
VERIFICATION AND CERTIFICATION REPORT

**Andean Development Corporation
[CAF]**

Second Periodic Verification of the Wigton Wind Farm Project

(29-04-2006 to 28-04-2007)

SGS Climate Change Programme

SGS United Kingdom Ltd
SGS House
217-221 London Road
Camberley Surrey
GU15 3EY
United Kingdom



Date of Issue:	Project No.:
July 6, 2007	CDMVer0043
Project Title	Organisational Unit:
Wigton Wind Farm Project (WWF)	SGS United Kingdom Limited
Revision Number	Client:
02	Andean Development Corporation (CAF)

Summary:

SGS United Kingdom Ltd has performed the second periodic verification of the CDM project Wigton Wind Farm Project (WWF) UNFCCC Ref. Number 0239. The verification includes confirming the implementation of the monitoring plan of the registered PDD UNFCCC reg. no 0239 and the application of the monitoring methodology as per ACM0002. - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 4 dated 28 November 2005 . A site visit was conducted to verify the data submitted in the monitoring report.

Wigton Wind Farm Project (WWF) is a wind farm of 20.7 MW installed capacity, located at Wigton, Manchester Plateau area, Jamaica.

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 Insert emission reductions tCO₂e during period from 29/04/2006 up to 28/04/2007.

Subject:		
CDM project Verification		Indexing terms
Report Title		
Wigton Wind Farm Project (WWF)		
Technical Review (name and date)		
Sanjeev Kumar, 05/09/2007 / Irma Lubrecht 05/11/2007		<input checked="" type="checkbox"/> No distribution without permission from the Client or responsible organisational unit
Authorized Signatory (name and date)		
Siddharth Yadav		<input type="checkbox"/> Limited distribution
Date of Final Decision:	Number of Pages:	
05/11/07	14	<input type="checkbox"/> Unrestricted distribution

Abbreviations

WWF	Wigton Wind Farm Ltd.
JPSCo	Jamaica Public Service Company
PCJ	Petroleum Corporation of Jamaica
CAF	Corporacion Andina de Fomento (The Andean Development Corporation)
CER	Certified Emission Reductions
CAR	Corrective Action Request
FAR	Forward Action Request
CO ₂	Carbon Dioxide
PDD	Project Design Document
SGS	SGS United Kingdom Ltd
DOE	Designated Operational Entity
ER	Emissions Reduction
UNFCCC	United Nations Framework Convention for Climate Change
MP	Monitoring Plan
GHG	Green House Gases
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
IETA	International Emissions Trading Association

Table of Content

1.	Introduction.....	5
1.1	Objective	5
1.2	Scope	5
1.3	Project Activity and Period Covered	5
2.	Methodology.....	6
2.1	General Approach	6
2.2	Verification Team for this Assessment.....	6
2.3	Means of Verification.....	6
2.3.1	Review of Documentation	6
2.3.2	Site Visits.....	7
2.4	Reporting of Findings	7
2.5	Internal Quality Control	8
3.	Verification Findings.....	8
3.1	Project Documentation and Compliance with the Registered PDD.....	8
3.2	Monitoring Results	8
3.3	Remaining Issues, CAR's, FAR's from Previous Validation or Verification	8
3.4	Project Implementation	9
3.5	Completeness of Monitoring	9
3.6	Accuracy of Emission Reduction Calculations.....	9
3.7	Quality of Evidence to Determine Emission Reductions.....	9
3.8	Management System and Quality Assurance.....	9
3.9	Data from External Sources.....	10
4.	Overview of Results	11
5.	Calculation of Emission Reductions.....	12
6.	Recommendations for Changes in the Monitoring Plan	12
7.	Verification and Certification Statement.....	13
8.	Document References	14

1. Introduction

1.1 Objective

SGS United Kingdom Ltd has been contracted by CAF to perform an independent verification of its CDM project Wigton Wind Farm Project (WWF). 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 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:	Wigton Wind Farm Project (WWF)
UNFCCC Registration No:	UNFCCC registration No. 0239
Monitoring Period Covered in this Report	29/04/2007 to 28/04/2007
Project Participants	Wigton Wind Farm Limited (WWF) and Corporación Andina de Fomento (CAF)
Location of the Project Activity:	The project is located at the Manchester Plateau area, about 15km SSW of Mandeville in Jamaica.

The project activity involves implementation and operation of 20.7 MW Aeolian project (will comprise 23 turbines, with each machine having a capacity of 900kW) to displaced GHG emissions. The planned output is 62.97 million kW hours per year. The turbine supplier will be NEG Micon Holland B.V. The project is being grid connected and located at Wigton, Manchester Plateau Area, Jamaica.

The project starting crediting date was April 29, 2004 for has fixed crediting period for 10 years.

