

VERIFICATION REPORT OF 'TUPPADAHALLI WIND ENERGY PROJECT'



Document Prepared By Bureau Veritas Holdings SAS

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Summary:

Bureau Veritas Certification has conducted the verification of the "Tuppadahalli Wind Energy Project" project of Tuppadahalli Energy India Private Limited, located at Karnataka State of India on the basis of Voluntary Carbon Standard 3.0 for the period starting from 29th July, 2011 to 31st March, 2012. The total installed capacity of this project activity is 56.10 MW from 34 WTGs and the capacity of each WTG is 1.65 MW. The project activity transmits the entire power generated through the state grid maintained by the Karnataka Power Transmission Corporation Limited (KPTCL). The electricity generated is sold to Mangalore Electricity Supply Company (MESCOM).

The verification scope is defined as a periodic independent review and ex post determination by the Designated Operational Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases:

- i) Desk review of the registered project document including the baseline and the monitoring plan;
- ii) Physical site inspection and follow-up interviews with project stakeholders;
- iii) Resolution of outstanding issues and the issuance of the final verification report including verification opinion.

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures. On the basis of the physical site inspection of the project activity and review of the documents submitted by the project participant, the Bureau Veritas Certification confirms that, for the current verification period from 29th July, 2011 to 31st March, 2012 the project has been implemented as planned and described in the registered Project Document. The necessary measuring equipments, essential for the measurement of the electricity have been calibrated appropriately. This verification report pertains to the current monitoring period starting from 29th July, 2011 to 31st March, 2012 (including both days). 06 Corrective Action Requests (CARs) and 05 Clarification Request (CLs) were raised during this verification activity. All the CARs and CLs have been successfully closed by the verification team based on the satisfactory response from the project participant on each query raised. The verification team confirms that total GHG reductions achieved during the current monitoring period are 54, 703 tCO₂e and that emission reductions are calculated without material misstatements.

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Abbreviations

VCS:	Verified Carbon Standard
VER:	Verified Emission Reduction
CAR:	Corrective Action Request
FAR:	Forward Action Request
CO ₂ :	Carbon Dioxide
tCO ₂ :	Tonnes of Carbon Dioxide
DOE:	Designated Operational Entity
GHG:	Green House Gases
I:	Interview
KPTCL:	Karnataka Power Transmission Corporation Limited
MESCOM:	Mangalore Electricity Supply Company
MV:	Means of Verification
MP:	Monitoring Plan
MR:	Monitoring report
PD:	Project Document
PP:	Project participant
PPA :	Power Purchase Agreement
UNFCCC:	United Nations Framework Convention for Climate Change
MW:	Megawatt
VR:	Verification report
JMR	Joint Meter Reading

1 INTRODUCTION

1.1 Objective

Verification is the periodic independent review and ex-post determination by the verifier of the monitored reductions in GHG emissions during defined verification period. This is the first verification of the project activity 'Tuppadahalli Wind Energy Project'. The objective of the verification is:

- i. To verify that the project activity is implemented as per the description contained in the validated VCS PD.
- ii. To confirm that the monitoring system is in place and fully functional,
- iii. To assure that the project has generated verifiable emission reductions.

The verification process considers both qualitative and quantitative information on emission reductions. Quantitative data comprises the monitoring reports, emission reduction spreadsheet and sources of input values to the monitoring report submitted by the project entity to the verification team. Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emission reports, review and internal audit of calculations/data transfers.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the VCS Project Document (PD), the project's baseline study and monitoring plan, including the monitored data and other relevant documents. The verification follows VCS Standard Version 3.0 criteria and latest policy announcements, from VSC Board, presently applicable to the verification of project activity.

The verification is not meant to provide any consulting towards the Client. However, stated requests for forward actions and/or corrective actions may provide input for improvement of the project monitoring towards reductions in the GHG emissions.

The verification team was provided with a monitoring report, covering the period 29th July, 2011 to 31st March, 2012. Based on this documentation, a document review and a physical site inspection on 11/07/2012 and 12/07/2012 was performed. The Monitoring Report – Version 3.0, dated 21/09/2012 covering the period of 29/07/2011 to 31/03/2012 serves the basis for the verification assessment presented herewith.

