/05/2010 to 27/05/2011)

- /12/ Monthly Reading Records(MRRs) of the wind farm (From 28/05/2010 to 27/05/2011)
- /13/ Wind turbine generation logbooks of the wind farm
- /14/ Sales receipts of electricity exported to the grid by the wind farm covering the period 28/05/2010 to 27/05/2011
- /15/ Sales receipts of electricity imported from the grid by the wind farm covering the period 28/05/2010 to 27/05/2011
- /16/ Power Purchase Agreement signed between the Grid Company and the wind farm company
- /17/ Monitoring plan and staff training records
- /18/ Validation and Verification Manual version 01.2 dated 30/07/2010
- /19/ EB 48 Annex 68 - Guidelines on completeness check of requests for issuance
- /20/ Staffs Training Records and Qualification Certificates
- /21/ Wind farm operation logbook and emergency plan
- /22/ Employment contracts, salary payment sheets and records of social welfare for employees of the project
- /23/ The payable statement for 66 employees issued by Thermal Power Engineering Corporation in Guangdong province
- /24/ Service contract for road maintenance, flood control, typhoon prevention, reinforcement with Xiamen Fengsheng Trading Co., Ltd on 30/12/2009
- /25/ Noise monitoring report issued by Fujian Environmental Monitoring Center
- /26/ The Plant Protection Engineering Contract signed on 05/06/2011 between the project owner and Zhangpu Yongfu Flower Plantation
- /27/ Management Standard of Turbine Maintenance Check Point and Regularly Repairing
- /28/ Daily logs to indicate that noise under control in the area 200 meters away from wind turbines beyond the environmental standard
- /29/ Construction contract for replantation in October 2009
- /30/ Xiamen Fengsheng Trading Co., Ltd for the vegetation maintenance from 10/03/2010 to 09/03/2011
- /31/ Plant Protection Engineering Contract signed on 05/06/2011
- /32/ Monthly check records of oil pollution resulted from overhaul or accident
- /33/ Construction contract for replantation signed on 20/09/2008 between the Datang Zhangzhou Wind Power Co., Ltd and Zhangpu County Forestry Bureau

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9. Findings Overview

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	1+1 (CAR #2 raised during the TR stage)	0	0

Date:	19/12/2011	Raised by:	Yolanda Zheng, Rocky Sun & Michael Wu		
Type:	CAR	Number:	CAR#1	Reference:	AU4 Section 3
Lead Assessor Comment:				Date: 19/12/2011	
According to Report for the Examination and Acceptance of Environmental Protection of Completed Project, four suggestions have been stated as below.					
1. PP should strengthen the turbine maintenance to maintain its normal operation, and ensure that noise under control in the area 200 meters away from wind turbines beyond the environmental standard.					
2. PP is responsible for vegetation maintenance, ensure the survival of vegetation. If there is illegal construction, PP should timely report to relevant department and remove.					
3. PP should strengthen routine maintenance and management of oil pollution resulted from overhaul or accident					
4. Manufacturer should recycle transformer that been deserted.					
CAR #1 is raised for PP to report in the monitoring report how these suggestions have been considered during this monitoring period and how the the project's impact on the environment has been mitigated according to the suggestions.					
Project Participant Response:				Date: 21/06/2012	
1. The assigned persons of Datang Zhangzhou Wind Power Co., Ltd carry out Management Standard of Turbine Maintenance Point Check and Regularly Repairing to strengthen the turbine maintenance to maintain its normal operation, and ensure that noise under control in the area 200 meters away from wind turbines beyond the environmental standard. This management standard and the daily logs of turbine maintenance check point have been provided for verify.					
2. Zhangpu County Forestry Bureau was responsible for vegetation maintenance until the construction contract for replantation has been finished and accepted in October 2009. Datang Zhangzhou Wind Power Co., Ltd was responsible for the vegetation maintenance constantly and signed service contract for road maintenance, flood control, typhoon prevention, reinforcement with Xiamen Fengsheng Trading Co., Ltd on 30/12/2009. Xiamen Fengsheng Trading Co., Ltd is responsible for the vegetation maintenance from 10/03/2010 to 09/03/2011. Then Zhangpu Yongfu Flower Plantation is responsible for planting shrubs and grass to improve soil and water conservation of wind farm from 17/06/2011-25/06/2011 according to the Plant Protection Engineering Contract signed on 05/06/2011.The contracts have been provided for verify.					
3. Oil pollution resulted from overhaul or accident is checked monthly by PP in order to strengthen routine maintenance and management of oil pollution resulted from overhaul or accident, the records have been provided for verify.					
4. There is no transformer that been deserted until now.					
Documentation Provided as Evidence by Project Participant:					
Revised monitoring report					
Information Verified by Lead Assessor:					
1. Management Standard of Turbine Maintenance Check Point and Regularly Repairing					
2. Daily logs to indicate that noise under control in the area 200 meters away from wind turbines beyond the environmental standard					