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

<i>Name</i>	<i>Role</i>	<i>SGS Office</i>
Emilio Doens	Lead Assessor	Panama
Bert Brown	Local Assessor	Jamaica

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

Location: Wigton Wind Farm Ltd. Main Office	
Date: June 13th, 2007	
Coverage	Source of information / Persons interviewed
Review of records and Interviews with project participants	Gary Jackson - GM WWF Wesley McLeod – Consultant Michelle Chen Lenn – Assistant Manager – Operations WWF

Location: Wigton Wind Farm Plant	
Date: June 14th, 2007	
Coverage	Source of information / Persons interviewed
Review of collection of measurements, observations of established practices and review of the monitoring equipment (performance and calibration)	Michelle Chen Lenn – Assistant Manager – Operations WWF Richard Cargill – Trainee Wind Engineers WWF – Plant Jeffery Johnson – Trainee Wind Engineers WWF – Plant Syndo Boswell – Trainee Wind Engineers WWF – Plant

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:

- I. 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

The project documentation is in accordance with the PDD registered with the UNFCCC on 19th March 2006 and the approved methodology AM0002/Version 4, there is no issue pending in the validation report.

3.2 Monitoring Results

Based on the approved monitoring methodology, validated PDD and monitoring plan, monitoring parameters presented in the monitoring report were assessed.

Measurement of Electricity Output: Project electricity generation is monitoring through the use of on site metering equipment at the interconnection substation facility. The Main Metering System equipment is owned, operated and maintained by JPSCo, and the Backup Metering System equipment is owned, operated and maintained by WWF. Both meters have the capability to be read remotely through a communication line. Both JPSCo and WWF have the right to read either meter. Both meters will have the provisions to record on memory the accumulated kilowatt-hours. The results from the Main Meter are supplied by JPSCo to WWF on a monthly basis. The monitoring tasks are to measure WWF’s electric output, and steps to derive the emissions reductions are:

- JPSCo reads main meter and records result – monthly – within 3 working days of month end;
- JPSCo supplies reading to WWF.

The electricity generation during the period November 17, 2006 and November 30, 2006 has been reported ‘zero’. This is due to the fact that the plant experienced outages during this period; precautionary measures were implemented to this effect.

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

For the first periodic verification carried out for the project remaining two FAR

FAR No 1 - The FAR noted that a person rather than a unit was mandated to maintain records.

This was adjusted but was not reflected in the Op Flow Diagram. The Operational Flow Diagram was adjusted to reflect the recommendation during the course of the audit. FAR No 1 was closed out

FAR No 2 - No internal audit was conducted on CERs during the monitoring period.

An internal audit was conducted during the current monitoring period. A discrepancy for the data reported during the month of June 2006 was observed during the internal audit. A memo was issued to the audit manager explaining the variance between meters, the use of the back up meter when the main meter is being calibrated and the section under the Power Interchange Agreement (PIA), which justifies the use of readings from the back up meter was presented. Audit Report titled ‘verification of computation for certified emissions reduction (CERs) – WWF Ltd’ was seen.

Letter from Wesley Macleod (former General Manager) to Chairman, C Cooke dd May 17, 2007 titled ‘Review of CERs – WWF’ referencing the audit was checked and accepted as an evidence that an internal audit has been performed..

The Audit Report titled "Verification of Computation for certified emissions reduction (CERs) – WWF Ltd" was submitted on July 17, 2007. This also confirmed that an internal audit was held on May 14 – 15, 2007 to verify the computation for the CER for WWF Ltd.

FAR 2 was closed out.

3.4 Project Implementation

Project was implemented and equipment installed as described in the registered PDD;

The project at this point is fully implemented and all processes from plant operation through to data collection and billing are in conformance with the registered design document and the monitoring plan.

3.5 Completeness of Monitoring

The reporting procedures and systems in place for data collection and dissemination truly represent the contents of the monitoring plan as per the registered PDD (registered on March 19, 2006) and in line with the monitoring methodology ACM0002 v4. The auditor found the monitoring mechanisms as effective and reliable.

During the site visit, the amount of electricity generated by the project was checked against the sales receipts as a double check of the electricity supplied to the grid by the project activity. This double checking of information was performed as per the Monitoring Plan and the approved methodology.

3.6 Accuracy of Emission Reduction Calculations

The calculation of emission reductions is found to be correct. No CARs or NIR were raised. The details of the reported and the verified values for all parameters are provided in the spreadsheets attached with this report.

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.

3.8 Management System and Quality Assurance

The companies involved in the project have ISO 9001:2000, and ISO14001:2004 quality assurance system implemented, therefore we can affirm that the management system the CDM project is in place; with the responsibilities properly identified and in place.

In order to verify data quality, the Companies involves in the project works in accordance with a quality assurance procedure (*Procedure for Monitoring Plan Implementation*), which establishes the operational and management structure implemented.

