

VERIFICATION REPORT OF 25.5 MW WIND ENERGY FARM AT NANDURBAR MAHARASHTRA BY HZL



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Project Title	25.5 MW Wind Energy Farm at Nandurbar Maharashtra by HZL
Version	01
Report ID	BVC/INDIA-VER/614.49/2013

Report Title	25.5 MW Wind Energy Farm at Nandurbar Maharashtra by HZL
Client	Hindustan Zinc Limited
Pages	28
Date of Issue	05-December-2013
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Summary:

Bureau Veritas Certification has made the Gap validation and verification of the “25.5 MW Wind Energy Farm at Nandurbar Maharashtra by HZL” project of Hindustan Zinc Limited located across villages of Akhatwade, Gangapur, Vasdara, Mandal, Thanepada in Nandurbar district in Indian State of Maharashtra on the basis of Verified Carbon Standard Version 3, 8 October 2013, v3.4 as well as criteria given to provide for consistent project operations, monitoring and reporting.

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 project design and the baseline and monitoring plan;
- ii) follow-up interviews with project stakeholders;
- iii) Resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The project activity is to generate power (electrical energy) from renewable energy (wind energy), which displaces power generation from fossil fuel that would have been the scenario in absence of the project activity, thus achieve GHG emission reduction due to utilization of renewable energy.

The verification is based on the documents like Monitoring Report, Project description (PD), Emission Reduction calculations and other supporting documents provided to the verification team. This verification is carried out in accordance with VCS Standard Version 3 dated 8 October 2013 v3.4 and VCS Program Guide Version3, dated 8 October 2013 v3.5.

During the current verification, the verification team raised findings in the form of corrective action requests (CARs) and Clarification requests (CLs).

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in validated VCS-Project Description, registered CDM-PDD under CDM (UNFCCC no. 8198). Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project contributes towards GHG emission reductions. The GHG emission reduction is calculated without material mis-statements.

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Abbreviations:

VER	Verified Emission Reduction
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
BMS	Bureau Veritas Certification's Management System
CAR	Corrective Action Request
CL	Clarification Request
FAR	Forward Action Request
CO ₂	Carbon Dioxide
DOE	Designated Operational Entity
DR	Document Review
GHG	Green House Gases
I	Interview
MV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
PD	Project Description
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
CDM	Clean Development Mechanism
MU	Million Units
KW	Kilowatt
KWh	Kilowatt-hour
MW	Megawatt
MWh	Megawatt-hour
EF	Emission factor
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MSETCL	Maharashtra State Electricity Transmission Company Limited
PPA	Power Purchase agreement
JMR	Joint Meter Reading
CEA	Central Electricity Authority
PP	Project Participant
WTG	Wind Turbine Generator
WEG	Wind Energy Generator
NEWNE Grid	North East West North East Grid

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. The objective of the verification is to verify that the project is implemented as planned, to confirm that the monitoring system is in place and fully functional, and to assure that the project has generated verifiable emission reductions. This is the first verification of the project activity under VCS for the vintage from date on which actual emission reduction started i.e. 02/09/2011 (earliest date of commissioning of first WTG in the project activity) to 26/12/2012 (the dates prior to the start date of the CDM crediting period). These emission reductions are verified as per the guidance provided by VCS standards version 3 dated 8 October 2012 v3.4.

The verification shall consider both qualitative and quantitative information on emission reductions. Quantitative data comprises the monitoring report and emission reduction calculations submitted to the verifier by the project participant and qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emission reduction 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 monitoring report, revised VCS PD for supplementary validation of the project as the project activity is already registered under CDM with UNFCCC, the project's baseline study including the monitored data and other relevant documents made available to verifier and information collected through performing interviews with Project participant during on-site assessment of the project activity.. The verification follows VCS Standard version 3 dated 8 October 2012 v3.4.

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

1.3 Level of assurance

The verification team was provided with a monitoring report, covering the period 02/09/2011 to 25/12/2012 (inclusive of both the days). Based on this documentation, a document review, on-site assessment of implementation of the project activity and interview with the project participant was conducted. The Monitoring Report, version 02.2, dated 03/12/2013 covering the period from 02/09/2011 to 25/12/2012 (inclusive of both the days) serves as the basis for the assessment presented herewith.

The verification report is based on the documents made available to verification team and information provided during interviews. Based on the process and procedures conducted, it can be concluded that the GHG assertion.

1. Is materially correct and is a fair representation of GHG data and information, and
2. Has been prepared in accordance with VCS Standard Version 3 dated 8 October 2013 v3.4.

The data used for the calculation of emission reductions were taken from CEA (Central Electricity Authority), Monthly Credit Note issued by MSEDCL for net electricity exported to the grid by project activity. As per the validated VCS PD, revised VCS MR and the registered CDM-PDD with the UNFCCC (project ref. no. 7981), the calibration for the meters will be done annually by MSETCL. In this view, all the meters involved in the project activity were calibrated in the frequency of one year. There were also instances when the meters have been changed. Details of calibration and meter change are discussed in section 4.1 of this report.

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 v3.4 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 CEA database for emission factor of the grid, for which detailed testing of GHG assertion is beyond the domain of project proponent, stake holder and the verification team. In accordance with the VCS Standard 3 Version 3.4, the materiality threshold applied was one percent. The accrued emission reductions for the current monitoring period from the project activity are 61924 tCO₂e.

1.4 Summary Description of the Project

The project activity is owned by M/s Hindustan Zinc Limited. It involves the installation of Suzlon make 17 numbers Wind Turbine Generator's (WTG) of capacity 1.5 MW each (model S-82) located across Nandurbar district of Maharashtra state in India. The total capacity of the project activity is 25.5 MW and the entire power generated by the project activity will be exported to the NEWNE grid with a firm power purchase agreement with MSEDCL.

