

VERIFICATION REPORT FOR “WIND POWER PROJECT OF CLP WIND FARMS (INDIA) PRIVATE LIMITED AT JATH”



Document Prepared By Earthood Services Private Limited

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Prepared By	Earthood Services Pvt. Ltd.
Contact	Regd. Office: 224, Tower A, Spaze I-Tech Park, Sector 49, Sohna Road, Gurgaon-122018, INDIA Tel: +91 124 4204599 Fax: +91 124 4204599 Website: www.earthood.in Email: info@earthood.in
Approved By	Technical Reviewer: Kaviraj Singh Technical Expert (TA 1.2): Kaviraj Singh
Work Carried Out By	Team Leader: Ravi Kant Soni Technical Expert (TA 1.2) and Meth Expert: Ravi Kant Soni Local Expert: Ravi Kant Soni

Summary:

Earthood has performed the verification of the project “Wind Power Project of CLP Wind Farms (India) Private Limited at Jath”, VCS ID 1479, against VCS Standard Version 3.6. The scope of verification includes confirming the implementation of the monitoring plan of the registered VCS PD (version 03) dated 29/08/2015 and the application of the monitoring methodology “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, ACM0002, Version 16 dated 28/11/2014.

The verification is consisted of three phases: i) desk review of the project; ii) follow-up onsite visit and 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 following Earthood internal quality procedures.

During the verification process 04 CARs, 01 CL and 00 FARs were raised. All the findings have been closed satisfactorily and the same has been discussed in Appendix 4.

Earthood confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. The emission reductions from the project activity “Wind Power Project of CLP Wind Farms (India) Private Limited at Jath” in India during the period 02/08/2015 – 01/10/2016 (including both days) amount to 141,715 tonnes of CO₂e.

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1 INTRODUCTION

1.1 Objective

CLP Wind Farms (India) Private Limited has contracted Earthood Services Private Limited (Earthood) to perform second VCS Verification of the 'Wind Power Project of CLP Wind Farms (India) Private Limited at Jath' in India (hereafter called project). This project has already been registered as a VCS project (VCS ID 1479). The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the DOE. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

The Verification is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

1.3 Level of Assurance

The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. Therefore, Earthood confirms that the verification is conducted with reasonable level of assurance.

1.4 Summary Description of the Project

The project activity involves electricity generation by wind electric convertors and supplying the generated electricity to the NEWNE Grid. The project being a renewable energy generation activity, it leads to removal of fossil fuel dominated electricity generation. The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change.

The project activity consists of 30 WTGs (2 MW capacity each), making the total installed capacity to be 60 MW in the district of Sangli in Maharashtra, India. The WTGs are of Gamesa make 2 MW G97. The WTGs have been commissioned between 26/03/2014 and 31/03/2014. The same was verified against the registered VCS PD/01/ and commissioning certificates/14/. The emission reductions from the project activity during the period 02/08/2015 – 01/10/2016 (including both days) amount to 141,715 tonnes of CO₂e.

2 VERIFICATION PROCESS

The registered VCS project is undergoing second verification under VCS, the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Earthood assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- Site visit and follow up interviews with project stakeholders

The resolution of outstanding issues and issuance of final report and opinion.

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD, previous MR and Verification report and associated documents as stated in details in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

The site visit for the project location, by the assessment team, was conducted on 03/10/2016 and the following stakeholders were interviewed.

S N	Name	Organization
1	Anik Ray	CLP
2	Bapan Mishra	Gamesha
3	Prakash Mohite	Gamesha
4	Praksh Jadhav	Gamesha

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording and archiving procedures. The assessment was drawn based on the feedback received during interview coupled with the documentation and on-site observations.

