

VERIFICATION REPORT OF WIND ENERGY PROJECT BY RAMCO GROUP IN INDIA



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¹ Erstwhile known as Madras Cements Limited and is confirmed from Certificate of Incorporation issued by Registrar of Company.

Summary:

Bureau Veritas Certification has carried out verification of the “Wind energy Project by Ramco group in India” project of The Ramco Cements Ltd which was erstwhile known as Madras Cements Limited located across Tiruenveli, Dindigul and Tirupur districts of Tamil Nadu and Hassan and Chitradurga districts in Karnataka state, Indian 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, Emission Reduction calculation spreadsheet, Validated project description and validation report and other supporting documents made available to the verification team by the Project participant. 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 (PD) and the validation report, 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
TNEB	Tamil Nadu State Electricity Board
BESCOM	Bangalore Electricity Supply Company Ltd
CESC	Chamundeshwari Electricity Supply Corporation Ltd
PPA	Power Purchase agreement
JMR	Joint Meter Reading
CEA	Central Electricity Authority
PP	Project Participant
WTG	Wind Turbine Generator
WEG	Wind Energy Generator
SR Grid	Southern Regional 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 third verification of the project activity under VCS for the vintage from 01/04/2011 to 30/06/2013. 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, 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 consultation towards 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 01/04/2011 to 30/06/2013 (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 4.0, dated 17/10/2014 covering the period from 01/04/2011 to 30/06/2013 (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), JMR issued by Tamil Nadu Electricity Board (TNEB), Bangalore Electricity Supply Company Ltd (BESCOM) and Chamundeshwari Electricity Supply Corporation Ltd (CESC) for net electricity exported to the grid by project activity. As per the validated VCS PD, revised VCS monitoring report the calibration for the meters will be done once in five years by respective State utility in which the project activity is installed. In this view, all the meters involved in the project activity were calibrated in the frequency of five years. 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 'reasonable.' 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 661206 tCO₂e.

1.4 Summary Description of the Project

The project activity is owned by M/s The Ramco Cements Limited erstwhile known as Madras Cements Limited. The name change of the Project participant was confirmed through Certificate of Incorporation consequent upon change of name (Ref/15/). The project involves installation of 159.75MW wind power project comprising of 136 WTGs located across Tirunelveli, Dindigul and Tirupur districts of Tamil Nadu, and Hassan and Chitradurga districts of Karnataka. The details of the WTGs are provided in the following table.

Company	Number of WTGs	Capacity (kW per WTG)	Total Capacity (kW)	Make	Utilisation
The Ramco Cements Limited (RML)	24	1,650	39600	Vestas	Export to Grid
	11	1,650	18,150	Vestas	Captive Consumption
	10	800	8000	Enercon	Captive Consumption
	43 ²	800	34400	Enercon	Export to Grid
Thanjavur Spinning Mills Limited (TSML)	4	1,250	5000	Suzlon	Captive Consumption
Shri Vishnu Shankar Mill Limited (SVSML)	6	1,250	7500	Suzlon	Captive Consumption
	1	1,650	1650	Vestas	
Rajapalayam Mills Ltd (RML)	10	1,250	12,500	Suzlon	Captive Consumption
	2	1,650	3300	Vestas	

² WTGs linked to HTSC no D-140 and D-31 have undergone a change in arrangement from sale to board to captive consumption in year November and July 2011 respectively.

Company	Number of WTGs	Capacity (kW per WTG)	Total Capacity (kW)	Make	Utilisation
Sandhya Spinning Mill Limited (SSML)	4	1,250	5000	Suzlon	Captive Consumption
	1	350	350	Suzlon	
Sudarshan Spinning Mills (SSM)	3	1,250	3750	Suzlon	Captive Consumption
	1	1,650	1650	Vestas	
Rajapalayam Textile (RT)	1	1,250	1250	Suzlon	Captive Consumption
Ramco Industries Limited (RIL)	6	1,250	7500	Suzlon	Captive Consumption
	2	800	1600	Enercon	Export to Grid
	1	1500	1500	Suzlon	
	2	1,650	3300	Vestas	
	1	500	500	Vestas	Captive Consumption
	1	750	750	Vestas	
Rajapalayam Spintext	2	1,250	2500	Suzlon	Captive Consumption
Total	136		159750		

The project activity would generate about 324 GWh of electricity annually which would replace equivalent amount of electricity at the Tamil Nadu Electricity board (TNEB), Bangalore Electricity Supply Company Ltd (BESCOM) and Chamundeshwari Electricity Supply Corporation Ltd (CESC) which forms part of Southern regional grid.

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 Southern Regional grid.

During current verification period, out of 136 WTGs, 67 no of WTGs are registered with the UNFCCC under CDM on 18/10/2012 (UNFCCC ref no 7647). Hence as indicated in the validated VC-PD the emission reduction achieved from these WTGs from the date of start of crediting period i.e.01/11/2012 are not considered under current monitoring period.