The project is registered with the UNFCCC on 27/12/2012 (UNFCCC ref no 7981) and can be viewed from the web link in the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>). The project activity generates electricity using wind energy, which does not result in any greenhouse gas (GHG) emissions. Thus, this project activity leads to a reduction in GHG emissions that would otherwise have occurred when using electricity generated from conventional fossil fuel based sources in the NEWNE grid.

The net electricity supplied to the grid is calculated by MSEDCL on the basis of main meter readings. The meters are installed on 5 feeders to which the project activity's 17 WTGs are connected 05 at the MSEDCL substation. The meter reading is issued and certified by MSEDCL in the form of credit notes which are recorded jointly in presence of Project participant's representative every month.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The overall verification, beginning from the Contract Review to Verification report & opinion, was conducted using Bureau Veritas Certification internal procedures.

The project is already registered with the UNFCCC on 27/12/2011 (UNFCCC ref no 7981) and can be viewed from the web link in the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>). The verification criteria followed by the project participant is based on the VCS standards Version 3. This is the first verification of the project activity under VCS for the vintage from date on which actual emission reduction started (02/09/2011, earliest date of commissioning of WTG in the project activity) till 26/12/2012 (one day prior to the start date of crediting period of CDM project activity). 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 current and previously approved documents related to the project activity including validation report under CDM, registered CDM PDD and revised VCS PD. The current documents include the Monitoring report for the current verification period, emission reduction spreadsheet and other supporting documents (Commissioning certificates and Credit notes issued by MSEDCL, invoices raised by the Project participant, etc.) pertaining to the current verification period. Refer to Appendix II for the list of documents.
- ii) Interviews with project stakeholders and Document Review: The second step involves the Interviews and discussion with the Project Participants and as well as review of documents mentioned under Appendix II to ensure the implementation and operation of the project activity in line with the registered CDM PDD under UNFCCC;
- 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.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix I. The supplementary validation and verification of the Project resulted in 04 Corrective Action Requests and 03 Clarification Requests.

All the CARs and CLs were closed based on adequate responses from the Project Participant(s) which meets the applicable requirements. They have been reassessed before their formal acceptance and closure. The closure of all the CARs and CLs are discussed under Appendix I of the verification report.

The project activity involves 100% monitoring of data related to emission reduction calculation. No sampling plan has been envisaged.

2.2 Document Review

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

- UNFCCC Registered CDM-PDD, CDM-Validation Report, Emission reduction spreadsheet submitted under CDM and revised VCS PD of the project activity;
- Monitoring report and emission reduction spreadsheet for the current verification period,
- Commissioning Certificates and Energy Generation System issued by TANGEDCO for each WTG, monthly Invoices raised by the Project participant for the current verification period.

Based on this documentation, a document review and an on-site assessment of implementation and emission reduction was conducted. The Monitoring Report, version 2.2, dated 03/12/2013 covering the period 02/09/2011-26/12/2012 (inclusive of both the days), serves as the basis for the assessment presented herewith.

2.3 Interviews

On 17/10/2013, during site visit, one member team from Bureau Veritas Certification performed interviews with the representative of the project participant and O & M Service provider to confirm selected information and to resolve issues identified in the document review.

Representatives of Hindustan Zinc Limited and Suzlon Energy Limited (O & M Service provider) were interviewed. The main topics of the interviews are summarized in Table below:

Interviewed organization	Interview topics
Hindustan Zinc Limited (Project Participant)	• Project implementation and changes; if any • Monitoring Plan • Monitored Data • Data recording and archiving • GHG calculation procedures • Resolution of CAR(s) and CL(s) • Change to the registered monitoring plan (if any)
Suzlon Energy Limited (O & M Service provider)	• Metering System at the site, • Technical Equipment and operation • Monitoring • Data Recording and archiving • Calibration of measuring equipment • Data uncertainty and residual risks

2.4 Site Inspections

This is first verification of the project activity under VCS for the monitoring period starting from 02/09/2011 to 25/12/2012. The physical site visit for the verification period carried out by one team member on 17/10/2013.

The verification team reviewed all the records of the sold electricity and the JMR reports (issued by the state electricity utility which is a government entity) for the current verification period and confirms that there is no change in the project design with respect to the registered PDD under CDM.

2.5 Resolution of Any Material Discrepancy

The project is registered with the UNFCCC dated 27/12/2012 (UNFCCC ref no 7981) under the project title '25.5MW Wind Energy Farm at Nandurbar, Maharashtra by HZL'. Bureau Veritas Certification has reviewed the UNFCCC registered CDM-PDD and Validation report to confirm that all the outstanding issues regarding the project activity were resolved successfully during validation under CDM. The verification team confirms that there are no remaining issues or any material discrepancy in the registered documents on UNFCCC website and supporting documents mentioned under Appendix II of this report. However, during current verification period there were 04 Corrective Action Requests and 03 Clarification Requests raised and were subsequently closed by the verification team on the basis of correct and appropriate response by the Project participant. The closure of CAR(s) and CL are discussed under Appendix I of the verification report.

2.6 Forward Action Requests

There was no forward action request raised during the CDM validation stage. During current verification period, there was no outstanding discrepancy observed by the verification team. Hence no Forward Action Request was raised.

2.7 Eligibility for Validation Activities

Bureau Veritas Certification holds accreditation for validation of sectoral scope under which the current project activity falls.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

- ❖ The project activity is registered as CDM project activity by CDM-EB on 27/12/2012 (UNFCCC ref no 7981). The UNFCCC registered PDD was used during the course of supplementary validation and the technology **used** is validated at site as described in UNFCCC registered PDD.
 - ❖ The crediting period for the Certified Emission Reductions (CER) under CDM is from 27/12/2012 as indicated on the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>). The crediting period for the VCS has been considered from 02/09/2011 to 26/12/2012; the start date of current monitoring period is from the date of commissioning of first WTG in the project activity till one day prior to the start of crediting period of CDM project activity. The project participant has provided a declaration that the project shall not claim credits for the same GHG emission reduction under the VCS and the CDM. Hence the project crediting period is acceptable to the VCS validation team.

