
VERIFICATION AND CERTIFICATION REPORT

Hindustan Zinc Limited

**Wind power project by HZL in
Karnataka**

SGS Climate Change Programme

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Project Title:			
Wind power project by HZL in Karnataka			
Organisation:		Client:	
SGS United Kingdom Limited		Hindustan Zinc Limited	
Summary:			
SGS United Kingdom Ltd has performed the Voluntary Emission Reduction verification of the CDM project Wind power project by HZL in Karnataka. The verification includes confirming the implementation of the monitoring plan of the registered PDD UNFCCC Ref No.1824 and the application of the monitoring methodology as per ACM 0002 version 06 dated 19/05/2006. A site visit was conducted to verify the data submitted in the monitoring report. The project activity is involving the installation of wind turbine generators to generate the electricity. The generated electricity is supplied to Southern grid. Thus the project activity can replace the fossil fuel dominated grid connected electricity. 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 46,386 tCO₂e during the period 17-12-2007 up to 14-01-2009.			
Subject:		Indexing Terms	
VCS 2007.1 Verification			
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Abbreviations

BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CEF	Carbon Emission Factor
CER	Certified Emission Reductions
CL	Clarification
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emission Reduction
GHG	Green House Gas(es)
HZL	Hindustan Zinc Limited
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
MP	Monitoring Plan
MR	Monitoring Report
MWh	Mega Watt hour
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emissions
SV	Site Visit
VCB	Vacuum Circuit Breaker
VCS	Voluntary Carbon Standard
VCUs	Voluntary Carbon Units
WEGs	Wind Electricity Generators

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1. Introduction

1.1 Objective

Hindustan Zinc Limited has commissioned an independent verification by SGS United Kingdom Limited of its reported greenhouse gas emission reductions from the Wind power project by HZL in Karnataka project. The verifiers have reviewed the GHG data collected to date for the period from 17/12/2007 to 14/01/2009.

The purpose of this verification exercise is to independently review the objective evidence:

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

1.2 Scope and Criteria

This engagement covers verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the Wind power project by HZL in Karnataka project.

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

1.3 VCS Project Description

The Project activity is a 34.4 MW wind power project consisting of 43 WEGs of individual capacity of 0.8 MW at Gadag site in Karnataka. The objective of the project activity is to harness renewable energy in the form of wind energy for supplying power to the SOUTHERN grid. Thus the project activity displaces equivalent amounts of electricity from the grid which is predominantly generated from fossil fuel based power plant.

1.4 Level of Assurance

The parameters and values presented in the monitoring report were assessed through review of Joint meter reading sheets (B-form)^{7/} and the copies of invoices^{8/}, interviews with personnel at Enercon sub station, observation of established monitoring and reporting practices and assessment of the reliability of measuring equipment.

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

1.5 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:	Wind power project by HZL in Karnataka
UNFCCC Registration Number:	1824
Monitoring Period Covered in this Report:	17/12/2007 to 14/01/2009
Project Participants:	Hindustan Zinc Limited
Location of the Project Activity:	Village: Kurthkoti and Mallasamudra, District: Gadag, Karnataka
Geographical Coordinates:	Kurthkoti: Latitude – 15°21'28.2" to 15° 23' 28.4", Longitude – 75° 33' 42.8" to 75° 33' 32.1" Mallasamudra : Latitude – 15° 22' 23.4" to 15° 23' 43.2", Longitude – 75° 33' 56.2" to 75° 33' 43.3

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, 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
Nayan Jyoti Deka	Lead Assessor
Gaurav Lunawat	Local Assessor
Ajoy Gupta	Sectoral Scope Expert

2.3 Means of Verification

2.3.1 Review of Project 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 1 of this report.

2.3.2 Onsite Inspections

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

Location: Village: Kurthkoti and Mallasamudra, District: Gadag, Karnataka	Date: 19/06/2009
Coverage	Source of Information / Persons Interviewed
Assessment of Project Boundary	Mr. B.L. Ahuja - AGM (Electrical) Mr. Sumit Sharma - Consultants
Plant Operations	Mr. Ashok P. Shnitre – Assistant manager (EIL)
Monitoring and measuring system - Collection of measurements - Observations of established practices Data Verification of monitoring parameters	Mr. B.L. Ahuja - AGM (Electrical) Mr. Sumit Sharma – Consultants Mr. Ashok P. Shnitre – Assistant manager (EIL)
CDM monitoring & reporting documentation	Mr. Ashok P. Shnitre – Assistant manager (EIL) Mr. B.L. Ahuja - AGM (Electrical) Mr. Vikram Paliwal– Engineer-WPP(HZL)
Quality Assurance – Management and operating system	Mr. Ashok P. Shnitre – Assistant manager (EIL) Mr. B.L. Ahuja - AGM (Electrical) Mr. Vikram Paliwal – Engineer-WPP(HZL)