1.3 Level of assurance

Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions. Based on the process and procedure conducted, it can be concluded that the GHG assertion is materially correct and is a fair representation of GHG data and information which has been prepared in accordance with the VCS Standard 3.0 for the current verification period. The verification team considers the assurance level as 'limited' since some of the data used (E.g. Emission factor) are from the publicly available databases such as the IPCC database, CEA database for emission factor of the grid, for which detailed testing of GHG assertion is beyond the domain of project proponent, stakeholder and the verification team.

1.4 Summary Description of the Project

The project activity is a Greenfield wind energy based power project. The project activity involves the installation of 34 Wind Turbine Generators (WTGs) with individual capacity of each WTG being 1.65 MW. The electricity generated from this project activity is supplied and sold to Mangalore Electricity Supply Company Limited (MESCOM) which forms the part of Southern Regional Grid of India. The Project Participant has a long term Power Purchase Agreement (PPA) with MESCOM. The project activity is located in Tuppadahalli Village of Hollalkere and Chennagiri Taluk of Shimoga and Chittradurga Districts respectively, Karnataka State, India. The 34 Wind Turbine Generators have been commissioned and have been in operation since July 2011. The commissioning of WTGs have been done in a phased manner viz., July 2011 (15 WTGs), September 2011 (10 WTGs) and October 2011 (09 WTGs). In the absence of the project activity the equivalent amount of electricity would have been generated from the grid connected/new power plants in the southern grid which are/will be predominately based on fossil fuels. The fossil fuel based power generation has been the mainstay of electricity generation in the Indian Power Sector.

2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

The project activity is registered under CDM with reference no 5198. A separate validation report has been used for providing the validation conclusion.

2.1 Validation Process

Not Applicable

2.2 Validation Findings

Not Applicable

2.2.1 Gap Validation

Not Applicable

2.2.2 Methodology Deviations

Not Applicable

2.2.3 New Project Activity Instances

Not Applicable

2.3 Validation Conclusion

Not Applicable

3 VERIFICATION PROCESS

3.1 Method and Criteria

The overall verification, beginning from the Contract Review to Verification report, certification statement & opinion, was conducted using Bureau Veritas Certification internal procedures. The project is already registered as a CDM project with the UNFCCC (Reference No. 5198). The verification criteria followed by the project participant is based on the VCS Standard 3.0. The verification process consists of following activities:

- i) Desk review of the registered project document including the baseline and the monitoring plan:
This process consists of the review of the documents related to the project activity including Project Description and the registered CDM PDD. The current documents include the Monitoring report for the current verification period (29/07/2011 to 31/03/2012), emission reduction spreadsheet and other supporting documents (Form B or JMR statements, invoices raised, payment receipts, calibration certificates, emission reduction sheet etc.) pertaining to the current verification period.
- ii) Physical site inspection and follow-up interviews with project stakeholders:
The second step involves the physical site visit to ensure that project activity is being implemented and operated as per the project description contained in the PD. The activity also includes the follow-up interviews with the various people involved in the operation of the project activity.
- iii) Resolution of outstanding issues and the issuance of the final verification report including verification opinion
The third step involves the resolution of the CAR/CL raised. Verification process also includes raising the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification before conclusion on the GHG emission reduction calculation.

Findings established during the initial verification could either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified. Corrective Action Requests (CAR) is issued, where:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions, which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.
- The verification team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

3.2 Document Review

The verification team has assessed the accuracy of the project description through a combination of steps consisting of review of contract related to the project activity, Scrutiny of technical specification, site visit and interview of the project proponent and their representatives. Following supporting documents were reviewed for the current verification period:

- Project Description, Validation Report and the registered CDM PDD.
- Monitoring report and emission reduction spreadsheet for the current verification period.
- Form B or JMR statements from August 2011 to March 2012.
- Invoice Copies from August 2011 to March 2012.
- Payment Receipt Copies from August 2011 to March 2012.
- Emission Reduction Calculation Sheet
- Calibration Certificates

3.3 Interviews

The verification team from Bureau Veritas Certification performed site visit on 11/07/2011 to 12/07/2012 and conducted interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Tuppadahalli Energy India Pvt. Ltd. (Project Participant) and Vestas Wind Technology India Private Limited (Technology Supplier and O & M contractor) were interviewed. The personals interviewed at the site visit are mentioned in the table below:

The main topics of the interviews are summarized in Table below:

Interviewed organization	Interview topics
Tuppadahalli Energy India Pvt. Ltd.	- Project description - Operational aspects - Monitoring plans and Data recording procedures - QA/ QC Procedures - Internal review / verification mechanism - Emission reduction calculation procedures - Monitoring report - Emission reduction calculation procedures
Vestas Wind Technology India Private Limited	- Monitoring System at site - Metering system at site