2.4 Site Inspections

A site visit was undertaken by Earthood team on 03/10/2016 to carry out the following;

- a. An assessment of the implementation and operation of the registered project activity as per the registered VCS PD and VCS MR;

- b. A review of information flows for generating, aggregating and reporting the monitoring parameters;
- c. Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD;
- d. A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- e. A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;
- f. A review of calculations and assumptions made in determining the GHG data and emission reductions;
- g. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and onsite assessment. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the Earthood during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

All the findings that are raised and communicated to project participant during the verification are included under appendix 2. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise.

2.5.1 Forward Action Requests

The project activity is undergoing section verification; there were no FARs raised during the validation or previous verification.

2.6 Eligibility for Validation Activities

Not applicable.

3 VALIDATION FINDINGS

Not applicable.

3.1 Participation under Other GHG Programs

This is the 2nd periodic verification for the registered VCS project activity. Hence this section is not applicable.

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period.

3.3 Project Description Deviations

During the current monitoring period it is found that the check meter installed at feeder no -08 was replaced with new meter because the installed meter was found faulty giving. This replacement of check meter is considered as a project description deviation by the project proponent and deemed appropriate by the assessment team as the procedures defined in the PPA/15/ which is also referred in the registered PD/01/ and has been followed by the PP. A detailed discussion of the metering arrangement, clause of PPA and PD reference has been included in section 4.3 of the report and appropriately included in section 3.3 of the monitoring report. The deviation has also been described under section 2.2.2 of the monitoring report.

The assessment team was able to confirm that the deviation identified during the current monitoring period is appropriately described and justified and the project remains in compliance with the VCS rules. Also, the deviation does not have an impact on the applicability of the methodology, additionality or the appropriateness of the baseline scenario.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity consists of 30 WTGs installed at Sangli district in the Indian State of Maharashtra. The first and last machine under the project activity was commissioned on 26/03/2014 and 31/03/2014 respectively. The WTGs are of G97 model with an individual capacity of 2 MW, summing up to 60 MW of total installation capacity. The installation and specification of WTGs has been checked with commissioning certificates/14/ and on-site assessment/13/. The commissioning has also been duly validated in the VCS validation report of the project activity/02/. There was no major breakdown or shut downs during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

Assessment team concludes the following:

- a) The implementation status of project activity was found to be in compliance with registered PD
- b) DOE has conducted the on-site visit to confirm the implementation status of the project.
- c) The commissioning date of the project activity was found to be accurately and consistently recorded.
- d) The actual operation of project activity was found to be in compliance with the flow diagram provided in registered PD.
- e) There was slight increase in emission reduction from estimates made in registered PD, and justification for the same is provided in the verification report.
- f) The project is only registered under VCS program and is not participated or rejected under any other GHG programs

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

The project monitoring has been carried in accordance with the registered VCS PD/01/ and the monitoring report/04/. The monitoring plan laid in the registered PD is being followed at the site/13/. The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR/04/.

The emission reductions are purely based on the net electricity generated and exported from the machines. PP has provided all the sufficient data for current monitoring period. The values of the parameter $EG_{PJ,y}$ used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet/05/ provided by PP. The verification of each monitoring parameter has been discussed later in section 4.3.

The calculation method and formulae used in calculating baseline emission is in compliance to the methodology used i.e. ACM0002 version 16.0 /11/. Since project activity is a wind power project, leakage emission and project emission has been considered as zero.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The below tables describe how the parameter, that is to be measured according to the monitoring plan, has been verified to confirm that the actual monitoring complies with the monitoring plan, monitoring data has been thoroughly assessed and that the calibration requirements are met.