During the site visit the following FARs related with the Management System and Quality Assurance were raised: The Load Profile Data Display provided by WWF was analyzed. The overall period presented was from April 1 2006 to April 30, 2007. The period presented for review however was highlighted as April 29, 2006 to April 28, 2007 which was acceptable. A variance of 6400kwh was noted between main and back up meter for month of June 2006. This was as a result of the main meter reading being affected [reduced] due to the calibration exercise on that instrument. Calibration records verified that calibration took place on June 27, 2006. Back up Meter data for that month was used to determine the power generated for the month as per the Power Interchange Agreement. [See meter test record for main meter no #0350002815 dated 27 June, 2006] [11/29/01 PPA Final Version 3[1] pg 38]

Calibration for back up meter was conducted on 20 April 06 and 22 May 07 and the certificates were verified during the site visit. The calibration certificate for the Main meter (dt. 27 June 06) was also checked. JPS meter calibration document for the main meter dated 27 June 2006 indicates that meter was working within the relevant standards. No time period when the calibration was conducted is recorded on the meter test record which could help in verifying the period of variance between main and back up meter. Also no indication as to whether seals were opened or changed is recorded on this record. [Meter Test Record Main Meter dated 27 June 2007- Meter No 035002815]

Meter Test Record to include actual down time of meter. Meter seals when changed are to be recorded [preferably on Meter Test Record]. FAR 1 is raised

Seals for the main and back up meters were reviewed.

Main Meter N° 03502815

Meter 0286013, Primary 1140005, TS Meter 1140037

Back Up Meter N° 035002814

Meter- NIL, Primary 1140043, TS Meter 1311879

A seal was not present on the main register of the Back up meter.

In reviewing meter test report dated 22 May 07, seal number 1311834 was recorded as affixed on the meter register.

The recording and management of seals need to be reviewed as this is a critical part of revenue control. FAR 2 is raised.

The name E. Smith [JPS] was noted in the Meter Room Log with no entry / departure time recorded on 20 April 06. There was also no signature for the WWF person who accompanied him in the metering room.

Several copies of keys exist between the technicians for the metering room.

Room security and key management systems are in need of review. FAR 3 is raised

On review of the documents Energy Flow Diagram, Information Process Flow Diagram, Operational Flow Diagram and Internal Audit, the content was found appropriate and applicable to the operations. Documents however were not dated, signed or approved.

The process of document management needs to be reviewed to reflect proper creation, revision dates and authorization. FAR 4 is raised.

The WWF safety and Emergency Manual [May 05 and May 06] for the wind farm and the Contingency Plan and Emergency Procedure [May 06] for the Main Office were reviewed. No emergency drill has been conducted at the farm although this is being planned.

Document control to handle obsolete files [May 05 document] requires strengthening to minimize risk. FAR 5 is raised.

3.9 Data from External Sources

The grid emission factor has been calculated and fixed ex-ante in the PDD. A value of 0.834tCO₂e/MWh has been used.

4. 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. Bert Brown, Assessor, SGS Jamaica 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 is attached with this verification report.

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

No

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 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 and monitoring plan. The emission reduction was 46,664 tCO₂ for the period 29/04/2006 to 28/04/2007 as per the estimation made in the registered PDD. The actual emission reduction has been verified as 46,664 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.

Post monitoring report on UNFCCC website

*Yes, the monitoring report is available at ref. 0239 on UNFCCC website
<http://cdm.unfccc.int/Issuance/MonitoringReports/index.html?p=6>*

5. Calculation of Emission Reductions

<i>Parameter</i>	<i>Reported Value</i>	<i>Verified Value</i>
Baseline emissions	46,664 t CO ₂ e	46,664 t CO ₂ e
Project emissions	0 t CO ₂ e	0 t CO ₂ e
Emission reductions (1-2)	46,664 t CO ₂ e	46,664 t CO ₂ e

Total emission reductions during the period from 29th April, 2006 to 28th April, 2007 are 46,664 t CO₂e

6. Recommendations for Changes in the Monitoring Plan

The monitoring plan is implemented and fulfils the requirements of the registered PDD and the approved methodology ACM0002/version 4. No recommendations made.

7. Verification and Certification Statement

SGS United Kingdom Ltd has been contracted by CAF to perform the verification of the emission reductions reported for the CDM project Wigton Wind Farm Project (WWF) UNFCCC Ref. Number 0239 in the period from 29/04/2006 up to 28/04/2007

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 2 version 1.

The management of the WWF 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 2 version 1. The development and maintenance of records and reporting procedures are in accordance with the monitoring report, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Wigton Wind Farm Project (WWF).


It is our responsibility to express an independent GHG verification opinion on the GHG emissions from the project for the year ended 28/04/2007 and on the calculation of GHG emission reductions from the project for the year ended 28/04/2007 based on the verified emissions for the 2007 compared with the valid and approved baseline 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 Number of Project	Wigton Wind Farm Project (WWF) UNFCCC Ref. Number 0239 CDMVer0043 (SGS reference file)
Registered PDD and Approved Methodology used for Verification	Wigton Wind Farm Project (WWF) UNFCCC Ref. Number 0239 ACM0002 / version 4
Applicable Period	From 29/04/2006 to 28/04/2007
Total GHG Emission Reductions Verified	46,664 t CO ₂ e

Signed on behalf of the Verification Body by Authorized Signatory

Signature: 
Name: Siddharth Yadav
Date: 05-11-2007

8. Document References

- /1/ WWF PDD
- /2/ WWF LOAD PROFILE DATA DISPLAY – METER READINGS
- /3/ WWF MONITORING PLAN
- /4/ WWF INTERNAL AUDIT REPORT

- o0o -