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 verification criteria followed by the project participant is based on the VCS standards Version 3. This is the third verification of the project activity under VCS for the vintage from date 01/04/2011 to 31/06/2013. The verification process consists of following activities:

- i) Desk review of the validated 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, VCS PD, previous verification documents. The current documents include the Monitoring report for the current verification period, emission reduction spreadsheet and other supporting documents (JMR issued by TNEB, BESCO, CESC, 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 validated VCS PD;
- 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 verification of the Project resulted in 05 Corrective Action Requests (CARs) and 02 Clarification Requests (CLs) and 01 forward action request (FAR) from validation stage.

All the CARs and CLs were closed based on adequate responses from the Project Participant(s) which meets the applicable requirements. The FAR raised at the validation stage was also verified during current verification and verification team confirm that the WTGs registered under CDM equivalent to 74MW are not considered in the current verification from the date of its registration with UNFCCC i.e. 18/10/2012. The lists of the HTSCs where the 67 are connected to the WTGs that are registered under CDM now are as follows:

D 97	D 98	D 99	D 100	D 101	D 102	D 115	D 116	D 117	D 118	D 119	D 120
D 121	D 122	D 129	D 132	D 133	D 134	D 135	D 136	D 137	D 138	D 139	D 140
2357	2358	2359	2360	2361	2362	2367	2368	2505	2506	2507	2509
2510	2522	2616	2629	1459	1460	1464	1465	1468	1469	1522	1532

The verification team has verified based the documents and Emission reduction calculations submitted by the Project participant and confirms that the Project participant has not claimed emission reduction achieved from the above listed HTSC's from 01/11/2012, the date from which its crediting period under CDM starts. Verification team noted that although these HTSC are registered with UNFCCC under CDM on 18/10/2012, the crediting period under CDM starts only from 01/11/2012, hence Project participant has considered emission reductions from these HTSC only till 31/10/2012. Thus it is ensured that there is no double counting of the emission reductions claimed under both the schemes i.e. under CDM and VCS from the above listed HTSC connecting 67 WTGS. Thus FAR 01 is closed.

The CARs and CLs 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:

- Validated VCS PD of the project activity, VCS Validation report, UNFCCC Registered CDM-PDD, CDM-Validation Report, previous Verification reports and monitoring reports;
- Monitoring report and emission reduction spreadsheet for the current verification period,
- JMR issued by TNEB, BESCOM, CESC, 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 4.0, dated 17/10/2014 covering the period 01/04/2011-30/06/2013 (inclusive of both the days), serves as the basis for the assessment presented herewith.

2.3 Interviews

During site visits conducted on 22/10/2013 (for Hassan site), 23/10/13 (for Chitradurga site), 12/11/2013 and 13/11/2013 for Tamil Nadu sites, one member team from Bureau Veritas Certification performed interviews with the representative of the project participant and O & M Service providers to confirm selected information and to resolve issues identified in the document review.

Representatives of The Ramco Cements Limited and O & M Service providers like M/s Enercon India Limited³, M/s Suzlon Energy Limited and M/s Vestas) were interviewed. The main topics of the interviews are summarized in Table below:

Interviewed organization	Interview topics
The Ramco Cements 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)
Wind World Energy Limited, Suzlon Energy Limited and Vestas Energy Limited (O & M Service providers)	• 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

³ Enercon India Limited is now known as Wind World India Limited

This is third verification of the project activity under VCS for the monitoring period starting from 01/04/2011 to 30/06/2013. The physical site visit for the verification period carried out by one team member on 22/10/2013 (for Hassan site), 23/10/13 (for Chitradurga site), 12/11/2013 and 13/11/2013 for Tamil Nadu sites.

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. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipment, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the validated PD. There are no major changes in the key equipment since the validation of the project. Also no change is envisaged. These facts have been verified during the site visit.

2.5 Resolution of Any Material Discrepancy

The verification team confirms that there are no remaining issues or any material discrepancy in the registered documents on VCSA website and supporting documents mentioned under Annexure II of this report. However, during current verification period there were 05 Corrective Action Requests and 02 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 Annexure I of the verification report.

2.5.1 Forward Action Requests

There was one forward action request raised during the validation stage. During current verification period, there was no outstanding discrepancy observed by the verification team. Hence Forward Action Request was closed and is described in the above section of the report.

2.6 Eligibility for Validation Activities

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

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

- ❖ The project activity is undergoing 3rd verification under VCS. However, out of the total 136 WTGs, 67 WTGs have been registered under CDM project activity by CDM-EB on 18/12/2012 (UNFCCC ref no 7647).
- ❖ The crediting period for the Certified Emission Reductions (CER) under CDM is from 01/11/2012 as indicated on the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/SGS-UKL1349793965.06/view>). The Project participant has considered emission reductions achieved from these CDM registered WTGS only till last day of October 2012.i.e. 31/10/2012 which is 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 simultaneously. Hence the project crediting period is acceptable to the VCS verification team.