Parameter	Quantity of net electricity generation supplied by the project(Wind) plant/unit to the grid in year y, $EG_{PJ,y}$ MWh	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of $EG_{PJ,y}$ are continuously monitored, hourly measured and monthly recorded. The monitoring equipment (Energy meters) discussed in this section are concerning to the input values(Used in calculation of $EG_{PJ,y}$) only.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered PD/01/ and monitoring methodology/11/.
	Monitoring equipment	No monitoring equipment is used as this parameter is calculated using the measured values. The WTGs belongs to project activity are installed at Jath site and connected to 8 different feeders and each feeder have exclusive dedicated metering arrangement at project site. Also, the WTGs of other project developers (non-project activity) are also connected to these

		feeders. The electricity generated by all the WTGs (project and non-project) is been fed to the NEWNE grid and monthly generation of all the WTGs at each feeder reading is recorded by the representatives MSEDCL in the presence of CLPWFPL officials in the form of JMR.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring equipment used to measure the values considered for calculation of $EG_{PJ,y}$ is 0.2s, which is as per the registered PD/01/ which is as per the norm defined in the PPA/15/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 3 years.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the registered PD/01/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by MSEDCL which NABL Accredited Government institution/06/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters are valid for the whole monitoring period.

	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately.
	How were the values in the monitoring report verified?	Cumulative value of $EG_{PJ,y}$ for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet. The monthly values were verified from the credit notes issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 145,051.80 MWh.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of $EG_{PJ,y}$ were further cross checked with the monthly invoices raised by the PP /07/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority (MSEDCL), the PP and the Gamesa (O&M Contractor). The data transfer process for the said parameter is as follows: The Joint meter reading at all the metering points at DISCOM substation is taken by the representatives of MSEDCL in the presence of CLPWFPL officials in the form of JMRs. Based on the data recorded in the JMRs, electricity supplied to the grid by the project activity is calculated by MSEDCL, using the apportioning procedure and credit notes for each project

		developer is prepared. Monthly credit notes issued by state utility provides the value of $EG_{PJ,y}$ that is directly used for emission reduction calculations. It is to be noted that all the meters are sealed by MSEDCL and JMR readings taken at meters are solely kept with state utility and not shared with the PP.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	CL #1,CAR #2,CAR #3,CAR #4 and CAR #5 was raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The verification team is able to confirm that the project is implemented as per the registered PD and there is no discrepancy observed between the actual monitoring system and the monitoring plan set out in the project description and the applied methodology outlined in the registered VCS PD/01/. The emission reduction calculation for the project activity is estimated based on the electricity supplied by the WTGs. Monthly values of electricity generated inserted in the ER sheet was verified with the credit notes/credit breakup sheets provided by the project proponent/09/. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.	

Parameters fixed ex ante:

EF_{grid,OMy}; tCO_{2e}/MWh: it is the operating margin emission factor of NEWNE grid fixed at the time of project registration the mentioned value of 0.9862 tCO_{2e}/MWh is consistent with the registered PD/01/.

EF_{grid,BMy}; tCO_{2e}/MWh: it is build margin emission factor of NEWNE grid fixed at the time of project registration the mentioned value of 0.9495 tCO_{2e}/MWh is consistent with the registered PD/01/.

EF_{grid,CM,y}; tCO_{2e}/MWh: it is the combined margin emission factor of NEWNE grid fixed at the time of project registration the mentioned value of 0.9770 tCO_{2e}/MWh is consistent with the registered PD/01/.

Calibration of meters:

During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate. The installation and working conditions of the meters were checked during the on-site inspection and were found to be satisfactory. Details of meters are provided in below table:

Meter Location	Meter Serial No	Meter Type	Meter Make/ Accuracy class	Calibration Date	Calibration Validity Date
Feeder-01	15687855	Main Meter	Elster/0.2s	24/07/2014	23/07/2017
	15687856	Check meter:	Elster/0.2s	24/07/2014	23/07/2017
Feeder-02	15687858	Main Meter	Elster/0.2s	24/07/2014	23/07/2017
	15687860	Check meter	Elster/0.2s	24/07/2014	23/07/2017
Feeder-03	15687862	Main Meter	Elster/0.2s	24/07/2014	23/07/2017
	12853657	Check meter	Elster/0.2s	24/07/2014	23/07/2017
Feeder-04	13813553	Main Meter	Elster/0.2s	24/07/2014	23/07/2017
	16351040	Check meter	Elster/0.2s	24/07/2014	23/07/2017
Feeder-06	16636465	Main Meter	Elster/0.2s	01/09/2014	31/08/2017
	16636468	Check meter	Elster/0.2s	01/09/2014	31/08/2017
Feeder-07	15456640	Main Meter	Elster/0.2s	01/09/2014	31/08/2017
	16351020	Check meter	Elster/0.2s	01/09/2014	31/08/2017
Feeder-08	16636473	Main Meter	Elster/0.2s	01/09/2014	31/08/2017
	New: 02814125	Check meter	Elster/0.2s	New: 2/04/2016	01/04/2019
	Old: 16636474			Old: 01/09/2014	31/08/2017
Feeder-	16351021	Main Meter	Elster/0.2s	01/09/2014	31/08/2017

Meter Location	Meter Serial No	Meter Type	Meter Make/ Accuracy class	Calibration Date	Calibration Validity Date
09	16351022	Check meter	Elster/0.2s	01/09/2014	31/08/2017

During the current monitoring period check meter at feeder 8 was replaced with new ABT meter (Sr.No-02814125) on 03/05/2016 this is verified through the meter replacement certificate issued by state utility. It is also confirmed that old meter date and time was inappropriate when replaced and new meter is installed in line with the requirements of metering code prevailing in the state. This was found in compliance to the clause (c) of Section 10.02 PPA/15/ and section 4.3 of registered PD /01/ which clearly states that *“In case Main meter or check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible. In the event that the Main meter is not in service as a result of maintenance, repairs or calibration, the check meter will be used.”* The assessment team has verified the monthly credit notes (indicates the meter serial numbers as source) for current monitoring period and confirmed that generation recorded by the main meter only is used to calculate the net electricity supplied to the grid by the project activity and check meter never been referred, hence it can be concluded that replacement of check meter does not have any impact on emission reduction calculation. Since the replacement of check meter is in accordance with the registered PD/1/ which refers to PPA/35/ in such cases, it was not considered a deviation in the monitoring plan. The change does not impact the applicability of the methodology/11/, additionality or the appropriateness of the baseline scenario and hence it was accepted by the assessment team.

Meters used to measure the parameters are of accuracy class 0.2s, as verified through calibration certificates/06/ and also physical inspection during the site visit. The CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006 and its amendments Notified on 26/06/2010 No. 502/6/2009/DP&D/D-I /18/ which is considered as national standard, mentions that for voltage of 650 V up to 33 Kv, 0.5s accuracy class or above is recommended. Hence, the accuracy classes of 0.2s for the energy meters installed at the project activity site are found to be appropriate.

The details of monitoring equipment are involved in the project activity and their calibration details/06/ are mentioned in the table under section 3.3 of the VCS MR/04/. The monitoring equipment consists of a main and check meter at the state utility substation. The meters have been physically inspected during the site visit and the meter details are found to be consistent with that observed during the site visit. The accuracy class of the meters are consistent with that mentioned in the registered VCS PD/01/.

The CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/18/ which is considered as national standard mentions that *“All interface meters shall be tested at least once in five years.”* Hence, the stipulated calibration frequency once in 3 years is appropriate. As indicated through the dates of calibration mentioned in the table under section 3.3 of the VCS MR, all meters are calibrated once in 3 years. The date of calibration has been verified against the calibration certificates/06/. The registered VCS PD & MR /04/ and site visit observations confirm that the metering equipment are sealed and calibrated by the state utility.

In view of the above discussion the assessment team able to confirm that evidence used to determine the GHG reductions and removals are sufficient and appropriate with respect to quality and quantity.