2.3.3 Review of Monitoring Results and Verification of the Correct Application of Monitoring Methodology

The proposed project activity includes the net electricity exported to grid by project activity as a main parameter used for the calculation of emission reduction. The proportioning is done to calculate this parameter and is conservative. The proposed project activity was registered under GHG programme (UNFCCC Ref No. 1824) and has correctly applied the ACM 0002 version 06 methodology.

2.3.4 Determinations of the Reductions in GHG Emissions

Parameter	Reported Value Period from 17/12/2007to 14/01/2009	Verified Value Period from 17/12/2007to 14/01/2009
Net Quantity of Electricity supplied to KPTCL facility(EG_V)	49,923 MWh	49,916 MWh
Quantity of Electricity exported to KPTCL facility($EG_{V, Export}$)	52,495MWh	52,495MWh

Quantity of Electricity imported from KPTCL($EG_{Y, Import}$)	18MWh	18 MWh
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Baseline Emissions:

CO₂ Emission Factor as per the baseline adopted = 0.9293 tCO₂/MWh

Net Electricity exported by HZL to KPTCL (MWh) = 49,916 MWh

Baseline emissions = Net Electricity exported by HZL X CO₂ Emission Factor
= 49916 MW X 0.9293 tCO₂/MWh
= 46,386 tonnes CO₂

Project Emissions: 0

Leakage: 0

Emission Reductions:

Baseline emissions – Project emissions

= 46,386 t CO₂ – 0 t CO₂

= 46,386 tCO₂

2.3.5 Review of Additional Data from Other Sources if Appropriate

The proposed project activity has used the grid emission factor for the calculation of emission reduction and as per registered PDD, the grid emission factor is an ex-ante parameter and is constant throughout the crediting period. The grid emission factor was taken from the CO₂ Baseline Database for the Indian Power Sector, Version 3.0, published by the Central Electricity Authority.

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. 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 CL may result in a CAR. Information or clarifications provided as a result of an CL 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 CLs 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 *Remaining Issues, including any Material Discrepancy, FAR's from Previous Validation*

There are no issues pending from the previous validation report.

3.2 *Project Implementation*

The project was implemented and the equipment installed as described in the registered PDD version 03 dated 02/12/2008^{/3/}.

As per VCS policy announcement dated 19 March 2008 (<http://www.v-c-s.org/190308guide.html>), The VCUs can be registered back to the project start date provisions in VCS 2007.1 Clause 5.2.1^{/1/}. This is, 28 March 2006 or two years prior to the completion of the project validation, whichever is later. The completion of project validation is the date on the registered validation report. The date of validation report is 17/04/2008^{/27/} and two years prior to that date is 18/04/2006. The project is claiming emission reduction from 17/12/2007^{/4/} which is the commissioning date of the WTGs which has been verified from the commissioning certificates^{/6/}.

The project activity is registered in version 06 of ACM0002^{/2/} methodology and monitoring report has mentioned in the same version of methodology and is accepted.

CAR#01 was raised asking the Project proponent to clarify, how the VCS 2007.1 requirements are met as per clause 8.1(Proof of Title), 8.2(Projects that reduce GHG emissions from activities that participate in an emissions trading program), 1.12(Demonstration to confirm that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction) & 1.13(Demonstration that the project has not created another form of environmental credit) of VCS PD template. Also, the PP was requested to provide the commissioning certificates & PAA for the project activity.