The validation team validated the following points under the project design:

-  **Project scope, type, technologies and measures implemented, and eligibility of the project** - The project activity is applicable to 'Scope Number 1, Sectoral Scope – Energy industries (renewable/non-renewable sources). This project activity involves generation of energy (electricity) using wind energy (renewable source) conversion systems, and hence conforms to category no. 1. The project has applied approved methodology ACM0002 Version 12. and the project activity is eligible to apply this methodology. The validation team has validated the correctness of these by reviewing the registered PDD, validation report, document review such as commissioning certificates and power purchase agreement as well as interview with the project participant.
-  **Project participant** - The project participants for the project activity concerned Hindustan Zinc Limited. The validation has reviewed the Host Country Approval to confirm this.
-  **Project start date** - The project start date for the project activity concerned is the earliest date of commissioning amongst the WTGs i.e. 02/09/2011. The validation team has reviewed the commissioning certificate of all the WTGs to confirm this.

- ✚ **Project crediting period** - The project crediting period for the project activity concerned is from the earliest date of commissioning of the WTGs till one day prior to the start date of crediting period of CDM project activity. Therefore, the crediting period for the project activity is from 02/09/2011 to 26/12/2012. The validation team has reviewed the commissioning certificate of all the WTGs and date of registration from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>) to confirm this. Also the project participant has provided a declaration that the project shall not claim credits for the same GHG emission reduction under the VCS and the CDM. Hence the project crediting period is acceptable to the VCS validation team.
- ✚ **Project scale and estimated GHG emission reductions or removals** - The project activity is a large scale project activity and the estimated annual GHG emission reduction is 42912 tCO₂e annually which is less than 300,000 tCO₂e per year which is in line with paragraph 3.9.1 of the VCS standard Version 3 dated 8 October 2013 v.3.4. The validation team has validated the correctness of these by reviewing the registered PDD, validation report and emission reduction calculation sheet from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>).
- ✚ **Project activities** - In line with paragraph 3.11.9 of the Verified Carbon Standard Version 3 dated 8 October 2013 v.3.4; only a supplementary validation is to be carried out for sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of VCS - PD for all projects registered under CDM. The project description was in these sections. So further validation of the same was not been carried out by the verification team.
- ✚ **Project location**- The project activity involves the installation of Suzlon make 17 numbers Wind Turbine Generator's (WTG) of capacity 1.5 MW each in villages in Nandurbar district in Indian State of Maharashtra. The validation team has validated the accuracy of the project location from registered PDD, validation report, document review such as commissioning certificates, power purchase agreement as well as interview with the project participant and site visit conducted by one competent Validator (Part of Validation Team) on 17/10/2013.
- ✚ **Project compliance with applicable laws, statutes and other regulatory frameworks**- In line with paragraph 3.11.9 of the Verified Carbon Standard Version 3 dated 8 October 2013 v.3.4; only a supplementary validation is to be carried out for sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of VCS PD for all projects registered under CDM. The Project compliance with applicable laws, statutes and other regulatory frameworks not included under these clauses.
- ✚ **Ownership and other programs**
 - **Right of use**- The validation team has reviewed the documents like power purchase agreement, commissioning certificate, Credit notes approved and issued by MSEDCL and Calibration certificates issued by MSETCL (which substantiate the right of use for the concerned project activity).
 - **Emissions trading programs and other binding limits** - India is non-Annex-I country as recognised by the Kyoto Protocol. It can be confirmed from the UNFCCC website (http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php). Hence, there are no GHG emission reduction targets or commitments for India and it does not fall under the purview of any compliance driven Emission Trading Programs. Furthermore, there are also no such voluntary emission trading programs similar to the VCS exist in India.

- **Participation under other GHG programs-** The WTGs under the project activity has applied for CDM registration and got registered on 27/12/2012 under UNFCCC CDM EB with project reference number –7981 which can be confirmed from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>).
 - **Other forms of environmental credit sought or received-** The WTGs under the project activity has applied for CDM registration and got registered on 27/12/2012 under UNFCCC CDM EB with project reference number – 7981 which can be confirmed from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>). Thus it will earn revenue from CDM.
 - **Rejection by other GHG programs-** The project activity has applied for CDM registration and got registered on 27/12/2012 under UNFCCC CDM-EB. Other than CDM, the project activity has not being applied under other GHG programs like Gold Standard which can be confirmed from the website <http://www.cdmgoldstandard.org/our-projects/project-registry> and hence the project activity is not rejected under other GHG programs.
- ✚ **Additional information relevant to the project**
- **Eligibility criteria for grouped projects-** The project activity is not a grouped projects which can be confirmed from registered PDD, validation report, HCA and interview with the project participant.
 - **Leakage management for AFOLU projects-** The concerned project is a wind project activity and hence is not an AFOLU project.
 - **Commercially sensitive information-** There is no commercially sensitive information that has been excluded which the validation team confirms from the document review and interview with the project participant.
 - **Any further information-** There is no additional information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of project's site specific net GHG emission reductions or removals which the validation team confirms from the document review and interview with the project participant.

✚ **Validation Conclusion**

The project activity meets criteria of CDM under UNFCCC for achieving estimated emission reductions. CDM is one of the approved programs under Verified Carbon Standard (VCS). However, a supplementary validation of the sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 was carried out in line with paragraph 3.11.9 of the Verified Carbon Standard Version 3 dated 8 October 2013 v.3.4 to confirm that project is likely to achieve estimated emission reduction, which would not have been reduced in absence of the project activity.

Thus, Bureau Veritas was able to conclude based on all the above criteria that the project activity is eligible to participate under the VCS Program.

3.2 Methodology Deviations

The verification team had identified some discrepancies in the monitoring plan described in the CDM registered PDD and the corrective actions/clarifications was raised (Refer Annexure II) subsequently. The project participant revised the monitoring plan by excluding some of the monitored parameters which did not have any significant impact on computation of Emission Reductions. In fact, Project participant's consideration of only 3 monitoring parameters like $EG_{export,y}$, $EG_{import,y}$ and $EG_{facility,y}$ which are also stipulated by the approved methodology ACM 0002 version 12.3 results in more accurate values of Emission reductions. The revised monitoring plan is included in the VCS-PD during the validation stage. The verification team validated and confirms that the revised monitoring plan is in accordance with the applied methodology and by exclusion of some of the parameters like X, Y, A and B the emission reductions achieved will lead to conservative computation.