- ✚ **Project scope, type, technologies and measures implemented, and eligibility of the project** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project participant** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project start date** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project crediting period** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project scale and estimated GHG emission reductions or removals** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project activities** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project location** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Project compliance with applicable laws, statutes and other regulatory frameworks** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- ✚ **Ownership and other programs**
 - **Right of use** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
 - **Emissions trading programs and other binding limits** - This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
 - **Participation under other GHG programs** - The 67 out of total 136 WTGs under the project activity had been applied for CDM registration and got registered on 18/10/2012 under UNFCCC CDM EB with project reference number –7647 which can be confirmed from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/SGS-UKL1349793965.06/view>)
 - **Other forms of environmental credit sought or received** - The 67 out of total 136 WTGs under the project activity had applied for CDM registration and got registered on 18/10/2012 under UNFCCC CDM EB with project reference number – 7647 which can be confirmed from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/SGS-UKL1349793965.06/view>). Thus it will earn revenue from CDM for these WTGs.

- **Rejection by other GHG programs-** 67 out of total 136 WTGs under the project activity had applied for CDM registration and got registered on 18/10/2012 under UNFCCC CDM EB with project reference number – 7647 which can be confirmed from the UNFCCC website (<http://cdm.unfccc.int/Projects/DB/SGS-UKL1349793965.06/view>). Other than CDM, the project activity has not 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-** This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- **Leakage management for AFOLU projects-** The concerned project is a wind project activity and hence is not an AFOLU project.
- **Commercially sensitive information-** This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.
- **Any further information-** This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.

Validation Conclusion This is third periodic verification for the registered VCS project activity with project ID 669. Hence this section is not applicable.

3.2 Methodology Deviations

Not Applicable

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 136 nos of WTGs totalling a project capacity of 159.75 MW, located across Tirunelveli, Dindigul and Coimbatore districts of Tamil Nadu, and Hassan and Chitradurga districts of Karnataka. The electricity generated from all these WTGs is sold to southern grid of India and used for captive consumption in Ramco group industries which also replaces the grid electricity from southern grid of India. There are no changes in the Key equipment since the validation of the project during the monitoring period.

The net electricity supplied to the grid or supplied for captive use is calculated by exported electricity minus imported electricity and wheeling charge (if applicable). An energy meter is installed at the WTG to account the electricity supplied to the grid. The main meter readings are recorded monthly by representatives of the respective electricity board (TNEB or BESCOM/ CESC) and Project participant's representative. The verification team confirmed that the monitoring procedure implemented and followed is as per the registered monitoring plan.

Based on this monthly recording, the state electricity board issues the 'joint meter reading (JMR) termed as Statement of Energy in case of Tamil Nadu site and Form B in case of WTGs installed in Hassan and Chitradurga sites in Karnataka State.

The inadequacies of Monitoring Report were reported in the CAR 1 and 2 in the protocol in Annexure I. The Project Participant responded with the revised monitoring report (Version 4, dated 17/10/2014) addressing the findings of the Verification Team along with the relevant supporting documents. The verification team verified the responses and closed CAR 1 and 2. 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 VCS Validated PD 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 project activity viz; ACM 0002, version 10.

The primary monitoring in the project activity is that of the net electricity supplied to the respective state electricity grid. The verification team hereby confirms that the monitoring plan is in accordance with the approved methodology applied by the 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 VCS Validated PD. There was no other data or information provided in the monitoring report that was different from the description stated in the VCS validated PD 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 VCS Validated PD.

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_{y} or $EG_{PJ,y}$) – This parameter is a calculated parameter, and is deduced as the difference between Electricity exported and electricity imported by the project activity in case of the electricity sold to the grid whereas in case of electricity used for captive consumption, the wheeling charges are deducted from the net export. The verification team verified the net electricity supplied by all the 136 WTG's of the project activity to the grid from the monthly JMR issued by the respective state electricity board.(Ref/11/) on a monthly basis. The verification team noted that the monthly energy statement (Ref/11/) also indicates the values of the electricity export and electricity import and wheeling charges wherever applicable. The verification team confirms that all the values of net electricity supplied to the grid are sourced from the monthly JMRs and are correct.

Parameters determined ex-ante:

$EF_{grid, CM,y}$, emission factor for Southern regional grid - The emission factor for the entire crediting period of the Project activity has been determined ex-ante in the VCS validated PD. The emission factor value of 0.92694 tCO₂e/MWh used in the monitoring report has been verified against the VCS validated PD 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, 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 10 and the VCS validated PD, 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:

$$BE_y = EF_y * EG_y$$

$$= 713321.57 * 0.92694 = 661206 \text{ tCO}_2\text{e}$$

Where,

EF_y = GHG emission factor of the Southern Regional Grid, calculated ex-ante in the registered PD as 0.92694 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 10.