3.4 Site Inspections

The physical site inspection was carried out by a member of the verification team on 11/07/2012 to cover following objectives:

- To ensure that project activity has been implemented and operated as per the description contained in the VCS PD and the MR
- To ensure that the monitoring and data recording has been carried out in accordance with the applied monitoring methodology ACM 0002. version 12.2.0 (applied by the project participant)

The methods adopted to meet the above-mentioned objectives consists of the interaction with the plant personnel, visit to the WTGs and to the substation (Shivani substation). In addition to the physical site visit, there was an office discussion on 12/07/2012 where all documents were reviewed by the verification team followed by discussions with the management and operation of the project activity.

3.5 Resolution of Any Material Discrepancy

Material discrepancies identified in the course of the verification are addressed either as CARs, CLs or FARs.

A **Corrective Action Request (CAR)** is established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for verification of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

A detailed list of the CARs, CLs and FAR raised and discussed in the course of this verification is included in the next section 4 of this report.

4 VERIFICATION FINDINGS

In this section the assessments and findings from the desk review of the VCS V01 MR, site visit, interviews and supporting documents as well as the final assessments are summarized. The Clarification and Corrective Action Requests are stated and are further documented in the Verification Protocol in Table 2. The verification of the Project resulted in 07 Corrective Action Requests (CARs) and 06 Clarification Requests (CLs).

4.1 Project Implementation Status

- Implementation status of the project activity(s), including any material discrepancies between the project and the project description

It has been observed during site visit that the PP had implemented the project activity as described in the registered CDM PDD and the VCS PD. It consists of renewable electricity generation through the installation of 34 Wind Turbine Generators (WTGs) each of a capacity of 1.65 MW with a total installed capacity of 56.10 MW. The electricity which is being generated at 690 Volt is stepped up to 110 KV and is supplied to Shivani sub-station.

The net electricity exported to the grid is taken from the joint meter reading reports (B-forms) which forms the basis for emission reduction calculations. The amount of electricity generated from the project activity and dispatched to the grid is continuously metered by the energy meter. The meters are the ABT meters with an accuracy class of 0.2s which can measure both import and export. The Joint meter readings are taken simultaneously and jointly periodically by the company personnel along with the MESCOM and/or KPTCL officials as per the regulatory requirements. The same forms the basis for raising invoice and receiving payments for net electricity sold.

Energy meters record export and import of energy. The Project Participant raises bill to the MESCOM on monthly basis for the energy fed into the grid after deducting the energy imported from the grid. Energy

meters are tested for accuracy every year and are calibrated in case of an error beyond permissible limits. Sales record to the grid and the invoice raised for receiving payment from state electricity board are used to cross check this data and hence ensure consistency.

The physical site visit and the subsequent document review carried out on 11th and 12th July, 2012 confirmed that project proponent has implemented the project activity as per the description provided in the registered CDM PDD and the validated VCS PD and the monitoring equipments are in place and operational.

- Implementation status of the monitoring plan and the completeness of monitoring, including any material discrepancies between the project and the project description.

The verification report is based on the observations/ discussions during the site visit and the monitoring report submitted by the Project Participant, Version 3.0 dated 11/07/2012. The monitoring methodology used for the project activity is as per the methodology ACM 0002, Version 12.2.0.

The parameter to be monitored for calculation of emission reductions is the “Net quantity of electricity exported to the grid by the project activity”. The clients are monitoring the complete data and this is available with them as the B forms.

The GHG emission reductions are calculated based on the net electricity exported by the project activity to the grid. The net energy delivered by the project activity to the grid is measured by energy meters. Readings from these meters were taken to calculate the net energy delivered by the WTGs to the grid. Energy meters record export and import of energy. The Project Participant would raise bill to the MESCOM on monthly basis for the energy fed into the grid after deducting the energy imported from the grid. Sales record to the grid and the invoice raised for receiving payment from state electricity board would be used to cross check this data and hence ensure consistency.

The energy meters at the utility substation at Shivani, had been tested and calibrated before installation by Karnataka Power Transmission Corporation Limited in May, 2011 and shall be calibrated once in a year.

The accuracy of the above net energy delivered data and the calibration details were cross checked by the BVC team during the onsite visit and the document review.