In response to this, the PP provided the Host country approval^{/18/} and umbrella agreement^{/19/} between HZL & Enercon for 43 WEGs which were checked for the ownership of the project activity. This was as per requirement of clause 8.1 of VCS PD "Proof of Title" and was accepted. The undertaking^{/14/} provided by the PP in support of clause 8.2 (Projects that reduce GHG emissions from activities that participate in an emissions trading program) was checked and found to be satisfactory. The project activity is electricity generation by wind as a renewable energy; the project was not implemented to create GHG emission primarily for the purpose of its subsequent removal or destruction. This was confirmed during the site visit and also the PP provided an undertaking letter^{/15/} in support of clause 1.12(Demonstration to confirm that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction) of VCD PD^{/17/} and was found to be acceptable. It was observed that the project has not created any other form of environmental credit for the period 17/12/2007-14/01/2009. This was confirmed by the undertaking^{/16/} from project participant. Thus this was in line with the clause 1.13 of VCS PD^{/17/}. The project is registered under CDM programme (UNFCCC Ref. No 1824), thus the clause 1.14 of VCS PD^{/17/} projects rejected under other GHG programme was not applicable to this project activity. The commissioning certificates^{/6/} for 43 WTGs & PPA^{/20/} were checked and found to be satisfactory.

CAR#01 was closed.

The project activity is registered under CDM programme and the CDM crediting period starting date is 15/01/2009 and VCS monitoring period is 17/12/2007 to 14/01/2009^{/4/}. The project participant has claimed the VCS benefits prior to CDM crediting period starting date.

3.3 Completeness of Monitoring

The monitoring of the project activity is found to be in conformity with the monitoring methodology described in ACM 0002 version 06 dated 19/05/2006 and the monitoring plan indicated in the registered PDD^{/3/} of the project activity.

The required monitoring systems have been installed and operational. The meters comply with the appropriate quality standards applicable for the used technology.

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

CAR#04 was raised asking the PP to provide the calibration certificates of the VCB meters (main meter & check meter) and sub station main meters (Line 1 & Line 2) (main meter & check meter) covering the entire monitoring period as mentioned in the MR including the test certificates of the manufactures. Moreover, the meter detail mentioned in the MR Version 1 is not sufficient. The PP was requested to mentioned the details of all the four substation KPTCL meters (main and check meters) for Line 1 and Line 2. Also the PP was requested to kindly mentioned the VCB meters clearly in the MR. In response to this, PP provided the calibration certificates of the VCB meter^{/9/} and the sub station meter^{/10/} along with the details of the substation meters which were checked and found to be acceptable,. Also, the details of the VCB meters has been correctly mentioned in the revised MR. In addition to this, the PP has provided a clarification justifying the gap in calibration of the main & check meters which are the property of the state electricity board and are not under the control of PP. PP has also provided a copy of Letter from Enercon regarding the commissioning of the VCB Yard^{/23/}, Letters from Enercon to HESCOM dated 15/12/2008 (also bearing reference to letter dated 23/06/08) and 07/02/2009 regarding calibration of VCB main and check meters^{/24/}, Letter from Enercon to KPTCL dated 07/02/2009 regarding calibration of KPTCL main and check meters^{/25/} and Calibration certificate for the KPTCL Main and Check meter dated 17/12/2007^{/10/}. Moreover, PP mentioned that the calibrations of the meters are not under their control and they have to depend on the electricity board for the calibration which is found to be acceptable as per the PPA. Thus, CAR# 04 was closed.

CL#05 was raised asking the PP to clarify why “Quantity of Electricity exported to KPTCL facility”, “ Quantity of Electricity imported from KPTCL”, “ Electricity generated by each WTG” & “Electricity generation recorded at the Vacuum Circuit Breaker” has not been reported in the monitoring report. Also, the PP was requested to provide the reported data for all the parameters mentioned above for the entire monitoring period. The PP revised the MR^{/5/} and reported all the parameters as per the registered PDD^{/3/} and provided the recorded values for the “Electricity generation by each WEG” and “Electricity generation recorded at the Vacuum Circuit Breaker”; however, these last two parameters were not reported in the MR because they are not to be used for emission calculation, instead ,they would act as a backup data for the net electricity generated which has been found to be reasonable and also, the data^{/21/8/22/} provided by the PP was checked and found to be satisfactory. Moreover, the PP was asked to round down the values mentioned in the emission reduction calculations and in response, all the values of Net Electricity Exported have been rounded down to the nearest conservative integer in the ER sheet, which has been found to be acceptable. Thus, CAR# 05 was closed.

Net Quantity of Electricity exported to KPTCL facility:

The Net quantity of electricity exported has been calculated from the readings of export and import indicated by the main meters connected to the incoming feeder of sub station, which has been proportionally divided among the customers connected to the meters on the basis of the pro-rata readings taken at the VCB end.The meter is installed with following details:

KPTCL Meters at sub station:-

Main Meter: serial: 07022944, Make- L & T, Accuracy Class-0.2s, Dates of Calibration - 17/12/2007 & 20/05/2009.