Bureau Veritas Certification hereby confirms in line with requirement as stipulated in paragraph 3.6.2 of VCS Standard Version 3, v3.4 published on 8/10/2013, that this deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario as described in CDM registered PDD and project remains in compliance with the VCS rules.

3.3 Project Description Deviations

Not Applicable

3.4 Grouped Project

Not applicable as this is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity comprises of 17 nos of WTG's, each of capacity 1.5 MW, therefore totalling a project capacity of 25.5 MW, located across Nandurbar district in Indian State of Maharashtra. All these WTGs were commissioned in period between 02/09/2011 – 29/09/2011.

During the site visit and document review of the CDM registered PDD and monitoring report, the verification team observed that the entire electricity generated from all these Wind Turbine Generator's is supplied to the grid, which is in line with the CDM registered PDD (Ref./5/). The following table provides the details of implementation in detail.

Sr. No	WTG Location No	No of WTG	Commissioning Date	Capacity (MW)
1	C-02,06,07,28,29,30,32	07	02/09/2011	10.5
2	C-05,20	02	09/09/2011	3
3	C-04,18,37,67	04	15/09/2011	6.0
4	C-03,19	02	21/09/2011	3.0

5	C-26,27	02	29/09/2011	3.0
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All these WTGs are connected on 5 different feeders in MSEDCL Gangapur substation. There is pair of main and check meter on each feeder. All these meters are of bi-directional tri-vector type with an accuracy class of 0.2s.

The main meter readings are recorded monthly by representatives of the MSEDCL and the Project Participant at the individual feeders where Project participant WTGs are also connected along with investors WTGs in the wind farm. Based on this monthly recording, the MSEDCL issues the 'Credit note' based on which the Project Participant raises an invoice for payments.

The inadequacies of Monitoring Report were reported in the CAR 4, CL 2 and CL3 in the protocol in Annexure I. The Project Participant responded with the revised monitoring report (Version 02.2, dated 03/12/2013) addressing the findings of the Verification Team along with the relevant supporting documents. The verification team verified the responses and closed CAR 4 and CL 2 and CL 3. The revised Monitoring Report addresses the issues satisfactorily and is in line with the applicable guidelines.

The verification team confirms that no information about the project activity provided in the final monitoring report is different from that stated in the CDM registered PDD other than exclusion of some of the monitored parameters as described above, and which could have caused or is likely to cause any increase in the estimates of emission reductions during the future monitoring periods.

Compliance of Monitoring with the Monitoring Plan

The monitoring plan is in accordance with the approved methodology applied by the registered CDM project activity viz; ACM 0002, version 12.3.

The primary monitoring in the project activity is that of the net electricity supplied to the state electricity grid. The verification team hereby confirms that the revised monitoring plan is in accordance with the approved methodology applied by the registered CDM project activity..

Corresponding to the Section 4 of VCS version 03, v3.4, Bureau Veritas Certification can confirm that the monitoring plan is in accordance with the approved methodology including applicable tool(s) applied by the Project.

Thus the verification team confirms that the actual operation of the project activity is in line with the description in the CDM registered PDD. There was no other data or information provided in the monitoring report that was different from the description stated in the CDM registered PDD and having caused or likely to cause any increase in the estimates of emission reductions in the future monitoring periods.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Monitoring of the project activity parameters has been carried out in accordance with the monitoring plan, contained in the CDM registered PDD.

The parameters required by the monitoring plan and the manner in which the verification team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters) including the values in the monitoring reports are described below:

- (a) Net electricity supplied to the grid ($EG_{\text{facility},y}$) – This parameter is a calculated parameter, and is deduced as the difference between Electricity exported (EG_{export}) and electricity imported (EG_{import}) by the project activity. The verification team verified the net electricity supplied by all the 17 WTG's of the project activity to the grid from the monthly Credit note issued by the MSEDCL (Ref/15/) on a monthly basis. The verification team noted that the monthly energy statement (Ref/15/) also indicates the values of the electricity export and electricity import.

$$EG_{\text{BL}, y} = EG_{\text{export}} - EG_{\text{import}}$$

Based on this statement, the Project Participant raises an invoice on MSEDCL (Ref/16/) for payment, subsequent to which payments are made. The verification team cross-checked the values of the net electricity supplied values indicated in the energy statement with the invoices raised by the Project Participant (Ref/15/). The verification team confirms that all the values of net electricity supplied to the grid are sourced from the monthly Credit Notes and are correct.

- (b) Electricity exported to the state electricity board by the project activity (EG_{yexport}) – Electricity exported to the grid is recorded by the energy meters at 05 feeders in the Gangapur substations where the all 17 WTGs are connected.. The meter readings are taken by the representatives of the State Electricity Utility viz; MSEDCL and Project participant on a monthly basis. This value was verified from the Monthly Credit Note issued by the MSEDCL to the Project participant (Ref/15/). This was further crosschecked with the invoices (Ref/16/) raised by the Project participant on MSEDCL and was found to be correct.
- (c) Electricity imported from the southern grid (EG_{yimport}) - The electricity imported by the project activity from the grid is recorded by the energy meters at 05 feeders in the Gangapur substation where all the 17 WTGs are connected, which also monitors the electricity export. The meter readings are taken by the representatives of the State Electricity Utility viz; MSEDCL and Project participant on a monthly basis. This value was verified from the Monthly Credit Notes issued by the MSEDCL to the Project Participant (Ref/15/). The invoices raised by Project participant (Ref/6/) has been used by the verification team as a cross-check against the primary data viz; the monthly credit notes and were found to be correct.