4.2 Accuracy of GHG Emission Reduction or Removal Calculations

GHG Emission reductions are calculated as – Net Electricity delivered by the project activity to the Southern Grid multiplied by an emission factor for Southern grid (tCO₂/ MWh). The emission reductions are considered as baseline emissions minus project emissions and leakage. The Calculation procedure is mentioned here under:

Baseline Emissions:

Baseline Emission are calculated by multiplying the net quantity of electricity supplied by this project activity (EG_y) with the CO₂ baseline emission factor for the electricity displaced due to the project ($EF_{CO_2,elec}$) as follows:

$$BE_y = EG_{BL,y} * EF_{CO_2}$$

Where:

$$\begin{aligned}
 BE_y &= \text{Baseline emission in the year } y \\
 EG_{BL,y} &= \text{Energy baseline in year } y; \text{ kWh} \\
 EF_{CO_2} &= \text{CO}_2 \text{ Emission factor in the year } y; \text{ tCO}_2/\text{ kWh} \\
 EF_{CO_2 \text{ elec}, y} &= 0.9445 \text{ tCO}_2/\text{MWh} \\
 EG_{BL,y} &= 57,918 \text{ MWh} \\
 BE_y &= 54,703 \text{ tCO}_2
 \end{aligned}$$

Project Emissions:

This project activity is a grid connected wind power generation. Hence there is no project emission from the project activity.

$$PE_y = 0 \text{ tCO}_2$$

Leakage

According to ACM0002, no leakage emissions are considered.

$$L_y = 0 \text{ tCO}_2$$

Emission reductions ER_y

Emission reductions ER_y by the project activity during a given year y is calculated as the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y), as follows

$$ER_y = BE_y - PE_y - L_y$$

$$ER_y = 54,703 \text{ tCO}_2$$

Based on document assessment and verification site visit it was noted that the project had claimed the emission reductions for the period covering 29/07/2011 to 31/03/2012. The project activity is also registered as CDM Project with reference no 5198 on 26/03/2012. The verification team raised CAR 1, CAR 2 and CAR 3 to assess how the Project Participant the basis of choosing the period and to ascertain whether there is any double counting of emission reductions since the project is registered under CDM and currently attempting registration and verification under VCS.

In response to CAR1 and CAR 2, the project participant quoted that the project activity has informed UNFCCC about the revision in the start date of crediting period. This is has been done to match the billing cycle, since the billing is done on a monthly basis and to have uniformity in claiming the emission reductions. The receipt of confirmation in the form email from UNFCCC Secretariat (dt., 07/09/2012) with respect to change in the start date from 26/03/2012 to 01/04/2012 was submitted to the verification team.

Based on satisfactory response and submission of the supporting, the verification team closed CAR 1 and CAR 2.

In response to CAR 3 the Project Participant submitted the acknowledgement email dated 7/09/2012 from UNFCCC Secretariat which confirmed the acceptance of change in start date of the crediting period. The Project Participant confirmed that they would claim the emission reductions as VCUs under VCS for the period 29/07/2011 to 31/03/2012 and they would not claim the emission reductions for this period under CDM or any other GHG program and hence there would be no double counting.

The verification team is of the opinion that claim made by the Project Participant of that there would be no double is agreeable since the retrospective credits cannot be claimed under CDM Program and from the document assessment it is noted that the Project Participant has not claimed the emission reductions under any other GHG program, hence CAR 3 was closed.

4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

Net electricity exported to the grid:

The net electricity exported to the grid by the project activity is taken from the Form-B (JMR readings) which forms the basis for emission reduction calculations. The amount of electricity generated from the project activity which is dispatched to the grid is continuously metered by the Energy Meters. The energy meters used are with an accuracy class of 0.2 which can measure both import and export. The joint meter reading is carried out by site personnel and MESCOM and/or KPTCL representatives as per the regulatory requirements. The same will form the basis for raising invoice and receiving payments for net electricity sold. The net electricity delivered to the grid by the project activity can further be cross-checked and verified by the electricity sale invoices raised by PP to the MESCOM. The meters are calibrated on an annual basis to ensure error free measurements. All records needed for monitoring are archived in line with the requirements of the validated monitoring plan. No significant, lack of evidence and missing data were detected during on-site verification

Value of grid emission factor:

DOE was able to confirm that this parameter was fixed ex-ante during the validation of the project and the same was used for ER calculations for the current monitoring period. The parameter was derived from officially published latest database from Central Electricity Authority of India, a subsidiary of Ministry of Power, Government of India, which is the authentic source of such information, at the time of validation. The emission factor for the Southern grid, to which the project activity exports electricity; is found to be 0.9445 tCO₂/MWh which is appropriate and in-line with the VCS PD. The source of net energy generation, as reported in the VCS PD, is the Form-B and the Invoices raised by PP to MESCOM.