Check Meter: Serial No. 07022903, Make- L & T, Accuracy Class-0.2s, Dates of Calibration - 17/12/2007& 20/05/2009.

Main Meter: Serial No. 07022908, Make- Secure, Accuracy Class-0.2s, Dates of Calibration – 11/06/2008 & 20/05/2009.

Check Meter: Serial No. 07022915, Make- L & T, Accuracy Class-0.2s, Dates of Calibration - 11/06/2008 & 20/05/2009.

The first set of five WEGs was commissioned by Enercon on 17/12/2007^{6/}. On the same day the KPTCL main meter (S.No. 07022944) and check meter (S.No. 07022903) were also calibrated and installed by KPTCL. Therefore, they were due for calibration a year later on 16/12/2008. Requests were made by the project proponent through their O&M contractor, Enercon to KPTCL^{25/} to calibrate these meters that have been sealed by them. However, since HZL is not in control of the meters and is completely dependant on the state authorities for their calibration, the same could not be carried out within one year period. The calibration of meters was carried out on 20/05/2009 where the meters were found to be within permissible limits of error. Thus, it can be assumed that the meters were working with permissible level of accuracy during the entire monitoring period before this date as well.

The other set of KPTCL main meter (S.No. 07022908) and check meter (S.No. 07022915) were calibrated and installed on 11/06/2008 during their pre-commissioning tests. They were calibrated again on 20/05/2009 which is within one year period for frequency of calibration.

The KPTCL main (2 nos) and check meters (2 nos) which were last calibrated on 20/05/09 and the error observed was 0.0736% & 0.162% for main meters and 0.0565% & 0.176% for the check meters which is well below the permissible limits of error. Thus, it can be assumed that the meters were working with reasonable level of accuracy during the entire period before this date as well, which covers the monitoring period under consideration.

Meters installed at the VCB yards:

Main Meter: Serial No. 07022932, Make - L&T, Dates of Calibration- 29/03/07, 03/12/07 & 27/02/09.

Check Meter: Serial No. 07022952, Make - L&T, Dates of Calibration- 29/03/07, 03/12/07 & 27/02/09.

The gap in the calibration of the meters is due to the reason that the meters are the property of the state electricity board and are not under the control of PP. However, from the calibration certificate it has been ascertain that the errors are within permissible limit and accuracy of the recorded data is appropriate.

The VCB main meter (S.No. 07022932) and check meter (S.No. 07022952) were first calibrated by their manufacturer, L&T, on 29/03/2007 and later by HESCOM on 03/12/2007 in pre-commissioning tests. The meters came into operation on 17/12/2007 when the VCB Yard was commissioned

The VCB meters were last calibrated on 27/02/09, and the error observed was -0.039% and 0.096% for the main and check meter respectively, which is well below permissible limits of error. Thus, it can be assumed that the meters were working with reasonable level of accuracy during the entire period before this date as well, which covers the monitoring period under consideration.

Quantity of Electricity exported to KPTCL facility:

The quantity of electricity exported by HZL to KPTCL facility has been measured at the sub station main meters connected to the incoming feeder of sub station which has been proportionally divided among the customers connected to the meters on the basis of the pro-rata readings taken at the VCB end.

Quantity of Electricity imported from KPTCL facility:

Electricity imported from KPTCL by HZL has been measured at the main meter connected to the incoming feeder of sub station which has been proportionally divided among the customers connected to the meters on the basis of the pro-rata readings taken at the VCB end.

According to the registered PDD, the data for electricity generated by each WEG is not to be used for the calculation of emission reductions but to act as a backup data for the net electricity generated. Hence, this data has been recorded and maintained by HZL, but has not been reported in the MR. However, the excel sheet^{21/} containing the data is being provided in excel spreadsheet by the PP.

According to the registered PDD, the data for electricity generation recorded at the Vacuum Circuit Breaker (VCB) is not to be used for the calculation of emission reductions but to act as a backup data for the net electricity generated. Hence, this data is recorded and maintained daily by HZL, but has not been reported in the MR. However, the excel sheet^{/22/} containing the data is being provided in excel spreadsheet by the PP