Leakage Emissions

No leakage needs to be considered according to ACM0002 Version 10

Emission reductions

The emission reductions during the monitoring period from 01/06/2011 to 30/06/2013 are calculated as:

$$ER_y = BE_y - PE_y - LE_y$$

$$= 661206 - 0 - 0$$

$$= 661206 \text{ tCO}_2\text{e}$$

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 JMR were found to be correctly considered (Ref/11/). The registered monitoring plan indicates the frequency of accuracy testing/ calibration of the main and check meters as once in 5 years. The energy meters of project activity are calibrated and sealed by testing division of TNEB and BESCOM/ CESC (Ref/13/) and Project participant has no role to play in the same. Following are the details of the calibration of meters that took place for the project activity.

HTSC No	Meter Serial No	Date of Calibration	Validity of calibration	Actual date of calibration	Comment
Pushpathur					
D97	04892635	10.05.2010	10.05.2015	Post current verification period	Error is within permissible limits of error
D98	04892637	06.05.2010	06.05.2015		
D99	04892636	06.05.2010	06.05.2015		
D100	04892640	10.05.2010	10.05.2015		
D101	04892641	10.05.2010	10.05.2015		
D102	04892642	10.05.2010	10.05.2015		
D115	04901370	10.05.2010	10.05.2015		
D116	04959597	10.05.2010	10.05.2015		
D117	04901300	06.05.2010	06.05.2015		
D118	TN902861	14.12.2011	14.12.2016		
D119	10267837	27.11.2010	27.11.2015		
D120	04959602	06.05.2010	06.05.2015		
D121	04901297	06.05.2010	06.05.2015		
D122	04901981	10.05.2010	10.05.2015		
D129	04901369	10.05.2010	10.05.2015		
D132	04901448	10.05.2010	10.05.2015		
D133	04901431	10.05.2010	10.05.2015		
D134	04901367	06.05.2010	06.05.2015		
D135	TN902395	07.10.2011	07.10.2016		
D136	04938074	10.05.2010	10.05.2015		
D137	HT02120283	10.05.2010	10.05.2015		
D138	04938076	10.05.2010	10.05.2015		
D139	04938077	06.05.2010	06.05.2015		
D140	TN902403	15.10.2011	15.10.2016		
2357	12090151	21.03.2012	21.03.2017		
2358	TN 902008	11.07.2011	11.07.2016		
2359	13192519	07.04.2010	07.04.2015		
2360	04881133	07.04.2010	07.04.2015		
2361	TNB 04109	07.04.2010	07.04.2015		
2362	12091943	04.05.2012	04.05.2017		
2367	12091957	09.04.2013	09.04.2018		
2368	04892607	07.04.2010	07.04.2015		
2505	09593234	19.12.2011	19.12.2016		
2506	09593235	06.04.2010	06.04.2015		
2507	09593236	19.12.2011	19.12.2016		
2509	09593237	19.12.2011	19.12.2016		
2510	09593239	06.04.2010	06.04.2015		
2522	09593240	06.04.2010	06.04.2015		
2616	10287890	06.04.2010	06.04.2015		
2629	12092089	27.09.2013	27.09.2018		