Parameter description	Source	Reliability of the evidence
Net electricity exported to the grid	Form-B issued monthly issued by KPTCL	The data is reliable as it is based on 100% monitored electricity from high accuracy electronic meters. The Form-B (JMR) also forms the basis for the invoice raised by the project participant and payments released by the MESCOM.
Grid emission factor	Central Electricity Authority (CEA) database version 5	CEA CO ₂ baseline database version 5. This is an official source of data and hence acceptable.

In the Monitoring Report, version 1.0 which was submitted at the start of verification did not contain information with respect to the type of monitoring equipment used and delay in calibration was identified. Hence CAR 4 and CAR 5 were raised.

The Project Participant in response to CAR 4 stated the energy meter equipment in the revised monitoring report and in response to CAR 5 quoted the correct calibration date in the revised monitoring report.

The verification team assessed the corrections incorporated and noted that there was typographical error and the project participant in the revised MR, version 3.0 had stated the date as 14/03/2012, which is within the one year from the date of first calibration. The same was checked and confirmed from the calibration certificate submitted by the project participant, hence based on satisfactory response and supporting evidence CAR 4 and CAR 5 were closed.

4.4 Management and Operational System

The project activity is operated and managed by the project proponent with the help of site in-charge personnel from the Wind turbine manufacturer i.e. Vestas Wind Technology India Private Limited and who also happen to be the site O & M contractor. For the accurate execution of the Project activity a project team has been constituted by the Project Participant. The wind power project abides and will abide by all regulatory and statutory requirements as prescribed under the state and central laws and regulations. The project team is delegated with the responsibility of monitor and documents the electricity generated and also safe keeping of the recorded data. The project team is also responsible for calculation of actual creditable emission reduction in the most transparent and relevant manner.

5 VERIFICATION CONCLUSION

Bureau Veritas Certification has performed the first verification of the 'Tuppadahalli Wind Energy Project' for the monitoring period covering From 29/07/2011 to 31/3/2012 (including both days). The verification scope is as an independent and objective review of the VCS project description document, the project's baseline study and monitoring plan and other relevant documents. The review is to verify the implementation of the monitoring plan as defined in the VCS PD. The verification of the monitoring data indicate that total amount of emission reductions for the monitoring period to be 54, 703 tCO₂ equivalent.

The calculations of emission reductions are found to be correct. The baseline for the southern grid has been taken for arriving at emission reductions due to the project activity. The grid emission factor of 0.9445 tCO₂/MWh was found to be correct. Appropriate procedures for maintaining the confidentiality and safe custody of the validation or verification documentation and for retaining them for a sufficient period to meet the needs of the client, the responsible parties, the GHG programmes to which they subscribe, and in accordance with legal and professional requirements of record retention have been established.

Bureau Veritas Certification verified the contents of the current Monitoring Report for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented and described in validated and registered VCS-PD. The energy meters deployed for the measurement of electricity export and import are calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. Bureau Veritas Certification can confirm that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 29/07/2011 to 31/3/2012 (including both days)

Voluntary Emission Reductions during the reporting period are as follows:

Verified GHG emission reductions or removals in the above reporting period:

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	54,703
Project Emissions	0
Leakage	0
Net GHG emission reductions or removals	54,703



H.B. Muralidhar

(Internal Technical Reviewer)



V. SenthilKumar

(Team Leader)

6 REFERENCES

1. Form- B for the Months August,2011 to March, 2012;
2. Invoices raised by the project proponent for the period July, 2011 to March, 2012;
3. Energy meter calibration report by KPTCL, test conducted on 14/03/2012 report dated 24/03/2012;
4. VCS-PD;
5. Emission reduction spreadsheet version 1.0;
6. VCS Standard, Version 3.2 dated 1st February 2012 and VCS Programme Guide Version 3.3 dated on 1st May, 2012;
7. CDM Approved methodology ACM 0002 version 12.2.0 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.
8. VCS Monitoring Report, version 1.0, dated 11/07/2012

7 C.V. OF THE DOE'S VERIFICATION TEAM MEMBERS

V. SenthilKumar Team Member, Lead Verifier – Climate Change

He is a Environmental Engineer with over 5 years of experience in the field of Consultancy related to Training and Implementation of Management Systems (ISO : 9000, 14000 & 18000) for various organizations. For the last 4 years, he is involved in different type of Clean Development Mechanism Projects. He has also experience in offering project management services to various renewable energy projects. Has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of CDM project activities.