3.4 Accuracy of Emission Reduction Calculations

CAR#03 was raised asking the PP to provide the copies of the JMR sheets (B-form) and the invoices raised for the entire monitoring period. Also, for the period January 2009, the value of quantity of electricity exported to KPTCL facility as mentioned in the MR, ver 1 is not coming clear as in the MR & spreadsheet the quantity of electricity exported to KPTCL facility for the month of January was mentioned as 2088.4 MWh whereas in the B- form it was mentioned as 4392.0 MWh. In response to this, PP has provided the JMR sheet (B-form)^{/7/} & the invoice^{/8/} raised for the electricity exported to the grid for the entire monitoring period which has been found to be satisfactory. The calculations involving determination of net electricity exported by HZL to KPTCL facility from 01.01.09 to 14.01.09 has been clearly described by the PP in the revised MR& spreadsheet which has been checked and found to be correct. The net quantity of electricity exported to KPTCL facility was calculated by apportioning the net electricity exported by HZL from 01 January 2009 to 31 January 2009 on the basis of VCB meters. Thus, CAR#03 was closed.

The registered PDD^{/3/} mentions that the emission factor (0. 0.9293 tCO₂/MWh) is an ex-ante parameter and fixed during crediting period and is taken from CEA Baseline data Version 3.0. This is accepted.

3.5 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed above in section 2.3.3 above. All the data recorded are in compliance with the monitoring report.

3.6 Management and Operational System

The company involved in the project have ISO 9001:2000, and ISO14001:2004 quality assurance system implemented, therefore SGS can verify 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 involved in the project works in accordance with a quality assurance procedure (*Procedure for Monitoring Plan Implementation*), which establishes the operational and management structure implemented. CL#02 was raised asking the PP to provide the internal audit report & ISO certificates and the O & M contract document between the WTGs owner and Enercon. In response to this, PP has provided the ISO certificates^{/12/} which were checked and found to be satisfactory (Internal audit is a part of ISO system, thus, there are no separate documents is available). The O & M contract^{/13/} between HZL & Enercon provided by the PP, has been checked and found to be satisfactory. Thus, CL#02 was closed.

4. Verification Conclusion

SGS United Kingdom Ltd has been contracted by Hindustan Zinc Limited to examine the GHG emission reductions reported from the Wind power project by HZL in Karnataka for the period, 17/12/2007 to 14/01/2009 equating to 46,386 tonnes of CO₂ equivalents. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported for the period and the verification testing conducted against the GHG Assertion.

The management of the Hindustan Zinc Limited 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 – 12/11/2009. Calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Wind power project by HZL in Karnataka. The development and maintenance of records and reporting procedures are in accordance with the monitoring report.

It is SGS' responsibility to express an independent GHG verification opinion on the GHG emissions from the project for the period 17/12/2007 to 14/01/2009 and on the calculation of GHG emission reductions from the project based on the verified emissions for the same.

The verification approach was based on the requirements as defined in Voluntary Carbon Standard VCS 2007.1. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the period 17/12/2007 to 14/01/2009. SGS planned and performed the work to obtain the information and explanations that we considered necessary to provide sufficient evidence for SGS to give reasonable assurance that the amount of GHG emission reductions for the period 17/12/2007 to 14/01/2009, prepared on the basis of the Monitoring Report dated 20/05/2009, are fairly stated. We conducted our verification with regard to the client's GHG projects PDD and monitoring report which included Wind power project by HZL in Karnataka at project plan, baseline applied and baseline GHG emissions or removals, Monitoring and Verification Plan, GHG Emission reduction, removal enhancements. This assessment included collection of evidence supporting the reported data checking whether the provisions of the Monitoring and Verification Plan in the PDD were consistently and appropriately applied.

SGS has verified whether the information included in the monitoring report representing the project baseline is current and has been extracted from the project site and the emission reduction achieved has been determined by correctly subtracting emissions for the monitoring period 17/12/2007 to 14/01/2009 from the baseline figures for the comparable

Reporting Period: From 17/12/2007 to 14/01/2009

Verified emission in the above reporting period:

Project Emissions: 0 tCO₂ equivalents

Baseline Emissions: 46,386 tCO₂ equivalents

Emission Reductions: 46,386 tCO₂ equivalents

Based on process and procedures conducted, in our opinion, Hindustan Zinc Limited assertion on GHG emission reductions for the Wind power project by HZL in Karnataka project during the reporting period 17/12/2007 to 14/01/2009 is materially correct and is a fair representation of the GHG data and information and the emission reductions are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved monitoring methodology ACM0002, version 6 dated 19/05/2006

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:	Wind power project by HZL in Karnataka
UNFCCC Reference Number:	1824
Registered PDD and Approved Used for Verification:	Version 03, dated – 02/12/2008
Methodology Used for Verification:	ACM0002, version 6
Applicable Period:	17/12/2007to 14/01/2009
Total GHG Emission Reductions Verified:	46,386 tCO₂