3. construction contract for replantation in October 2009
4. service contract for road maintenance, flood control, typhoon prevention, reinforcement with Xiamen Fengsheng Trading Co., Ltd on 30/12/2009
5. Plant Protection Engineering Contract signed on 05/06/2011
6. Monthly check records of oil pollution resulted from overhaul or accident
Reasoning for not Acceptance or Acceptance and Close Out:
During the onsite visit and document review, it has been confirmed that 1) Designated personnel conducted the Turbine Maintenance Point Check and Regularly Repairing, in order to strengthen the turbine maintenance, so that the noise in the area 200 meters away from wind turbines is under control. 2) It has been found that Zhangpu County Forestry Bureau was responsible for vegetation maintenance for the project. During the onsite visit, the assessment team can verified that the vegetation maintenance was conducted well by Datang Zhangzhou Wind Power Co., Ltd. 3) After checking the operation logbook of the project, it can be found that the oil pollution resulted from overhaul or accident has been regularly checked by PP. 4) During the onsite visit verification, there is no transformer that been deserted. CAR #1 is closed out.
Acceptance and Close out by Lead Assessor:
Date: 10/07/2012 [Yolanda Zheng]

The following FO is raised during the TR stage:

Date:	06/08/2012		Raised by:	Yolanda Zheng, Rocky Sun & Michael Wu		
Type:	CAR	Number:	CAR#2	Reference:	AU4 Section 3	
Lead Assessor Comment:				Date: 06/08/2012		
It is found that the electricity and ERs on 28-31 Dec are included into next year. Please address this in MR since it is accepted by the GS for transparency. CAR #2 is raised in this regard.						
Project Participant Response:				Date: 07/08/2012		
The electricity and ERs on 28-31 Dec are included into next year has been addressed in MR version 03 dated 07/08/2012.						
Documentation Provided as Evidence by Project Participant:						
MR version 03 dated 07/08/2012						
Information Verified by Lead Assessor:						
After checking the MR version 03 dated 07/08/2012, it has been verified by the assessment that the clarification about the electricity and ERs on 28-31 Dec included into next year has been added into MR page 9-10.						
Reasoning for not Acceptance or Acceptance and Close Out:						
CAR #2 is closed out.						
Acceptance and Close out by Lead Assessor:				Date: 08/08/2012 [Yolanda Zheng]		

10. Statement of Competence

Statement of Competence

Name: Yolanda Zheng

Status

- Lead Assessor	☒	- Expert	☒
- Assessor	☒	- Financial Expert	☐
- Local Assessor	☐ China	- Technical Reviewer	☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒
Technical Area(s): 1.2 Energy generation from renewable energy sources	
2. Energy Distribution	☐
Technical Area(s):	
3. Energy Demand	☐
Technical Area(s):	
4. Manufacturing	☐
Technical Area(s):	
5. Chemical Industry	☐
Technical Area(s):	
6. Construction	☐
Technical Area(s):	
7. Transport	☐
Technical Area(s):	
8. Mining/Mineral Production	☐
Technical Area(s):	
9. Metal Production	☐
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	☐
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☒
Technical Area(s): 11.2 GHG capture and destruction	
12. Solvent Use	☐
Technical Area(s):	
13. Waste Handling and Disposal	☐
Technical Area(s):	
14. Afforestation and Reforestation	☐
Technical Area(s):	
15. Agriculture	☐
Technical Area(s):	