Nazia Naqvi, Team Member, Verifier – Climate Change

Ms. Nazia Naqvi is a Post-graduate in M.Sc Energy Systems with over 3 years of experience in the field of clean development mechanism. She is working in Bureau Veritas Certification (India) Pvt. Ltd. as Verifier-Climate Change. She has received extensive training in CDM validation and verification processes and participated in assessment of CDM/VCS projects.

H.B Muralidhar, Bureau Veritas Certification, Internal Technical Reviewer

Lead auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. Graduate in Electrical Engineering with 25 years of experience power generation and distribution related fields as well as in management system auditing. He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System. He has undergone intensive training on Clean Development Mechanism. He is the technical expert & conducted Validation / Verification for more than 50 CDM Projects.

8 APPENDIX A: VERIFICATION PROTOCOL

Table 1 Verification requirements based on the Voluntary Carbon Standard 3.0

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1 Project implementation in accordance with the registered project design document					
a Are all physical features of the proposed VCS project activity proposed in the registered PD in place?			Yes all the physical features of the project activity are in place. The title of the project is not stated correctly. Please Clarify. The date on which the project got registered under UNFCCC is not mentioned in section 2.1 of the VCS MR, please clarify.	CL 1	OK
b Have the project participants operated the proposed VCS project activity as per the registered PD?			Yes the Project Participants have operated the project activity as per the registered PD. The latitude and longitude of the project site in section 1.7 of the VCS MR is not matching the registered PDD, please clarify.	CL 3	OK
c Was an on-site visit conducted?			Yes, the physical site visit was conducted on 11/07/2012	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d If not, justify the rationale of the decision.			Not Applicable		
e Does the implementation or operation of VCS project activity conform with the description contained in the registered PD?			Yes, the implementation and operation of VCS project activity conforms the description contained in the registered PD. However, the Project Start date as mentioned in the section 1.5 and 2.1 of the VCS Monitoring Report is not as per the VCS standards. The Project Start date as mentioned in the section 1.5 and 2.1 of the VCS Monitoring Report is not as per the VCS standards. The project crediting period as mentioned in the section 1.6 of the VCS Monitoring Report is not as per the VCS standards. The present project activity is a grouped project or not is not stated in section 1.2 of the MR. Please clarify.	CAR 1 CAR 2 CAR 3 CL 4	OK OK OK OK
f Was a notification or a request for approval of changes from the project activity as described in the registered PD submitted prior to the conclusion of the verification/certification for the corresponding?			Not Applicable		
2 Compliance of the monitoring plan with the monitoring methodology					

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
a Is the validated monitoring plan in accordance with the approved methodology applied by the proposed VCS project activity?			Yes, the monitoring plan applied by the VCS project activity is in accordance with the approved methodology.	OK	OK
b If no, was a request for revision of the monitoring plan was done? (The DOE may request for revision of the monitoring plan covering the monitoring period under verification, for approval by the VCS Board)			Not Applicable		
c Are there any monitoring aspects of the project activity that are not specified in the methodology, particularly in the case of small-scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?			There are no parameters which are not specified in the methodology which are monitored in the project activity.	OK	OK
3 Compliance of monitoring with the monitoring plan					
a Have the monitoring plan and the applied methodology been properly implemented and followed by the project participants?			Yes, the implementation of the monitoring is in line with the plan stated in registered PD and also meeting the requirements of the applied methodology. However the purpose of the data as mentioned in section 3.1 of the VCS Monitoring Report is not as per the guideline, please clarify.	OK CL 5	OK OK
b Have the previous monitoring reports been reviewed?			This is the first the 1 st verification of this project activity..	OK	OK
c Where applicable, has the impact of revision in the monitoring plan on the current verification been reviewed ?			There is no change in the monitoring plan and hence no revision is required in the current verification.	OK	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
d Does the registered/approved monitoring plan have any description of an illustration to calculate net electricity supplied to the grid by the project activity ?			Yes the project activity is a CDM registered project and the monitoring report uses the approved monitoring plan and does contain the description of an illustration to calculate net electricity supplied to the grid by the project activity.	OK	OK
e If yes to (d) above, has the verification team verified /confirmed the validity of such illustration with supporting documents ?			Yes, the appropriate documents such as Form B statements have been verified by the verification team.	OK	OK
f Have all parameters stated in the monitoring plan, the applied methodology and relevant VCS Board decisions been sufficiently monitored and updated as applicable, including:					
i Project emission parameters?			Yes	OK	OK
ii Baseline emission parameters?			Yes	OK	OK
iii Leakage parameters?			Yes	OK	OK
iv Validation of entire procedure of apportioning, if applicable			Not Applicable	-	-
v Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan?			Yes	OK	OK
g Is the accuracy of equipment used for monitoring in accordance with the relevant guidance provided by the VCS Board and are equipment controlled and calibrated in accordance with the monitoring plan?					