GHG Calculations

The emission reduction as per the applied methodology equals the baseline emissions (project emissions and leakage emissions for such project activities is considered zero). The formula provided for the calculation of baseline emissions is:

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y}$$

Where:

BE_y : Baseline emissions in year y (tCO₂e/yr)

$EG_{PJ, y}$: Quantity of net electricity generation supplied by the project (Wind) plant/unit to the grid in year y (MWh/yr)

$EF_{grid, CM, y}$: Combined Margin (CM) Emission Factor of NEWNE (tCO₂e/MWh)

Thus, $BE_y = EG_{PJ, y} * EF_{grid, CM, y}$

Thus, $BE_y = 145,051.80 \text{ MWh} * 0.9770 \text{ tCO}_2\text{e/MWh}$

$= 141,715 \text{ tCO}_2 \text{ (rounded down)}$

The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The assumptions, emission factors and default values that were applied in the calculations are justified. The actual emission reduction achieved during the current monitoring period are 2.34% greater than the estimated amount of emission reductions at the time of validation, which is due to the high PLF achieved by the project activity during the monitoring period. PLF estimated at the time of validation was 23.05%, however actual PLF achieved during the current monitoring period is verified as 24.20 % (around 5% greater than the estimated).

It is to be noted that PLF is completely governed by the availability of wind, which is natural phenomenon and beyond the control of PP. It is also worthy to note that the wind availability is higher during the monsoon and the period for high wind is considered from June to September. The current monitoring period starts from 02nd August'2015 to 01st October 2016 which includes a complete high wind period and also covers almost half of the second-high wind period. This would have been the reason behind the slight increase in PLF values which are normally calculated on a calendar year basis. Furthermore, the assessment team checked the registered PD and verified that in the sensitivity analysis, equity IRR would cross the benchmark if the PLF increases by 21.80%. Since the increase in PLF (as 5%) during the current monitoring period is within the threshold limit and does not have any impact on additionality, hence the assessment team has concluded the increase in emission reduction of the project activity is justified and acceptable.

All the data were made available and have monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above.

4.4 Non-Permanence Risk Analysis

Not applicable for the project activity.

5 SAFEGUARDS

5.1 No Net Harm

Not applicable for this verification.

5.2 Local Stakeholder Consultation

Not applicable for this verification.

6 VERIFICATION CONCLUSION

Earthood Services Private Limited (Earthood), contracted by CLP Wind Farms (India) Private Limited, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1479) "Wind Power Project of CLP Wind Farms (India) Private Limited at Jath " in India for the monitoring period 02/08/2015 – 01/10/2016 as reported in the Monitoring Report Version 03 dated 08/11/2016. The CLP Wind Farms (India) Private Limited is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity

Earthood commenced the verification on the basis of the baseline and monitoring methodology ACM0002 version 16.0, the monitoring plan contained in the registered VCS PD Version 03 and VCS guidelines version 3.6, Monitoring Report Version 03 dated 08/11/2016 as per the process described under Section 2 of this report.

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 02/08/2015 – 01/10/2016 are fairly stated in the Monitoring Report Version 03 dated 08/11/2016. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002, Version 16.0, and the VCS standard.

Verification period: From 02/08/2015 – 01/10/2016 (including both days)

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

Year	Baseline emissions or	Project emissions or	Leakage emissions	Net GHG emission reductions or
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	removals (tCO ₂ e)	removals (tCO ₂ e)	(tCO ₂ e)	removals (tCO ₂ e)
2015 (02/08/2015 to 01/01/2016)	38,771.00	0.00	0.00	38,771.00
2016 (02/01/2016 to 01/10/2016)	102,944.00	0.00	0.00	102,944.00
Total	141,715.00	0.00	0.00	141,715.00