Approved Member of Staff by:

Siddharth Yadav

Date:

06/02/2012

Statement of Competence

Name: Michael Wu

Status

- Lead Assessor	☒	- Expert	☒
- Assessor	☒	- Financial Expert	☐
- Local Assessor	☒	- Technical Reviewer	☒

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒
Technical Area(s): TA 1.2 Energy generation from renewable energy sources	
2. Energy Distribution	☐
Technical Area(s):	
3. Energy Demand	☐
Technical Area(s):	
4. Manufacturing	☐
Technical Area(s):	
5. Chemical Industry	☐
Technical Area(s):	
6. Construction	☐
Technical Area(s):	
7. Transport	☐
Technical Area(s):	
8. Mining/Mineral Production	☐
Technical Area(s):	
9. Metal Production	☐
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	☐
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
Technical Area(s):	
12. Solvent Use	☐
Technical Area(s):	
13. Waste Handling and Disposal	☐
Technical Area(s):	
14. Afforestation and Reforestation	☐
Technical Area(s):	
15. Agriculture	☐
Technical Area(s):	

Approved Member of Staff by:

Siddharth Yadav

Date:

06/02/2012

Statement of Competence

Name: Rocky Sun

Status

- Lead Assessor	☒	- Expert	☒
- Assessor	☒	- Financial Expert	☐
- Local Assessor	China	- Technical Reviewer	☐

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	☒
Technical Area(s): TA 1.2 Energy generation from renewable energy sources (Wind and Hydro)	
2. Energy Distribution	☐
Technical Area(s):	
3. Energy Demand	☐
Technical Area(s):	
4. Manufacturing	☐
Technical Area(s):	
5. Chemical Industry	☐
Technical Area(s):	
6. Construction	☐
Technical Area(s):	
7. Transport	☐
Technical Area(s):	
8. Mining/Mineral Production	☐
Technical Area(s):	
9. Metal Production	☐
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	☐
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	☐
Technical Area(s):	
12. Solvent Use	☐
Technical Area(s):	
13. Waste Handling and Disposal	☐
Technical Area(s):	
14. Afforestation and Reforestation	☐
Technical Area(s):	
15. Agriculture	☐
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 03/05/2012

Statement of Competence

Name: Linda Hu

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	China	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)

x

Technical Area(s): TA 1.2 Energy generation from renewable energy sources

2. Energy Distribution

Technical Area(s):

3. Energy Demand

Technical Area(s):

4. Manufacturing

Technical Area(s):

5. Chemical Industry

Technical Area(s):

6. Construction

Technical Area(s):

7. Transport

Technical Area(s):

8. Mining/Mineral Production

Technical Area(s):

9. Metal Production

Technical Area(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s):

11. Fugitive Emissions from Production and

x

Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s): TA 11.2 GHG capture and destruction

12. Solvent Use

Technical Area(s):

13. Waste Handling and Disposal

Technical Area(s):

14. Afforestation and Reforestation

Technical Area(s):

15. Agriculture

Technical Area(s):

Approved Member of Staff by:

Siddharth Yadav

Date:

06/02/2012

11. Photographic Evidence

Unique reference number: SN: 02077812

Parameter: Electricity exported to the grid (EG_{export}) and electricity imported from the grid (EG_{import})

Name of equipment: backup meter measuring electricity exported to the grid and electricity imported from the grid Date:15/12/2011



Unique reference number: SN: 02069159

Parameter: Electricity exported to the grid (EG_{export}) and electricity imported from the grid (EG_{import})

Name of equipment: Main meter measuring electricity exported to the grid and electricity imported from the grid Date:15/12/2011