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
i Are monitoring results consistently recorded as per approved frequency?			The project activity uses monitoring instruments of 0.2 accuracy class trivector meter which has the facility to meter export and import electricity from the project activity, which is in accordance with the approved revised monitoring plan. In the approved Monitoring report, it is mentioned that the main and check meters will be calibrated once in a year. The verification team was able to verify from the calibration certificates that the main meter and the check meter for tests were performed..	OK	OK
ii Have quality assurance and quality control procedures been applied in accordance with the monitoring plan?			The type of equipment used to measure the monitored data is not included in section 3.2 of the VCS Monitoring Report.	CAR 4	OK
iii Has the verification team confirmed whether the applicability and correct implementation of any procedure that replaces direct calibration of meters, and any procedure that leads to calculation of parameters used in the ER determination ?			As per the information provided in the VCS Monitoring Report the time gap between the two subsequent calibration dates is observed to be more than one year. The same is not in accordance with the registered PDD. Also exact date of calibration are not mentioned in the MR. please explain. Line diagrams to display the GHG collection and management system is not included	CAR5	OK

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
			in the section 3.3 of the VCS MR. Line diagrams to display the GHG collection and management system is not included in the section 3.3 of the VCS MR. Please explain.	CAR 6	

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
4 Assessment of data and calculation of greenhouse gas emission reductions					
a Is a complete set of data for the specified monitoring period is available? (If no, i.e., only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, the DOE shall opt to either make the most conservative assumption theoretically possible in finalizing the verification report, or raise a request for deviation prior to submitting request for issuance, if appropriate).			Yes, the complete set of data for the current monitoring period is available.	OK	OK
b Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis?			Yes, the information provided in the monitoring report has been cross checked with the monthly Form- B statements.	OK	OK
c Have calculations of baseline emissions, proposed VCS project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document?			Yes, the calculations of baseline emissions, proposed VCS project activity emissions and leakage, have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology	OK	OK
d Have any assumptions used in emission calculations been justified?			There are no assumptions used in emission calculations which require justifications.	OK	OK
e Have appropriate emission factors, IPCC default values and other reference values been correctly applied?			The emission factor has been fixed ex-ante and same has been correctly applied.	OK	OK

Table 2: Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
<u>CAR 1</u> The Project Start date as mentioned in the section 1.5 and 2.1 of the VCS Monitoring Report is not as per the VCS standards. Please explain	The stated sections are modified in the revised VCS Monitoring Report attached. Although the project was registered under the UNFCCC Kyoto Protocol as a CDM project with effect from 26 March 2012, the project owner will claim VCUs until 31 March 2012 and confirms that CERs will not be claimed under the UNFCCC or any other GHG mechanism for the period 26 March 2012 until 31 March 2012 and there will be no double counting of carbon credits. The change in start date has been informed to UNFCCC and they have acknowledged the change in start date to 1 April 2012.	The start date of project activity has now been corrected and is meeting the requirements of VCS Standards. 3.0. The correction and response provided by the project participant is acceptable, hence CAR1 is closed.
<u>CAR 2</u> The project crediting period as mentioned in the section 1.6 of the VCS Monitoring Report is not as per the VCS standards. Please explain	Although the project is registered under the UNFCCC Kyoto Protocol as a CDM project with effect from 26 March 2012, the project owner wishes to claim VCUs until 31 March 2012 and confirms that CERs will not be claimed under the UNFCCC or any other GHG mechanism for the period 26 March 2012 until 31 March 2012 and there will be no double counting of carbon credits. The change in	The project activity has informed UNFCCC about the revision in the start date of crediting period. This is has been done to match the billing cycle, since the billing is done on a monthly basis and to have uniformity in claiming the emission reductions. The receipt of confirmation in the form email from UNFCCC Secretariat (dt., 07/09/2012) with respect to change in the start date

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
	start date has been informed to UNFCCC and they have acknowledged the change in start date to 1 April 2012. The stated sections are modified in the revised VCS Monitoring Report attached.	from 26/03/2012 to 01/04/2012 was submitted to the verification team. Based on this evidence CAR 2 is closed.
<u>CAR 3</u> The project got registered under UNFCCC on 26th March, 2012, whereas the PP claims the crediting period from 1st April, 2012, how pp will show that there is no double counting. Please explain	Project proponent has informed UNFCCC that we will not claim ERs from 26-Mar-12 to 31-Mar-12. Email proof attached - acknowledgement from UNFCCC received.	The receipt of confirmation in the form email from UNFCCC Secretariat (dt., 07/09/2012) with respect to change in the start date from 26/03/2012 to 01/04/2012 was submitted to the verification team. Based on this evidence CAR 3 is closed.
<u>CAR 4</u> The type of equipment used to measure the monitored data is not included in section 3.2 of the VCS Monitoring Report. Please explain	The details of equipment is included in modified section 3.2 in the revised VCS Monitoring Report attached.	The type of equipment has been stated in section 3.2 of the revised MR, the same is checked and found to be OK. Hence CAR 4 is closed.
<u>CAR 5</u> As per the information provided in the VCS Monitoring Report the time gap between the two subsequent	The first calibration as stated in the registered CDM project activity PDD was performed on 28 May 2011 and calibration for the period of one year although due after one year was performed on 14 March 2012 which is	The verification team assessed the corrections incorporated and noted that there was typographical error and the project participant in the revised MR, version 3.0 has stated the date as 14/03/2012, which is within the one year

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
calibration dates is observed to be more than one year. The same is not in accordance with the registered PDD. Also exact date of calibration are not mentioned in the MR. please explain	within the one year period mentioned in the registered CDM PDD. Hence the calibration is performed as stated.	from the date of first calibration. The same was checked and confirmed from the calibration certificate submitted by the project participant, hence based on satisfactory response and supporting evidence CAR 5 is closed.
<u>CAR 6</u> Line diagrams to display the GHG collection and management system is not included in the section 3.3 of the VCS MR. please explain	The line diagram is included in modified section 3.3 in the revised VCS Monitoring Report attached.	The line diagram has been included in section 3.3 of the revised MR, the same is checked and found to be acceptable hence CAR 6 is closed.
<u>CL 1</u> The title of the project is not written correctly. Please Clarify	Corrected.	The title of the project now matches with the title provided in the Registered CDM PDD. Hence CL1 is closed.
<u>CL 2</u> The date on which the project got registered under UNFCCC is not mentioned in section 2.1 of the VCS MR, please clarify	The date on which the project got registered under UNFCCC is not mentioned in section 2.1 of the VCS MR, please clarify	The date of registration has been provided as 26/03/2012. The same is checked and confirmed from http://cdm.unfccc.int/Projects/projsearch.html website. Hence CL2 is closed.
<u>CL 3</u>	Latitude and longitude details of each of the WTGs are now given under section 5	The geographical coordinates of each Wind Turbine Generator has been

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
The latitude and longitude of the project site in section 1.7 of the VCS MR is not matching the registered PDD, please clarify	i.e. Additional information in the revised VCS Monitoring Report attached.	corrected to match the details provided in the CDM Registered PDD. The same has been checked and found to be acceptable, hence CL3 is closed.
<u>CL 4</u> The present project activity is a grouped project or not is not stated in section 1.2 of the MR. Please clarify	The revised VCS Monitoring Report attached confirming this is not a grouped project.	The information that project activity is not a grouped project has been updated in section 1.2 of the revised Monitoring Report, hence CL4 is closed.
<u>CL 5</u> Purpose of the data as mentioned in section 3.1 of the VCS Monitoring Report is not as per the guideline, please clarify	Purpose of data used is mentioned in Section 3.1 of the revised VCS Monitoring Report attached.	The purpose of data is stated and same is checked and found to be correct. Hence CL5 is closed.