Signed on behalf of the Verification Body by Authorized Signatory

SGS United Kingdom Limited

SGS India

Signature: 

Name: Kaviraj Singh

Date: 06/01/2010

Signature: 

Name: Nayan Jyoti Deka

Date: 05/01/2010

5. Document References

- /1/ Document VCS 2007.1"
- /2/ Monitoring methodology, ACM0002, version 6
- /3/ PDD, version 03, dated – 02/12/2008
- /4/ MR, version 1, dated – 20/05/2009
- /5/ MR, version 2, dated – 09/07/2009
- /6/ Commission certificates of 43 WTGs
 - 1. Commission of 5 nos. of WTG, dated – 17/12/2007, Ref.no. – EEE/TL&SS/GDG/1733-42
 - 2. Commissioning of 10 nos. of WTGs, dated – 17/03/2008, Ref.no. – EEE/TL&SS/GDG/2364-74
 - 3. Commissioning of 8 nos. of WTGs, dated – 30/03/2008, Ref. no. – EEE/TL&SS/GDG/2453-63
 - 4. Commissioning of 6 nos. of WTGs, dated – 31/05/2008, Ref.no. – EEE/TL&SS/GDG/276-86
 - 5. Commissioning of 10 nos. of WTGs, dated – EEE/TL&SS/GDG/425-35
 - 6. Commissioning of 4 nos. of WTGs, dated – 28/07/2008, Ref.no. – EEE/TL&SS/GDG/661-70

Commissioning certificates are issued by the Office of the Executive engineer(El), TL&SS Division, KPTCL, GADAG
- /7/ JMR sheets for the period 17/12/2007to 14/01/2009
- /8/ Invoices for net electricity exported to KPTCL for the period 17/12/2007to 14/01/2009
- /9/ Calibration certificates for VCB meters

Main Meter: Serial No. 07022932, Make - L&T, Dates of Calibration- 29/03/07, 03/12/07 & 27/02/09.

Check Meter: Serial No. 07022952, Make - L&T, Dates of Calibration- 29/03/07, 03/12/07 & 27/02/09.
- /10/ Calibration certificates for substation meters

Main Meter: serial: 07022944, Make- L & T, Accuracy Class-0.2s, Dates of Calibration - 17/12/2007 & 20/05/2009.

Check Meter: Serial No. 07022903, Make- L & T, Accuracy Class-0.2s, Dates of Calibration - 17/12/2007& 20/05/2009.

Main Meter: Serial No. 07022908, Make- Secure, Accuracy Class-0.2s, Dates of Calibration – 11/06/2008 & 20/05/2009.

Check Meter: Serial No. 07022915, Make- L & T, Accuracy Class-0.2s, Dates of Calibration - 11/06/2008 & 20/05/2009.
- /11/ Letter from Enercon (India) Limited stating no requirement for calibration of meters in WEGs
- /12/ ISO Certificate, no- QS-898-HH, dated – 08/02/2007, valid upto – 08/02/2010
- /13/ O&M Contract documents between HZL and Enercon (India) Limited
- /14/ Undertaking confirming non participation in emissions trading program
- /15/ Undertaking confirming the project not being implemented to create GHG emissions primarily for the purpose of subsequent removal or destruction
- /16/ Undertaking confirming that no other form of environmental credit has been claimed by the project activity for the monitoring period
- /17/ VCS PD
- /18/ Host Country Approval- to check the ownership of the project
- /19/ Umbrella agreement between HZL and Enercon for 43 WEGs

- /20/ Power Purchase Agreement (PPA)
- /21/ Spreadsheet for Electricity generation by each WEG.
- /22/ Spreadsheet for Electricity generation recorded at the Vacuum Circuit Breaker
- /23/ Letter from Enercon regarding commissioning of VCB Yard.
- /24/ Letters from Enercon to HESCOM dated 15/12/2008 (also bearing reference to letter dated 23/06/08) and 07/02/2009 regarding calibration of VCB main and check meters.
- /25/ Letter from Enercon to KPTCL dated 07/02/2009 regarding calibration of KPTCL main and check meters.
- /26/ Excel spreadsheet for emission reduction calculation
- /27/ Site Visit
- /28/ Validation report
- /29/ CEA data, version 03
- /30/ MR, version 03, dated – 12/11/2009

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