HTSC No	Meter Serial No	Date of Calibration	Validity of calibration	Actual date of calibration	Comment
U1459	13192511	11.05.2010	11.05.2015		
U1460	12091961	09.05.2012	09.05.2017		
U1464	04892595	11.05.2010	11.05.2015		
U1465	HT2110724	12.10.2011	12.10.2016		
U1468	04889975	26.04.2010	26.04.2015		
U1469	04889961	26.04.2010	26.04.2015		
U1522	TN9 01621	21.04.2011	21.04.2016		
U1532	04901343	26.04.2010	26.04.2015		
D31	04863 755	12.07.2011	12.07.2016	Post current verification period	Error within permissible limits of error
D69	04 865 527	06.05.2010	06.05.2015		
D76	04 865 537	06.05.2010	06.05.2015		
D77	04 865 532	23.11.2011	23.11.2016		
1528	04 725 718	12.01.2010	12.01.2015		
1529	04 725 717	12.01.2010	12.01.2015		
1530	04 725 659	12.01.2010	12.01.2015		
1531	04 725 723	18.05.2012	18.05.2017		
2037	04 862 846	22.05.2012	22.05.2017		
2038	04 804 661	22.05.2012	22.05.2017		
2039	04 804 669	29.02.2012	29.02.2017		
2067	04 863 470	22.05.2012	22.05.2017		
2068	04 863 656	22.05.2012	22.05.2017		
U1310	04 804 784	08.05.2012	08.05.2017		
U1311	TNB 03943	08.05.2012	08.05.2017		
271	02 350 217	27.04.2010	27.04.2015		
426	02 332 453	07.04.2010	07.04.2015		
468	02 261 066	29.09.2011	29.09.2016		
510	02 307 301	07.04.2010	07.04.2015		
630	02 329 694	29.09.2011	29.09.2016		
1383	04 698 100	05.04.2010	05.04.2015		
1384	02 139 995	05.04.2010	05.04.2015		
1525	04 725 704	07.04.2010	07.04.2015		
1526	04 725 703	22.07.2010	22.07.2015		
ELP-27	05 436 131	24.07.2009	24.07.2014		
H-31	7041039	25.11.2008	25.11.2013		
978	04 668 106	05.04.2010	05.04.2015		
973	02 369 488	06.04.2010	06.04.2015		
975	02 373 870	06.04.2010	06.04.2015		
977	02 373 869	06.12.2010	06.12.2015		
631	02 329 213	06.04.2010	06.04.2015		
632	02 329 668	06.04.2010	06.04.2015		
1422	02 329 045	05.04.2010	05.04.2015		
1468	02 211 299	05.04.2010	05.04.2015		
1044	04 954 012	06.04.2010	06.04.2015		
578	02 329 038	05.04.2010	05.04.2015		
579	02 329 029	05.04.2010	05.04.2015	Post current verification period	Error within permissible limits of error
926	02 369 497	05.04.2010	05.04.2015		
1540	04 725 715	06.11.2012	06.11.2017		
587	02 329 020	06.04.2010	06.04.2015		

HTSC No	Meter Serial No	Date of Calibration	Validity of calibration	Actual date of calibration	Comment
588	02 329 035	06.04.2010	06.04.2015	Post current verification period	Error within permissible limits of error
974	02 373 975	09.10.2012	09.10.2017		
976	04 863 697	06.04.2010	06.04.2015		
1333	04 681 386	05.04.2010	05.04.2015		
1354	02 139 993	05.04.2010	05.04.2015		
1527	04 725 661	07.04.2010	07.04.2015		
625	02 329 669	06.04.2010	06.04.2015		
626	04 863 456	06.04.2010	06.04.2015		
1041	02 373 988	26.02.2011	26.02.2016		
1748	04 804 619	06.04.2010	06.04.2015		
576	02 329 028	05.04.2010	05.04.2015		
577	02 329 022	05.04.2010	05.04.2015		
944	02 373 974	05.04.2010	05.04.2015		
972	02 373 951	26.02.2011	26.02.2016		
979	02 373 871	05.04.2010	05.04.2015		
980	04 668 107	05.04.2010	05.04.2015		
1022	02 377 867	05.04.2010	05.04.2015		
1347	04 691 177	26.02.2011	26.02.2016		
1348	04 681 410	26.02.2011	26.02.2016		
1467	04 719 785	05.04.2010	05.04.2015		
1582	04 726 575	07.04.2010	07.04.2015		
1691	04 726 621	07.04.2010	07.04.2015		

As evident from above, there are no instances when there was delay in calibrations of the meters connected during the current monitoring period. 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 respective State Electricity Boards wherein project activity is located. Hence Project participant do not have any role to play in the same.

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 below.

HT SC No.	Old Meter Serial No.	New Meter Sr. No.	Accuracy Class
MCL Pushpathur			
D118	04901299	TN 902861	0.2s
D135	04901426	TN 902395	0.2s
D140	04938075	TN 902403	0.2s
MCL Thandyarkulam			
2357	04881134	12090151	0.2s
2358	04881100	TN 902008	0.2s
2362	TN 900279	12091943	0.2s
2367	04892606	12091957	0.2s
MCL – Udumalpet			

HT SC No.	Old Meter Serial No.	New Meter Sr. No.	Accuracy Class
U1460	04889948	12091961	0.2s
U1465	04901980	HT 2110724	0.2s
U1522	04938080	TN 901621	0.2s
MCL Pushpathur			
D31	04863755	10287921	0.2s
D77	04865532	TN 902737	0.2s
MCL – Uthumalai			
1531	TN04107	12091967	0.2s
2037	TNB04543	12090189	0.2s
2038	04804661	12090191	0.2s
2039	04804669	TN902719	0.2s
2067	08040605	12090200	0.2s
2068	04863822	12090182	0.2s
MCL-Udumalpet			
U1310	04804784	12091965	0.2s
U1311	TNB 03943	12091962	0.2s
RIL			
1540	0840579	12092147	0.2s
1525	04725704	09593368	0.2s

The earlier meters were of 0.5 accuracy class bidirectional tri-vector meters whereas the new meters installed are of 0.2s accuracy class. All the meters are in jurisdiction of TNEB and up gradation of meters are also decided by the same authority and Project participant cannot intervene in the same. Verification team observed that 0.2s class meters are more precise and accurate as compared to earlier installed meters. Hence the readings recorded by these meters would lead to recording of more accurate readings thus leading more precise calculation of emission reductions. 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.