Approved by



Dr. Kaviraj Singh
Managing Director

Earthood Services Privated Limited

Date: 10/11/2016

Place: Gurgaon, Haryana

APPENDIX 1: References

S.No	Title of Document	Version	Date
1.	Registered VCS PD	3.0	29/08/2015
2.	VCS Validation Report, prepared by Bureau Veritas Certification, Report no. BVCH/VCS/VAL/2015/01	1.0	04/09/2015
3.	VCS Monitoring Report	1	28/09/2016
3.1	VCS Monitoring Report	02	19/10/2016
4.	VCS Monitoring Report (Final)	03	08/11/2016
5.	ER spreadsheet (corresponding to the final monitoring report)	02	19/10/2016
6	Certificates of Calibration for all the meters belongs to project activity	-	-
7.	Invoice issued by PP to state DISCOM for the period 02/08/2015 to 01/10/2016	-	-
8.	Monthly Joint Energy Meter Reading for the period 02/08/2015 to 01/10/2016	-	-
9.	Monthly Credit Breakup Sheet issued by state DISCOM for the period 02/08/2015 to 01/10/2016	-	-
10.	VCS Verification Report for MP01, issued by Bureau Veritas Certification	1.0	15/09/2015
11.	"Consolidated baseline methodology for grid-connected electricity generation from renewable sources", ACM0002,	16.0	28/11/2014
12.	CEA Database	version 10	December 2014
13.	On-site assessment, interviews of plant staff	-	03/10/2016
14.	Commissioning certificate for all the WTGs of the project activity issued by MSEDCL	-	-
15.	Power Purchase Agreements signed between Project Proponent and MSEDCL	-	-
16.	VCS webpage for the project, VCS ID 1479; http://www.vcsprojectdatabase.org/#/project_details/1479	-	Last accessed on 26/10/2016
17.	Meter replacement certificate issued by MSEDCL	-	12/05/2016
18.	Central Electricity Authority (Installation and Operation of Meters) Regulations Notified on 17/03/2006 No. 502/70/CEA/DP&D Amendments Notified on 26/06/2010 No. 502/6/2009/DP&D/D-I	-	-
19.	VCS Standard	Version 3.6	19/10/2016
20.	VCS Program Guide	Version 3.5	19/10/2016

APPENDIX 2: Competency Statement

Competence Statement			
Name	Ravi Kant Soni		
Country	India		
Education	B. Tech. (Mechanical Engineering)		
	M. Tech. (Energy Management)		
Experience	7 Years +		
Field	Energy and Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.C., ACM0002		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert (1.2)	YES		
Reviewed by	Abhishek Mahawar	Date	09/09/2016
Approved by	Kaviraj Singh	Date	09/09/2016

Competence Statement	
Name	Kaviraj Singh
Country	India
Education	Ph.D. (Environmental Engineering), IIT Delhi Masters (Energy & Environmental), DAVV Indore
Experience	8 Years +
Field	Climate Change & Environment
Approved Roles	
Team Leader	YES
Validator	YES
Verifier	YES
Methodology Expert	AMS-I.D., AMS-II.D., ACM0006, AMS-I.A., AMS-I.C., AMS-II.B., AMS-III.H, ACM0002
Local expert	YES (India)
Financial Expert	NO
Technical Reviewer	YES
TA Expert (1.1)	YES
TA Expert (1.2)	YES

TA Expert (13.1)	YES		
TA Expert (13.2)	YES		
TA Expert (15.2)	YES		
Reviewed by	Abhishek Mahawar	Date	08/09/2016
Approved by	Ashok Gautam	Date	08/09/2016

APPENDIX 3: Abbreviations

ABT	Availability Based Tariff
BEF	Baseline Emission Factor
BM	Build Margin
CAR	Corrective Action Request
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CL	Clarification Request
CMP	Conference of Parties Serving as Meeting of Parties
CO2	Carbon dioxide
DISCOM	Distribution Company
EB	Executive Board
EPC	Engineering, Procurement and Construction
FAR	Forward Action Request
GHG	Green House Gas
ISO	International Standards Organization
JMR	Joint Meter Reading
kW	Kilowatt
kWh	Kilowatt hour
MEDA	Maharashtra Energy Development Agency
MFR	Multi-Function Relay
MR	Monitoring Report
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MW	Megawatt
MWh	Megawatt-hour
NEWNE	Northern Eastern Western Northern-Eastern
O&M	Operation and Maintenance
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
PPA	Power Purchase Agreement
CMS	Central Monitoring System
QA/QC	Quality Assurance and Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator

VCS	Voluntary Carbon Standard
VCSA	Voluntary Carbon Standard Association
VCS PD	VCS Project Description
VCUs	Voluntary Carbon Units

APPENDIX 4: Findings Overview

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	xx	Section no.	E.2	Date :DD/MM/YYYY
Description of FAR				
No FAR from validation				
Project participant response				Date :DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this verification

CL ID	01	Section no.	4.3.2	Date :04/10/2016
Description of CL				
Check meter serial number for feeder 8, mentioned in the MR does not match with same verified during site visit. Please submit latest calibration certificates of all the meters installed for the project activity.				
Project participant response				Date :19/10/2016
Check meter installed at feeder no 8 has been replaced in April-2016. Details of the same now have been incorporated in revised monitoring report.				
Documentation provided by project participant				
• Meter replacement report, dated 12/05/2016 • New check meter calibration report, dated 20/04/2016 • Revised monitoring report, version 02,dated 19/10/2016				
DOE assessment				Date: 21/10/2016
Check meter at feeder 8 was replaced with new ABT meter (Sr.No-02814125) on 03/05/2016 this is verified through the meter replacement certificate issued by state utility. It is also confirmed that date and time of old meter was found inappropriate, hence replaced and new meter is installed in line with the requirements of metering code prevailing in the state. New meter was tested before installation and is of same accuracy class as old meter, the same is verified through meter calibration report, hence accepted. CL #1 is closed.				

Table 3. CAR from this verification

CAR ID	02	Section no.	4	Date :04/10/2016
Description of CAR				
Start date of the project activity mention in section 1.5 of the MR is not correct as per VCS guidelines.				
Section 3.2 of MR: It is stated the net electricity supplied to the grid is measured through meters but as per the procedure outlined in section 3.3 and also verified during site visit, this parameter is calculated. Kindly clarify inconsistency observed.				
Project participant response				Date : 19/10/2016
Start date of the project activity (i.e. 26-03-2014) has been corrected in section 1.5 of the revised MR.				
The energy meters installed at grid interconnection point are continuously measuring electricity export				

from the project activity and electricity import by the project activity. Net electricity is calculated based on the electricity export and electricity import data. Same description is now incorporated consistently in the revised monitoring report.

Documentation provided by project participant

Revised monitoring report, version 02, dated 19/10/2016

DOE assessment

Date: 21/10/2016

Start date of the project activity is corrected in section 1.5 of the revised MR, found to be consistent with registered PD.

Description of parameter net electricity supplied to the grid is rephrased for transparency, found to be satisfactory, hence accepted.

CAR #2 is closed.

CAR ID	03	Section no.	E.5.3	Date	:04/10/2016
Description of CAR					
It is not clear why the quantity of net electricity supplied to the grid for the months August 2015 and September 2015 is unerringly same. Also please submit the credit note and invoice for the month September 2015.					
Value of net electricity supplied to the grid for the month February 2016 does not match with the credit note and invoice for the concerned month.					
Project participant response					Date : 19/10/2016
Net electricity generation data for the month of February-16, August-16 and September-16 have now been corrected with signed Credit Notes.					
Credit note for the month September 2016 now been attached with this submission.					
Documentation provided by project participant					
- Revised monitoring report, version 02, dated 19/10/2016 - Revised VER sheet - Credit note for the month September 2016					
DOE assessment					Date: 21/10/2016
The PP has corrected the values of net electricity supplied to the grid for the months February-16, August-16 and September-16, the same is also verified with the credit note and invoice for the respective months and found to be consistent.					
Thus CAR #3 is closed.					