Parameters determined ex-ante:

$EF_{\text{grid}, \text{CM}, y}$, emission factor for NEWNE grid - The emission factor for the entire crediting period of the Project activity has been determined ex-ante in the CDM registered PDD. The emission factor value of 0.9529 tCO₂e/MWh used in the monitoring report has been verified against the CDM registered PDD and found to be consistent. The value is referred from CEA database. CEA is the sole authority for the publication of such data in India. It is a part of the Ministry of Power of the Government of India and therefore, is a source of authentic and credible data for the purpose of the determination of the grid emission factor.

All records like monthly energy statements, Invoice raised by the Project participant, commissioning certificates, etc. related to the project activity operations are also well maintained by the Project Participant. The data was found to be recorded diligently.

As per the methodology ACM0002 Version 12.3 and the CDM registered PDD, the emission reductions for the Project are calculated as the baseline emissions minus the project emissions and leakage. Hence the emission reduction is determined by the following formula:

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y = Emission reductions

BE_y = Baseline emissions

PE_y = Project emissions

LE_y = Leakage Emissions

Baseline Emissions

It is calculated as the product of Net electricity supplied to the grid multiplied with Grid Emission Factor and is determined using the following formula:

$$BE_y = EF_y * EG_y$$

$$= 64985.27 * 0.9529 = 61924 \text{ tCO}_2\text{e}$$

Where,

EF_y = GHG emission factor of the NEWNE Grid, calculated ex-ante in the registered PDD as 0.9529 tCO₂e/MWh

EG_y = Net electricity supplied to the grid (MWh)

Project Emissions

Project emission is considered to be nil which is in line with the applied methodology ACM 0002 version 12.3.

Leakage Emissions

No leakage needs to be considered according to ACM0002 Version 12.3

Emission reductions

The emission reductions during the monitoring period from 02/09/2011 to 26/12/2012 are calculated as:

$$ER_y = BE_y - PE_y - LE_y$$

$$= 61924 - 0 - 0$$

$$= 61924 \text{tCO}_2\text{e}$$

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The validation team confirms that all parameters stated in the registered monitoring plan were monitored throughout the current verification period and data on the same was available.

The following actions were taken to ensure that the most conservative assumption theoretically possible has been made:

1. Ensured that the data that directly affect emission reductions are from official sources.
2. The values of net electricity exported to the grid as indicated in the Credit Notes (Ref/15/) were also cross-checked with the invoices raised by the Project participant on MSEDCL (Ref/16/). All the values in the Credit Notes, invoice corresponds with each other well. The registered monitoring plan indicates the frequency of accuracy testing/ calibration of the main and check meters as once a year. The energy meters of project activity are calibrated and sealed by testing division of MSETCL (RefError! Reference source not found.-/20/) and Project participant has no role to play in the same. Following are the detail of the calibration of meters that took place during the current monitoring period.

Feeder No	Meter Serial No	Date of Calibration	Validity of calibration	Actual date of calibration	Comment	Delay
04	4961770 (MM) 4961773 (CM)	10/08/2011 - 24/08/2011	10/08/2012 - 24/08/2012	21/07/12	Error within permissible limits of error	NIL
	14796438 (MM) 1479639 (CM)	21/07/12	21/07/2013	04/10/2012	New Meters¹	
03	47380073 (MM) 4961771 (CM)	10/08/2011 - 24/08/2011	10/08/2012 - 24/08/2012	26/06/12	Error within permissible limits of error	NIL

¹ Meter changed from earlier tri vector meters to ABT Availability Based Tariff) tri vector meters of 0.2s accuracy class.

Feeder No	Meter Serial No	Date of Calibration	Validity of calibration	Actual date of calibration	Comment	Delay
	14831497 (MM) 14831498 (CM)	27/06/2012	27/06/2013	Post current verification period	New Meters²	
12	MSP32639 (MM) MSP32640 (CM)	09/08/2011	09/08/2012	30/07/12	Error within permissible limits of error	NIL
	14831484 (MM) 14796430 (CM)	30/07/12	30/07/2013	Post current verification period	New Meters³	
01	MSP32644 (MM)	08/06/2011	08/06/2012	05/10/2012	Error within permissible limits of error	4 Months
	MSP32642 (CM)					
11	MSP32637 (MM)	09/08/2011	09/08/2012	04/10/12	Error within permissible limits of error	3 Months
	MSP32638 (CM)					

As evident from above, there were instances when there was delay in calibrations of the meters connected on feeder 01 and 11 during the current monitoring period. Hence Project participant has applied an error to period when the delay has occurred. In case of Feeder 01 there was delay in calibration for about 4 months, therefore the Project participant has applied error for the entire Credit notes values for month of June 2012 to October 2012 covering period 08/06/2012 to 05/10/2012. In case of Feeder 11, there was delay in calibration in month of October 2012 for about 3 months. In line with requirement of EB 52 Annex 60, the Project participant has applied the maximum permissible error equivalent to accuracy class of the meters i.e, 0.2% for the entire credit note values for the month of August 2012 to October 2012 covering period 09/08/2012 to 04/10/2012. Calibration report for all the meters indicate that all these meters were within their permissible limits of error. The verification team confirms that the application of error as described above would lead to a conservative calculation of emission reductions.

² Meter changed from earlier tri vector meters to ABT Availability Based Tariff) tri vector meters of 0.2s accuracy class.

³ Meter changed from earlier tri vector meters to ABT Availability Based Tariff) tri vector meters of 0.2s accuracy class.

This delay in calibration can be termed as the deviation from the information provided in the project description of the CDM registered PDD. Further Verification team also noted that the energy meters and it's the frequency of calibration are not in jurisdiction of Project participant or its representatives, but are with MSEDCL. Hence Project participant do not have any role to play in the same.

In line with paragraph 3.6.2 of VCS Standard version 3, v3.4, verification team confirms that the deviation is appropriately described and the delay in calibration of meters is considered in lines with the requirement as stipulated in paragraph 04(a) of CDM-EB 52 Annex 60 "Guidelines for assessing compliance with the calibration frequency" Version 01 (Ref/21/) to readings of electricity exported and imported for the duration of delay. The verification team confirms that by application of error as per this guidelines leads to lower the baseline emissions and thus provides the conservative quantity of Emission Reductions. Hence verification team was able to conclude that although there was a deviation observed during the current verification period, the project remains in compliance with the VCS rules.

REQUIREMENTS

During the current verification period, it was observed that there were meter changes (Ref/19/-/20/) and it is evident in the table presented above. The earlier meters were of 0.2s accuracy class simple bidirectional tri-vector meters whereas the new meters installed are of special ABT meters of 0.2s accuracy class. All the meters are in jurisdiction of MSEDCL and up gradation of meters are also decided by the same authority and Project participant cannot intervene in the same.

Verification team further observed that there have been no case of meter failure or meter change apart from the meters described above during the current verification period and hence confirms there have been no instances of data uncertainty in the current verification period.

3. There were no major shutdown and/or emergencies situations during the current verification period. The verification team observed that there is no FAR raised during the validation of the project activity.

All the data was available and monitored in accordance with the registered monitoring plan. There is no instance of data not being available during the current verification period. The action taken to ensure that the most conservative assumption theoretically possible has been made by the project participant was to ensure that the data that directly affect emission reductions are taken from official sources.

Appropriate methods and formulae for calculating baseline emissions, have been followed. There are no project emissions to be considered as per the applied methodology and also since there is no transfer of equipment involved, leakage also do not apply. Hence the verification team confirms that the emission reductions claimed during the current monitoring period are conservative and reliable.

4.4 Non-Permanence Risk Analysis

Not Applicable

5 VERIFICATION CONCLUSION

The verification scope is an independent and objective review of the VCS Project description, the project's baseline study and monitoring plan and other relevant documents. The review is to verify the implementation of monitoring plan as defined in validated VCS PD. The period for verification is from 02/09/2011 to 26/12/2012 (inclusive of both the days).

The verification of the monitored data indicates the emission reductions and the amount for emission reductions for the monitoring period are provided below.

Monitoring Period		Total Emission Reductions Achieved (tCO ₂ e)
From	To	
02/09/2011	31/12/2011	4321.10
01/01/2012	26/12/2012	57603.36

The calculations of emission reductions are found to be correct. The baseline for the NEWNE regional grid has been taken for arriving at baseline emissions. The grid emission factor of 0.9529tCO₂e/MWh for NEWNE regional grid was found to be correct.

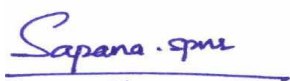
Appropriate procedures for maintaining the confidentiality and safe custody of the validation or verification documentation and for retaining them for a period sufficient to meet the needs of the client, the responsible parties, the GHG programmes to which they subscribe, and in accordance with legal and professional requirements of record retention have been established.

The verification team confirms that the project is implemented as planned and described in the Registered PDD with UNFCCC under CDM and validated VCS PD. The monitoring mechanism is effective and reliable. The reported data are accurate and correct based on all the records provided to the verification team during the verification as provided in annexure-II. The installed equipment being essential for generating the emission reductions run reliably and the measuring equipment/instruments are well within the frequency of calibration.

Verification period: From 20 October 2011 to 30 November 2012

Verified GHG emission reductions and removals in the above verification period:

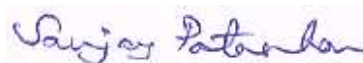
Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2011	4321.10	0	0	4321.10
2012	57603.36	0	0	57603.36
Total	61924.47	0.00	0.00	61924.47 ~ 61924



Ms. Sapana Pednekar

(Team Leader)

05/12/2013



Mr. Sanjay Patankar

(Internal Technical Review)

05/12/2013

ANNEXURE I DETAILS OF CORRECTIVE ACTIONS AND CLARIFICATION REQUESTED

Draft report clarifications and corrective action requests by validation team	Reference/ Section	Summary of project owner response	Validation team conclusion
CAR 1 The contact information on the cover page is not complete in nature as per latest version of project description template (e.g. website address and email id are not provided).	Cover page of VCS- PD	The contact information on the cover page has been corrected in revised VCS-PD version 02.	The revised VCS-PD is complete in respect to the details that were asked by the verification team. Hence CAR 1 is closed .
CAR 2 1) In section 1.2 of VCS-PD and VCS MR, category applicable to the project activity is not stated explicitly 2) Arial Font with 10 font size is not found to be consistently maintained in the entire VCS –PD and MR document 3) In section 1.3 of VCS-PD, Contact information for project proponent is not as per tabular format provided in v3.2 of VCS_PD published on 8/10/2013 4) In section 1.6 of VCS-PD, the end date of crediting period is incorrectly quoted considering the information provided in second table in section 1.7 In section 1.12.1, the details of issuing authority for Commissioning certificates and power purchase agreement are not found to be stated transparently.	1.2 of VCS PD and MR, 1.3, 1.5, 1.6, 1.7, 1.10 and 1.12.1 of VCS-PD	1) The project activity is not an AFOLU project activity same has been updated in section 1.2 of the revised VCS-PD version 02. 2) The font has been corrected as Arial 10 font size in the entire VCS-PD version 02. 3) The contact information has been corrected as per tabular format in revised VCS-PD version 02. 4) The section 1.7 has been corrected in the revised VCS-PD of version 02. 5) The details of the issuing authority of commissioning certificates and PPA signing authority have been stated in the revised VCS-PD version 02.	1. The correct category of the project activity is stated in the revised VCS-PD. Hence point 1 is closed . 2. The Arial font of size 10 is made consistent in the revised monitoring report. Hence point 2 is closed . 3. The contact information as required in tabular format is provided in the revised VCS-PD. Hence point 3 is closed . 4. The end date of crediting period i.e- 30/11/2012 is correctly stated in the revised VCS-PD. Hence point 4 is closed. 5. The details of issuing authority are now stated in the revised VCS-PD and are found to be appropriate. Hence point 5 is closed. Based on all appropriate revisions in the revised VCS-PD, CAR 2 is vacated .

Draft report clarifications and corrective action requests by validation team	Reference/ Section	Summary of project owner response	Validation team conclusion
CL 1 Project participant to provide an undertaking to confirm that Project participant shall not claim for GHG reduction credits for the period from 02/09/2011 -26/12/2012 in line with VCS Standard v3.4 published on 08/10/2013 para 3.11.2	1.12.2 of VCS-PD	The detail regarding undertaking has been mentioned in the section 1.12.4 of the revised VCS-PD version 02.	The copy of the undertaking as indicated in section 1.12.4 of VCS-PD is not provided to the verification team. Hence CL 1 is open. Review II: The Project participant has provided the undertaking and was found to be appropriate. Hence CL 01 is closed.
CAR 3 1) The description provided under section 1.12.2 is not in line with the requirement of VCS Standard Ver 3.3, paragraph number 3.11.2. 2) Description under 'Further Information' under section 1.13 is not elaborate in line with latest version of project description template. 3) The Monitoring plan described in the CDM registered PDD includes parameters like X, Y, A and B. However, these parameters do not seem to be utilised in the calculation of the emission reductions, as these are calculated from the credit note values of $EG_{export,y}$, $EG_{import,y}$ and the difference between the two, viz., $EG_{facility,y}$.	1.12.2 and 1.13 of VCS- PD Section 3.2 of VCS MR	1) The description under section 1.12.2 has been updated in the revised VCS-PD version 02. 2) The description under 'Further Information' under section 1.13 has been corrected in the revised VCS-PD version 02. 3) In the monitoring plan only the values which are used for calculation of emission reduction has been taken in section 4.2 of the revised VCS-PD version 02.	Point 1 and 2 - The description in sections 1.12.2 and 1.13 are revised in line with the requirement of the latest version of the VCS guidelines. Hence point 1 and 2 are closed. 3) The parameters like X, Y, A, B are removed by the Project participant in the VC-PD and have revised the monitoring plan. Verification team reviewed all these parameters and confirms that removal of these parameters do not impact the calculation of Emission reduction. In fact considering only 3 parameters namely $EG_{export,y}$, $EG_{import,y}$ and $EG_{facility,y}$ leads to more accurate readings which thus results in conservative estimate of ERs. Hence point 3 is closed. Based on the appropriate responses, CAR 3 is closed.
CAR 4 1. Project ID of VCS is not provided on cover page of VCS-monitoring report.	VCS MR-	1. Project ID of VCS has been stated in the revised VCS-MR version 02.	1. The VCS Project ID is quoted correctly in the revised monitoring report. Hence Point 1 is closed.

Draft report clarifications and corrective action requests by validation team	Reference/ Section	Summary of project owner response	Validation team conclusion
2. In section 1.1, 1.3 and section 1.9, 4.1 and 4.4 the information provided is not as per requirement of latest version of monitoring report template v3.3. 3. The details of Project Locations including name of district, region, name of the India State etc., are not transparently stated in the section 1.7 of VCS-MR apart from Geo-coordinates provided 4. In Section 1.8, the list of tools applicable to the project activity is not found to be stated in line with the information provided in the CDM registered PDD. 5. Section 2.2, 3.1 and 3.2 to be revised as per latest version 3.3 of VC-monitoring report. 6. In section 3.2, under monitoring equipment, the meters used to monitor the data/parameter including type, accuracy class, and serial number of equipment, are not provided. 7. In section 4.1, the equation provided for calculation of Baseline Emission (BE_y) is inconsistent with the equation stated in the registered PDD section B.6.3.	cover page, Section 1.1, 1.3 and 1.9 Section 1.7 ection 1.8 Section 2.2, 3.1 and 3.2 Section 3.2 Section 4.1	2. The sections 1.1, 1.3, 1.9, 4.1 and 4.4 have been corrected in the revised VCS-MR version 02. 3. The details of project location has been included in section 1.7 of the revised VCS-MR version 02. 4. The tools applicable to the project activity has been stated in line with CDM registered PDD in revised VCS-MR version 02. 5. Section 2.2, 3.1 and 3.2 has been revised as per latest version of MR template in revised VCS-MR version 02. 6. Meters details have been added as Annexure 1 of the revised VCS-MR version 02. 7. The equation for calculation of BE_y is consistent in section 4.1 with the equation stated in the registered PDD in the revised VCS-MR version 02.	2. The information in sections 1.1, 1.3, 1.9, 4.1 and 4.4 are now provided correctly. However, the WTG model no indicated in section 1.1 is incorrect as compared to the WTG model type observed during the site visit. Point 3 is open. Review II: The WTG model is now correctly stated in the revised monitoring report. Hence point 3 is closed The details of project location are provided in the revised VCS-monitoring report and are found to be appropriate. Hence point 3 is vacated. 3. The list of applicable tools has been provided in the revised VCS-monitoring report and is in line with the CDM Registered PDD. Hence point 4 is closed. 4. The VCS-monitoring report is revised in line with the latest version of the VCS-monitoring report template and found to be correct. Hence point 5 is closed. 5. The details of the meters have been provided in the Annexure of report. Hence point 7 is closed. 6. The correct equation is incorporated in the revised VCS-monitoring report. Hence point 7 is closed. Based on appropriate responses, CAR 4 is vacated.
CL 2 1) It is not evident from the ER sheet or monitoring report description, whether there was any apportioning applied for the mismatch of dates with the billing cycle at the end of the current	Section 3.3, and ER sheet	A note has been added in the ER sheet for the apportioning applied for the mismatch of dates with the billing cycle.	The details of the same were not found to be stated in section 3.3 of VCS-monitoring report and ER sheet. Hence this point is open. Review II: The apportioning procedure has been

Draft report clarifications and corrective action requests by validation team	Reference/ Section	Summary of project owner response	Validation team conclusion
monitoring period. Kindly clarify.			followed at the end of the current monitoring period ie, 26/12/2012. The Credit note for the month of December 2012 is till 30 Dec 2012, whereas the period under consideration is only 26/12/2012. Hence the emission reductions achieved till 26/12/2012 have to be considered for which apportioning procedure has been applied. Verification team reviewed the same and observed that this leads to conservative computation of emission reduction. Hence CL 2 is closed.
CL 3 The details of calibrations with explicit details of replacement of meters, type of meters, accuracy class of meters, etc are not provided in the table provided in Annexure I of the monitoring report.	Annexure I	Details of the Calibration and replacement of the meters, type of meters, accuracy class of meters provided.	The details of calibration are correctly provided in the revised VCS-monitoring report and documents related to calibration, meter change were also reviewed and found to be correct. Hence CL3 is closed.

ANNEXURE II DOCUMENTS REFERRED DURING VERIFICATION AND VALIDATION OF THE PROJECT ACTIVITY

- /1/ VCS Monitoring Report, version 01, dated 02/09/2013
- /2/ Final VCS MR version 2.2 dated 03/12/2013
- /3/ VCS Project Document , dated 17/08/2013 version 01
- /4/ Final VCS PD version 2.1 dated 03/12/2013
- /5/ CDM PDD registered with UNFCCC project reference no. 7981
- /6/ Validation report vide ref no 2012-0265 (revision 05) registered with UNFCCC under CDM with reference no. 7981
- /7/ Estimated Emission Reduction Calculation Sheet as per registered project UNFCCC reference no 7981
- /8/ VCS Monitoring report template Current Version: v3.3 dated on 8 October 2013
- /9/ Blank VCS PD Format with Guidelines for completion of VCS Project description template Version: v3.3 dated 8 October 2013
- /10/ Verified Carbon Standard Version 3, v3.4 dated 8 October 2013 v.3.3
- /11/ VCS Program Guide Version 3 v3.5 dated 8 October 2013
- /12/ Verified Emission Reduction Calculation Sheet
- /13/ Proof of registration as CDM Project activity (<http://cdm.unfccc.int/Projects/DB/DNV-CUK1351776938.73/view>)
- /14/ Commissioning certificate for all the WTGs of the project activity
- /15/ Monthly Credit Notes issued by MSEDCL for the current verification period
- /16/ Copy of all invoices raised to MSEDCL by Project participant for net electricity exported to the grid for the current verification period
- /17/ Declaration from Hindustan Zinc Limited that the project shall not claim credits for the same period under any other GHG program dated 10/11/2013
- /18/ Calibration certificate for year 2011 and 2012 issued by MSETCL
- /19/ Meter Replacement report dated 30/07/2012 for Main and Check meters connected on Feeder no 03 and 12
- /20/ Meter Replacement report dated 25/07/2012 for Main and Check meters connected on Feeder no 04
- /21/ Guidelines for assessing compliance with the calibration frequency Version 01, CDM-EB 52, Annex 60

ANNEXURE III: LIST OF PERSONS INTERVIEWED

List persons interviewed during the verification process or persons that contributed with other information that are not included in the documents listed above.

/1/	Mr. Harish Khodiyar	Manager, Suzlon Energy Limited
/2/	Mr. Prakash Sonar	Asst Manager, Suzlon Energy Limited
/4/	Mr. Bhagwan Lal Ahuja	Asst General Manager, CDM Cell, Hindustan Zinc Limited
/4/	Mr. Vishnu Khandelwal	CDM Cell, Hindustan Zinc Limited

ANNEXURE IV

CURRICULA VITAE OF THE VALIDATION AND VERIFICATION TEAM MEMBERS

Ms. Sapana Pednekar - Team Leader

Bureau Veritas Certification, Lead Verifier - Climate change

She is a Post Graduate in Environmental Science from University of Pune, India and holds a PGDBA in Financial Management from Welinkars School of Management. She has total Industrial work experience of 8 years in the field of environmental studies of which more than 4 years' experience is in the field of CDM and VCS. She is working in Bureau Veritas Certification (India) Pvt. Ltd. for last more than 3 years and has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of more than 30 CDM/ VCS project activities. She has undergone and successfully completed ISO 14001:2004 standard, ISO 50001:2011 standard Lead Auditor Courses and ISO 14064:2006 Standard Lead verifier course.

Mr. Pratik Bhattacharya – Team Member

Bureau Veritas Certification, Lead Verifier - Climate change

Graduate in Mechanical Engineering from Kavikulguru Institute of Technology and Science (Nagpur University) and Post graduate Diploma in Energy Management from Indian Institute of Social Welfare and Business Management (Calcutta University) and Certified Energy Auditor under Bureau of Energy Efficiency (Government of India, Ministry of Power). He has around 4 years of experience in System Designing (HVAC) and Energy Auditing. He has undergone intensive training on Clean Development Mechanism and Environment Management System. He is involved in validation and Verification of CDM and VCS projects activities.

Mr. Pramod D Kamble (Team Member)

Bureau Veritas Certification, Verifier - Climate Change

Graduate in Chemical Engineering from Mumbai University (MUICT). He has prior experience in CDM, VCS and CCX projects development. He has undergone intensive training on Clean Development Mechanism and completed CDM Verifier/Lead Verifier training course. He has hands on experience in carrying out energy audits for energy industries and buildings. At present he is involved in the Validation/verification of CDM and VCS projects.

Sanjay Patankar, Internal Technical Reviewer

Bureau Veritas Certification, Lead verifier – Climate Change

Educational qualifications: B.E. (Mech.) M.E. (Mech.)

He has over 20 years of experience in engineering manufacturing industry covering various functions like enterprise management, product design, engineering, tool & die design, improvements in the production shop, quality assurance & control and systems planning and implementation, including ISO 9001 based quality management systems. Working for the last 3 years in Bureau Veritas Certification (India) Pvt. Ltd. as Lead Auditor for ISO 9001, 14001 and OHSAS 18001 standards/specifications.