- There were no major shutdown and/or emergencies situations during the current verification period.

All the data was available and monitored in accordance with the approved 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 01/04/2011 to 30/06/2013 (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	
01/04/2011	31/12/2011	263655
01/01/2012	31/12/2012	319205
01/01/2013	30/06/2013	78346

The calculations of emission reductions are found to be correct. The baseline for the Southern regional grid has been taken for arriving at baseline emissions. The grid emission factor of 0.92694tCO₂e/MWh for Southern regional grid was found to be correct.

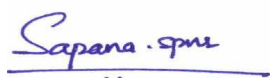
Appropriate procedures for maintaining the confidentiality and safe custody of the validation or verification documentation and for retaining them for a period sufficient to meet the needs of the client, the responsible parties, the GHG programmes to which they subscribe, and in accordance with legal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

The verification team confirms that the project is implemented as planned and described in the VCS validated 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 01 April 2011 to 30 June 2013

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

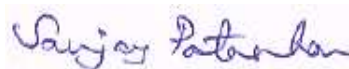
Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2011	263655	0	0	263655
2012	319205	0	0	319205
2013	78346	0	0	78346
Total	661206	0.00	0.00	661206



Ms. Sapana Pednekar

(Team Leader)

26/02/2015



Mr. Sanjay Patankar

(Internal Technical Review)

26/02/2015

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- MR	The contact information on the cover page is updated and the details about the company's website and email id is now provided in the contact information section on the cover page of the MR.	The details are updated in the revised monitoring report and are found to be correct. Hence CAR 1 is closed.
CAR 2 1) In section 1.2 of VCS MR, category applicable to the project activity is not stated explicitly 2) In section 1.9 of VCS-MR, all the 3 applicability criteria are not stated with justification whichever is applicable to the project. (not as per requirement of latest version of monitoring report template v3.3.)	1.2 of VCS- MR 1.9 of VCS- MR	1) The category applicable to the project activity is Energy Industries (renewable-/non –renewable sources) which now mentioned in the section 1.2 of the MR. 2) The section 1.9 of the MR is updated and appropriate justification is provided to the 3 applicability criteria that is applicable to the project activity. Response 2: PP hereby confirm that there would not be any double counting and also submitting the undertaking to confirm that the project will not claim for double counting of emission reductions from the 67WTGs registered in the CDM in VCS and CDM programs simultaneously for the same period under consideration.	1. The category applicable to the project activity is correctly stated in the revised monitoring report. Hence point 01 is closed. 2. The Project participant has updated the section with appropriate justification. However, Project participant may provide with the undertaking to confirm that the project will not claim for double counting of emission reductions from the 67WTGs registered in the CDM in VCS and CDM programs simultaneously for the same period under consideration. Hence point 02 is open. <u>Review II:</u> The Project participant has provided the undertaking dated 06/08/2014 signed by authorized person and was found to be appropriate. Hence point 02 is closed. Based on the appropriate responses received CAR 02 is closed.
CL 1 Project participant to clarify as to why downsizing of the project activity from 159.75MW to 85.75MW should not be	2.2.2 of VCS-MR	PP would like to clarify that there is no downsize in Project capacity has happened. The 67 WTGs with capacity of 74MW has been registered under other program (i.e. under CDM) which has been explicitly	The explanation is not found to be included in the section 1.1-project description which can represent the case more transparently. Hence CL 01 is open.

Draft report clarifications and corrective action requests by validation team	Reference/ Section	Summary of project owner response	Validation team conclusion
considered as deviation in the registered project description.		mentioned in the MR. The same cannot be considered as deviation as it is allowed that “Projects can be registered and issuing credits under both the VCS and CDM as long as credits are not issued for the same tonnes of emissions reduced or removed”. The description has been incorporated appropriately to provide the better understanding of the actual scenario. PP has sought a clarification from the VCS secretariat for the same which has been submitted to DOE along with the response as well. Response 2: PP has revised section 1.1 to incorporate the appropriate explanation for the same.	<u>Review II:</u> The verification team reviewed the description provided in the revised monitoring report and found it to be correctly describing the current scenario in line with the clarification received from the VCSA . Thus CL 01 is vacated.
CAR 3 In section 3.2, under monitoring equipment, the meters used to monitor the data/parameter the calibration certificates are not provided also it has been observed that there instances of meter change during the current monitoring period (ex: RIL HTSC No 468 and 630, SSM HTSC No 1540, 426, etc) In ER sheet in HTSC no 426, for month of Oct 2012, it is observed that the Net Electricity generation is not calculated after deduction of Wheeling charges as indicated in section 3.2 ‘Calculation method’.	3.2 of VCS MR	1. The calibration certificates and the meter replacement reports are now being provided to the DOE. In the ER sheet for HTSC No. 426 the net electricity generated calculation has been revised appropriately as the wheeling charges are deducted at the consumer end for the month. Hence, the net electricity calculation for the month has been corrected to incorporate the wheeling charges. The Calculation method used to calculate the net electricity is same as depicted in the section 3.2 ‘Calculation method’. Response 2: PP has revised Appendix 1 to present the requisite meters details (Serial number, Make & Accuracy class). Also, included the details of meter change on 28/2/2011 for HTSC No 1525 under “Appendix 3”.	The readings are now revised to include wheeling charges and are found to be correct. However, the information provided in the monitoring report for date of calibration should also present the meters which have undergone the calibrations. Hence the details could not be checked. Further during site visit, it was noted that there was a meter change on 28/2/2011 for HTSC No 1525 but it is not found to be stated in the revised monitoring report as well. Hence CAR 3 is open. <u>Review II:</u> The details of the calibration and also the meter change are now provided in the revised monitoring report and are found to be correct. Hence CAR 03 is closed.
CAR 4 1) The apportioning applied for the mismatch of dates with the billing	Section 3.3,	1. The apportioning method applied for the mismatch dates with billing cycle at the start and end of the current monitoring period is now described under the section 3.3	The details of apportioning applicable to the current monitoring period are not transparently described in the revised

Draft report clarifications and corrective action requests by validation team	Reference/Section	Summary of project owner response	Validation team conclusion
cycle at the start and end of the current monitoring period as evident from the ER sheet is not described briefly in the monitoring report in section 3.3.		of the MR. Response 2: PP has revised MR to describe the apportioning procedure appropriately under section 3.3.	monitoring report. Hence CAR 4 is open. Review II: The revised monitoring report now describes the apportioning applicable to the current monitoring period. Hence CAR 04 is closed.
CAR 5 1. There is mismatch in the value of Net Electricity supplied to the grid provided in the ER sheet. For ex: HTSC NO 1347 (RML), HTSC 578 (SSM), etc. 2. Sample copies of Daily generation of April 2011 and June 2013 are not provided.	ER sheet	1 The mismatch in the value for net electricity supplied to the grid has been corrected for HTSC No 1347 and 578. The corrected value is now provided in the revised ER sheet which is as per the JMR. 2. Sample copies of Daily generation for the period of April 2011 and June 2013 is now provided to the DOE. Response 2: PP has revised emission reduction calculation to correct the net generation values for the following HTSCs for respective months; June 2013 for H-31 (RIL), HTSC No 2068 for month of June 2012, HTSC no D118 for month of Dec 2011, HTSC 1522 (Udamalpet site) for month of May 2011 and HTSC No 578.	1. Review I: The value for month of June 2013 for H-31 (RIL) is incorrect when compared with Form B issued by CESCO. Similarly for HTSC No 2068 for month of June 2012, HTSC no D118 for month of Dec 2011, HTSC's (D69-139) for March 2012 (Pushpathur Site), HTSC 1522 (Udamalpet site) for month of May 2011, HTSC No 578 (belonging to SSM) also are incorrect. Hence point 01 is open. Review II: The values in the Emission Sheet are now revised and are matching with the values in respective JMRs. Hence point 01 is closed. 2. The sample copies of Daily Generation for the months of April 2011 and June 2013 are provided and are found to be correct. Hence point 02 is closed. Based on appropriate responses from the Project participant CAR 05 is closed.
CL 2 • The JMRs for HTSC no 510 (RIL) are not provided in the packet of JMRs submitted. Also JMRs for MCL are to be provided		• The JMR for HTSC No. 510 (RIL) for the month of Jan, Feb & May 2013 is now provided to the DOE. The rest of the JMR copies for the same have already been provided. The JMR copies for MCL are also now being provided to the DOE. Response 2:	Review I: • The missing JMRs are provided to the verification team. However it is observed from the JMR submitted that in case of HTSC-D140 (Puspathur Site) for period 15/11/2011-08/12/2011 is sale to grid and from 08/12/2011-15/12/2011, it is wheeling. Similar is

Draft report clarifications and corrective action requests by validation team	Reference/ Section	Summary of project owner response	Validation team conclusion
		PP would like to clarify that there is wheeling agreement arrangement for HTSC no D-140 since 26.11.2011 which is applicable as on date. However, D-140 was under electricity sale to board category from the date of commissioning to the date of wheeling agreement i.e. till 26.11.2011. Similarly, for HTSC number D-31, the arrangement was changed as follows: i) Sale to board since commissioning i.e. from 27/02/2007 to 23/09/2009. ii) Wheeling Agreement arrangement was made for captive use from 23/09/2009 to 27/01/2011 iii) Sale to board from 27/01/2011 to 26/07/2011 iv) Wheeling agreement arrangement after 26/07/2011 which is applicable till date. The respective wheeling agreement arrangements are being submitted with the response. Further, PP would like to clarify that “PP can opt for change of utility arrangement as per their requirement via wheeling agreement. Hence, the changes in the electricity utilization pattern are temporary in nature hence cannot be considered as permanent change. PP is submitting the JMR clear scan copies for the HTSC 2507 of April 2011 and D-77 for the month of May 2013.	the case observed for Pushpathur Site for HTSC No D-31. There is change as compared to the registered VCS documents. Project participant to clarify on the same. • JMR for D-77 for month of May 2013 is not readable. • JMR for HTSC no 2507 for month of April 2011, Hence CL2 is open. Review II: The Project participant has provided the wheeling agreement for HTSC D-140 and D031 which confirms these machines have undergone change from Sale to grid to captive consumption. This is the change post validation of the project, hence Project participant has analysed financial analysis to assess the impact of change in the tariff on the IRR value. It was observed that the change in the tariff is not impacting the IRR value substantially and it still remains under the benchmark value. The JMR as requested was provided by the Project participant and were found to be appropriate. Based on the appropriate response and documents, CL02 is vacated.

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

- /1/ VCS Monitoring Report, version 01, dated 07/11/2013
- /2/ Final VCS MR version 4.0 dated 17/10/2014
- /3/ VCS Approved Project Document , dated 30/09/2009 version 03
- /4/ CDM PDD registered with UNFCCC project reference no. 7647
- /5/ Validation report vide ref no CDM VAL2836 (revision 05.4) registered with UNFCCC under CDM with reference no. 7647
- /6/ VCS Monitoring report template Current Version: v3.3 dated on 8 October 2013
- /7/ Verified Carbon Standard Version 3, v3.4 dated 8 October 2013 v.3.3
- /8/ VCS Program Guide Version 3 v3.5 dated 8 October 2013
- /9/ Verified Emission Reduction Calculation Sheet
- /10/ Proof of registration as CDM Project activity (<http://cdm.unfccc.int/Projects/DB/SGS-UKL1349793965.06/view>)
- /11/ Monthly JMRs issued by TNEB and CESCO for the current verification period
- /12/ Declaration from The Ramco Cements Limited that the project shall not claim credits for the same period under any other GHG program dated 06/08/2014
- /13/ Calibration certificate for year 2008, 2009, 2010, 2011, 2012 and 2013 issued by TNEB/CESCO
- /14/ Meter Replacement reports for Main meters issued by TNEB
- /15/ Certificate of Incorporation for name change issued by Registrar of Company dated 05/08/2013
- /16/ Sale to Captive Agreement for HTSC no D-31 and D-140 between Project participant and TANGEDCO

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. M Jagadish	AGM, Ramco Cements Limited
/2/	Mr. K. Madhavarajan	Electrical Engineer, Madras Cements Limited
/3/	Mr. P. Subhash Chandran	Electrical Engineer, Madras Cements `
/4/	Mr. M. Senthil Kumar	Deputy Manager- Electrical, Madras Cements Limited
/5/	Mr. G. Ganesan	Asst Manager – Wind Farm, Madras Cements Limited
/6/	Mr. A. Shanmugam	Electrical Engineer, Madras Cements Limited
/7/	Mr. R. Rammoorthi	Electrical Engineer, Madras Cements Limited
/8/	Mr. K.Gopal	Senior Engineer – Wind Farm, Ramco Group Textile
/9/	Mr. E. Essaki Raja	Electrical Supervisor, Ramco Group Textile
/10/	Mr. Sharad Dubey	Manager, Wind World India Limited
/11/	Mr Keshav Bhat	Accounts Manager, Ramco Cements Limited
/12/	Mr. P Senthil Kumar	Sr Engineer, Wind World India Limited
/13/	Mr. Ramachandran	Asst Manager, Ramco Cements Limited
/14/	Ms. Tanvi Bongale	Executive, Bungee India Pvt Limited
/15/	Mr. Vikas Yadav	Bungee India Pvt Limited

ANNEXURE IV

CURRICULA VITAE OF THE 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 Welingkars 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 40 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. Srinivasan Selvaraj – Team Member

Bureau Veritas Certification, Lead Verifier - Climate change

B.TECH - Chemical Engineering, M.E (Environmental Management) and PGDBM (Finance). He has over 8 years of experience in the field of Environment and Energy services. He is a certified energy auditor from Bureau of Energy efficiency from Ministry of Power and has successfully completed the IRCA approved Lead Auditor course for ISO 14001. He has been in the validation and verification of CDM/VCS/Gold standard projects since June 2008. He is also a Lead Auditor for ISO 9001 and 14001.

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.