CAR ID	04	Section no.	4.3.3	Date	:04/10/2016
Description of CAR					
It is noted that the current monitoring period does not include complete month of August 2015 & October 2016. In view of this observation please clarify why specific periods of first and last month for the monitoring period is not reported in the MR/ER sheet.					
Project participant response					Date : 19/10/2016
Specific duration of first and last month of the monitoring period now has been included in monitoring period and emission reduction sheet. Further, durations of each month also included in monitoring period and emission reduction sheet for better clarity. Joint Meter Reading is recorded at a particular time of the day (i.e. 12:00 noon) (e.g. generation for the period 01/10/2015 to 01/11/2015 would denote reading till that time of 01/11/2015). These dates are also reflected in the Joint Meter Reading prepared by State Utility which is the basis for ER calculation.					
Documentation provided by project participant					

Revised VER sheet	
DOE assessment	Date: 21/10/2016
The PP has mentioned duration of each month included in the monitoring period for better transparency, found to be satisfactory, hence accepted. It is noted that last date of each month overlaps with first date of next month, however there is no chance of double counting of data because the joint meter reading for each month is recorded at a particular time of the day (i.e. 12:00 noon) e.g generation for the period 01/10/2015 to 01/11/2015 would denote reading till that time of 01/11/2015. CAR #4 is closed.	

CAR ID	05	Section no.	4.3.3	Date : 07/11/2016
Description of CAR				
- It is not clear why check meter at feeder no-08 was replaced with new meter. Please clarify what procedure was conducted while replacing the existing meter with new one and also justify the suitability of procedure followed. - Project proponent is also requested to clarify why the such instance(meter change) should not considered as a deviation in line with the guidance outlined under section 3.6.1 of VCS standard version 3.6. - Check meter serial number mentioned for feeder -01 in the MR does not match with calibration certificate. Please clarify. - Value of parameter EGPJ,y for the month February and March 2016 reported in the MR is inconsistent with the ER sheet. Please clarify.				
Project participant response				Date : 08/11/2016
- In line with section 4.3 of registered PD (Emergency Preparedness and Uncertainty Procedure), "Incase Main meter or check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible". During meter testing, it was found that date and time shown in check meter installed at feeder no-08 was not appropriate. Thus, testing division of Maharashtra State Electricity Distribution Company Limited has recommended to replace the concerned meter to maintain the appropriateness. Same has been mentioned in point no 13 of meter replacement report issued by Maharashtra State Electricity Distribution Company Limited dated 12/05/2016. - Check meter replacement conducted at site, now incorporated as project deviation in revised MR in line with section 3.6.1 of VCS standard version 3.6. - Check meter serial number mentioned for feeder-01 in the MR has been corrected now. - Electricity generation for the month of February-16 and March-16 have been corrected now.				
Documentation provided by project participant				
Revised Monitoring Report Revised ER sheet Meter replacement report for feeder no.8				
DOE assessment				Date: 08/11/2016
Check meter at feeder 8 was replaced with new ABT meter on 03/05/2016 this is verified through the meter replacement certificate issued by state utility. It is also confirmed that old meter date and time was inappropriate hence replaced and new meter is installed in line with the requirements of metering code prevailing in the state. Procedure followed for replacement of check meter is in compliance with the same as outlined in the registered PD and PPA, hence accepted.				

Replacement of check meter is considered as project description deviation by the project proponent and appropriately described under section 2.2.2 of the monitoring report, hence accepted.
 Check meter serial number mentioned for feeder-01 in the MR is corrected and found to be consistent with the same mentioned in the calibration certificate.
 Value of parameter $EG_{PJ,y}$ for the month February and March 2016 reported in the MR is corrected and found to be consistent with the ER sheet and credit notes for the concerned months, hence accepted.
 CAR #5 is closed.

Table 4. FAR from this verification

FAR ID	xx	Section No.	Date :DD/MM/YYYY
Description of FAR			
No FAR raised			
Project participant response			Date :DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY