VERIFICATION REPORT

"WIND POWER PROJECT AT ANTHIYUR, TAMIL NADU"

Document Prepared By Earthood Services Private Limited

Project Title	Wind Power Project at Anthiyur, Tamil Nadu.
Version	02
Report ID	VCS.VER.18.20

Report Title	Verification Report "Wind Power Project at Anthiyur, Tamil Nadu."
Client	Windage Power Company (P) LTD. (Formerly name is Nuziveedu Seeds Limited)
Pages	30
Date of Issue	09/01/2019
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Summary:

Earthood Services Private Limited (ESPL) has performed the verification of the project "Wind Power Project at Anthiyur, Tamil Nadu" VCS ID 682, against VCS Standard Version 3.7.The scope of verification includes confirming the implementation of the monitoring plan of the approved revised VCS PD (version 01) dated 20/03/2017 and the application of the monitoring methodology "per AMS ID version 18: "Grid connected Renewable Electricity Generation".

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 ESPL internal quality procedures.

During the verification process 02 CARs, 01 CL and 00 FARs were raised. All the findings have been closed satisfactorily and the same has been discussed in Appendix 4.

ESPL 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 at Anthiyur, Tamil Nadu" in India during the period 01/11/2017 – 31/08/2018 (including both days) amount to 26,948 tonnes of CO_2e.

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1 INTRODUCTION

1.1 Objective

Windage Power Company (P) LTD has contracted Earthood Services Private Limited (ESPL) to perform VCS Verification of the 'Wind Power Project at Anthiyur, Tamil Nadu' in India (hereafter called project). Thisproject has already been registered as a VCS project (VCS ID 682). 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, ESPL 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 Southern 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 9 WTGs (1650 kW capacity each), making the total installed capacity to be 14.85 MW at Anthiyur Village of Udumalpet and Pollachi Talukas of Coimbatore District in Tamil Nadu.

Location of the project was verified through Google Map (https://www.gps-coordinates.net/)and found consistent with the data provided in the registered PD /01/. The WTGs generate 3-phase power at 400 V (±12.5%) in the frequency range of 47.5 – 51.5 Hz. It is further stepped up to 33 kV for further distribution by the state utility. This information was verified during physical site visit andfound to be in line with the details provided in the registered PD /01/.

The WTGs have been commissioned between 26/03/2005 and 17/05/2005. The same was verified against the latest revised VCS PD/01/ and commissioning certificates/12/. The emission reductions from the project activity during the period 01/11/2017 – 31/08/2018 (including both days) amount to 26,948 tonnes of CO_2e.

2 VERIFICATIONPROCESS

The registered VCS project is undergoing second verification under VCS(2nd Crediting period), the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

ESPL 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 approved revised 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 14/10/2018 and the following stakeholders were interviewed.

S N	Name	Organization
1	E. Satish kumar	M/s Windage Power Company (P) LTD
2	R. Ramesh Kumar	M/s Windage Power Company (P) LTD

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 ESPL team on 14/10/2018 to carry out the following;

a. An assessment of the implementation and operation of the registered project activity as per the approved revised 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 ESPL 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 4. 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 second verification of 2nd crediting period under VCS; there were no FARs raised during the validation or previous verification/03/.

2.6 Eligibility for Validation Activities

Not applicable.

3 VALIDATION FINDINGS

Not applicable.

3.1 Participation under Other GHG Programs

The project activity is registered under the VCS only (VCS Project ID 682) and is not registered under any other emissions trading program or any other mechanism that includes GHG allowance trading. PP also confirms that net GHG emission reductions or removals generated during this monitoring period shall not be used for compliance under any such programs or mechanisms. This was confirmed through a declaration/15/ submitted by the PP and hence accepted by the assessment team.

3.2 Methodology Deviations

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

3.3 Project Description Deviations

During the previous monitoring period, energy meters installed at HTSC No-751, 752, 754, 788, 753, 808, 728, 755 and 690 were replaced with new meters with accuracy class of 0.2s on 08/05/2017. In line with the guidance provided under section 3.6.1 of VCS standard v.3.7,the project proponent had considered the replacement of existing energy meter as project deviation. During the current monitoring period, there was delay in calibration of the energy meters. The PP has applied delay in the calibration as project deviation. Project proponent has addressed the deviation in line with the paragraph 369(a) of CDM VVS version 01.

The assessment team 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 (as the project activity is not a grouped project)

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity consists of 9 WTGs installed at Anthiyur Village of Udumalpet and Pollachi Talukas of Coimbatore District in Tamil Nadu. The WTGs under the project activity have been commissioned between 26/03/2005 and 17/05/2005. The WTGs are of M/s Vestas Wind Technology with an individual capacity of 1.65 MW, summing up to 14.85 MW of total installation capacity.

The installation and specification of WTGs has been check with commissioning certificates/12/ and on-site assessment/19/. 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) There is no material discrepancies between project implementation and the project description provided in the registered PD/01/.

b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.

c) There is no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/09/.

d) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading/17/.

e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification/03/.

f) The project is registered under VCS only.

g) The project activity is comply with indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under section 1.10 of MR.

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description.

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 VCS MR/04/. The monitoring plan laid in the registered PD is being followed at the site/18/. 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 net electricity generation supplied to the grid by each phase used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet/06/ 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. AMS- I. D. version 18 /10/. 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.

<table>
<tr><td>Parameter</td><td>Gross Electricity export to the grid by the project during the year y, $EG_{Gross,y}$ (kWh)</td></tr>
<tr><td>Means of verification</td><td>
<table>
<tr><td>Criteria/Requirements</td><td>Assessment/Observation</td></tr>
<tr><td>Measuring /Reading</td><td>The electricity exported to the grid is measured</td></tr>
</table>
</td></tr>
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	/Recording frequency	through energy meters at the WTG metering location on continuous basis and reported monthly.	
	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 revised PD/01/ and monitoring methodology/10/.	
	Monitoring equipment	There is one set of dedicated energy meters (main & check meter) provided for each WTGs owner at 33 kV metering points.	
	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?	All the energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the revised PD.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.	
	Calibration frequency /interval:	Annual	
	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	There was delay in meter calibration . The PP has considered the same under deviation and appropriate error factor was applied.	

	selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility (TNEB)/07/
	Is(are) calibration(s) valid for the whole reporting period?	There was delay in meter calibration and the same is addrerssed applying the error factor to the measured parameter during the period between the scheduled date of calibration and the actual date of calibration.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried.
	How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly joint metering report/08/ during site visit .Value of this parameter for the current monitoring period is verified as 27848027.44 kWh. Year / Value Verified 2017 / 9,69,876.00 kWh. 2018 / 268,78,151.44 kWh. Total / 27848027.44 kWh. Furthermore monthly values of this parameter is reported in the ER calculation sheet/06/ are also verified with the MR/04/ and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /09/ 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, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: The monthly Joint meter reading is taken by the representatives of TNEB (State utility) in the presence of NSL officials in the form of JMRs.
	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 and CAR #3 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/10/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	**Net electricity supplied to the grid, $EG_{net,y}$ (MWh)**	
Means of verification	**Criteria/Requirements**	**Assessment/Observation**
	Measuring /Reading /Recording frequency	The net electricity supplied to the grid is measured through energy meters at the WTG metering location on continuous basis and reported monthly.
	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 revised PD/01/ and monitoring methodology/10/.
	Monitoring equipment	There is one set of dedicated energy meters (main & check meter) provided for each WTGs owner at

		33 kV metering points.
	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?	All the energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the revised PD.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
	Calibration frequency /interval:	Annual
	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?	There was delay in meter calibration which was mainly due to the replacement of old meters with new set of meters. However, PP has considered the same under deviation and appropriate error factor was applied.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility (TNEB)/07/
	Is(are) calibration(s) valid for the whole reporting	There was delay in meter calibration and the same is addrerssed applying the error factor to the

	period?	measured parameter during the period between the scheduled date of calibration and the actual date of calibration.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried out.
	How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly joint meter reading report/08/ during site visit .Value of this parameter for the current monitoring period is verified as 27,562.9570 MWh. Year / Value Verified 2017 / 910.66 MWh 2018 / 26,652.30 MWh Total / 27,562.95 MWh Furthermore monthly values of this parameter is reported in the ER calculation sheet/06/ are also verified with the MR/04/ and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /09/ 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, the PP and the O&M Contractor. The monthly Joint meter reading is taken by the representatives of TNEB (State utility) in the presence of NSL officials in the form of JMRs.
	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	No such issues.

	been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	CL #1 CAR #2 and CAR #3 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/10/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter	**Electricity imported from the grid by the project during the year y $EG_{import,y}$ (kWh)**	
Means of verification	**Criteria/Requirements**	**Assessment/Observation**
	Measuring /Reading /Recording frequency	The electricity imported to the grid is measured through energy meters at the WTG metering location on continuous basis and reported monthly.
	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 resvied PD/01/ and monitoring methodology/10/.
	Monitoring equipment	There is one set of dedicated energy meters (main & check meter) provided for each WTGs owner at 33 kV metering points.
	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	All the energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the revised PD.

	comply with local/national standards, or as per the manufacturer's specification?	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
	Calibration frequency /interval:	Annual
	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?	There was delay in meter calibration which was mainly due to the replacement of old meters with new set of meters. However, PP has considered the same under deviation and appropriate error factor was applied.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity i.e. by state utility (TNEB)/07/
	Is(are) calibration(s) valid for the whole reporting period?	Calibration of energy meters was dealyed and the same is addrerssed applying the error factor to the measured parameter during the period between the scheduled date of calibration and the actual date of calibration.

	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried out.
	How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly joint meter reading report/08/ during site visit .Value of this parameter for the current monitoring period is verified as 2,85,070.45 kWh. Year / Value Verified 2017 / 59,214.67 kWh 2018 / 2,25,855.78 kWh Total / 2,85,070.45 kWh Furthermore monthly values of this parameter is reported in the ER calculation sheet/06/ are also verified with the MR/04/ and found to be consistent.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /09/ 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, the PP and the O&M Contractor. The monthly Joint meter reading is taken by the representatives of TNEB (State utility) in the presence of NSL officials in the form of JMRs.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has	No such issues.

	the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	CL #1 ,CAR #1 and CAR #3 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/10/. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.	

Parameter fixed ex-ante:

EF_y ; tCO_{2e}/MWh: it is the combined margin emission factor of Indian grid fixed at the time of project renewal of crediting period the mentioned value of 0.9777 tCO_{2e}/MWh is consistent with the revised 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:

Location Name	Month / HTSC. No	Energy Meter - Sl. No	Make	Accuracy Class	Type	Date of Calibration / Date of replacement*	Delay in meter Calibration in this monitoring period
NSL-1	751	4321904	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-2	752	4321911	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-3	754	4321912	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-4	788	4321910	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018

NSL-5	753	4321907	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-6	808	4321909	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-7	728	4321903	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-8	755	4321905	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018
NSL-9	690	4322619	Genus	0.2s	03D-183 (DLMS)	08-05-2017	08/05/2018 to 31/08/2018

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toring the equipment are involved in the project activity and their calibration details/07/ are mentioned in the table under Section 3.3 of the VCS MR/04/.The energy meters installation dates and calibration dates were verified with respective energy meter replacement and calibration certificate issued by TNEB and also each meter has been physically inspected during the site visit and the meter details are found to be consistent with that observed during the site visit.

Accordance with the guidelines outlined under paragraph 369(a) of VVS version 01, an error factor had to be applied for the measured values in the delayed calibration period. However, the monthly statements issued by the state utility only provide the calculated value of electricity exported and imported applied for the project activity. Hence the error factor negative (-ve) i.e. 0.2% is applied for export values (therefore deduction of 0.2% from the exported value for delay month) and positive (+ve) i.e. 0.2% for import values (therefore, addition of 0.2% for the import value for delay month). The approach followed by the PP was found to be conservative and appropriate, hence accepted.

Meters used to measure the parameters are of accuracy class 0.2s, as verified through calibration certificates/07/ 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 /16/ 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 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 CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/16/ 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 a year is appropriate.

The assessment team has verified the monthly joint meter reading report issued by respective state utility and confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid by the WTGs belongs to particular developer and consequently for ER calculations. As verified through the calibration certificates, that meters were working satisfactorily during the current monitoring period. The revised VCS PD/01/ & MR /04/ and site visit observations confirm that the metering equipment are sealed and maintained 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:

$$\mathbf{BE_y = EG_y * EF_y}$$

Where:

BE_y : Baseline emissions in year y (tCO_2e/yr)

EG_y : Electricity supplied by the project activity to the grid in year y (MWh/yr)

EF_y : Combined Margin (CM) Emission Factor of Indian grid (tCO_2e/MWh)

Thus, $BE_y = EG_y * EF_y$

Thus, BE_y = 27562.95 MWh * 0.9777 tCO_2e/MWh

= 26,948 tCO_2 e

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. 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.

However, verification team has observed that the actual ER achieved during the current monitoring period is higher than the estimated ER as per registered PD for the comparable period. This comparison is submitted in the ER sheet along with a justification confirming that this event of higher power generation was an unforeseen situation and also not under the direct control of PP. The verification team has reviewed and verified the facts and supporting provided by PP and able to conclude that justification is valid and such condition is an unforeseen event which is not a regular affair in the project activity, moreover PP does not any direct control on it.

The verification team has assessed the cause of any variation in the actual GHG emission reductions achieved during the current monitoring period. There is increase of around 4.62 % in the actual emission reductions achieved during the current monitoring period from that stated in the registered VCS PD. This is largely due to higher plant load factor (PLF) achieved during the current monitoring period.

It is to be noted that PLF is completely governed by the availability of wind, which is natural phenomenon and it is beyond the control of PP. Thus, verification team concludes that this change in ER (which corresponds to change in PLF) does not impact on additionality.

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 (ESPL), contracted by Windage Power Company (P) LTD, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 682) "Wind Power Project at Anthiyur, Tamil Nadu" in India for the monitoring period 01/11/2017 – 31/08/2018 as reported in the Monitoring Report Version 03 dated 31/12/2018. The Windage Power Company (P) LTD 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

ESPL commenced the verification on the basis of the baseline and monitoring methodology AMS I.D. version 18, the monitoring plan contained in the registered PD Version 01 dated 20/03/2017 and VCS guidelines version 3.7, Monitoring Report Version 03 dated 31/12/2018 as per the process described under Section 2 of this report.

ESPL 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. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

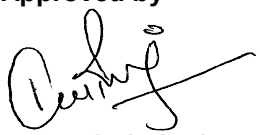
In our opinion the GHG emissions reductions reported for the project activity for the period 01/11/2017 – 31/08/2018 are fairly stated in the Monitoring Report Version 03 dated 31/12/2018. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS I D, Version 18, and the VCS standard.

Verification period: From 01/11/2017 – 31/08/2018 (including both days)

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2017 (01/11/2017 - 31/12/2017)	890	0.00	0.00	890
2018 (01/01/2018 - 31/08/2018)	26,058	0.00	0.00	26,058
Total	**26,948**	**0.00**	**0.00**	**26,948**

Approved by



Dr. Kaviraj Singh
Managing Director
Earthood Services Privated Limited

Date: 14/01/2019
Place: Gurgaon, Haryana

APPENDIX 1: References

S. No	Title of Document	Version	Date
1.	Revised VCS PD	1.0	20/03/2017
2.	VCS Validation Report for Renewal Crediting Period	1.0	29/08/2018
3.	Previous VCS Verification report (Monitoring period: 01/04/2016- 31/10/2017)	2.1	27/09/2018
4.	VCS Monitoring Report (Final) (Monitoring period: 01/11/2017- 31/08/2018)	03	30/12/2018
5.	Registered VCS PD	2.0	27/10/2009
6.	ER spread sheet (corresponding to the final monitoring report)	01	29/09/2018
7	Certificates of Calibration for all the meters belongs to project activity	-	-
8.	Monthly joint meter reading report issued by state TNEB	-	01/11/2017 to 31/08/2018
9.	Invoice issued by PP to respective state TNEB	-	01/11/2017 to 31/08/2018
10.	"Grid connected Renewable Electricity Generation", AMS I D,	18.0	-
11.	CEA Database	11.0	April/2016
12.	Commissioning certificate for all the WTGs of the project activity issued by state electricity authority	-	-
13.	Power Purchase Agreements signed between Project Proponent and state electricity authority	-	-
14.	VCS webpage for the project, VCS ID 682; http://www.vcsprojectdatabase.org/#/project_details/682	-	Last accessed on 01/11/2018
15.	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period	-	-
16.	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	-	-
17.	VCS Standard	Version 3.7	21/06/2017
18.	VCS Program Guide	Version 3.7	21/06/2017
19.	On site assessment –interviews of staff personnel, photographs, physical inspection of monitoring system	-	14/10/2018
20.	VCS Monitoring Report	1.0	01/10/2018
21.	Clean Development Mechanism Validation and Verification Standard for Project Activity (CDM-VVS for PA), version 01.0 as per EB 93, Annex 5	1.0	03/03/2017

APPENDIX 2: Competency Statement

Competence Statement			
Name	Vivek Kumar		
Country	India		
Education	B.E. (Mechanical Engineering) M.Tech (Energy Management)		
Experience	10 Years +		
Field	Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	ACM0002, AMS.I.D		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	YES (1.1, 1.2, 13.1)		
Reviewed by	Shreya Garg	**Date**	11/10/2018
Approved by	Anshika Gupta	**Date**	11/10/2018

Competence Statement			
Name	**Ravi Kant Soni**		
Country	India		
Education	B. Tech. (Mechanical Engineering) M. Tech. (Energy Management)		
Experience	8 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	NO		
TA Expert	YES (TA 1.2)		
Reviewed by	Abhishek Mahawar	**Date**	01/03/2018
Approved by	Kaviraj Singh	**Date**	01/03/2018

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
CMS	Central Monitoring System
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
MFR	Multi-Function Relay
MR	Monitoring Report
MW	Megawatt
MWh	Megawatt-hour
O&M	Operation and Maintenance
PD	Project Description
PLF	Plant Load Factor
PP	Project Proponent
QA/QC	Quality Assurance and Quality Control
TNEB	Tamil Nadu Electricity Board
TANGEDCO	Tamil Nadu Generation and Distribution Corporation Limited
TOD	Time of the Day
UNFCCC	United Nations Framework Convention on Climate Change
WEC	Wind Energy Convertor
WEG	Wind Energy Generator
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.**		**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.**	3.3	**Date : 29/10/2018**
Description of CL				
Please clarify why the calibration details of the energy meters covering the complete monitoring period is not provided in the MR. Please submit the latest calibration certificates of all the meters installed at substation and used to measure the data.				
Project participant response				**Date :30/10/2018**
1. PP has revised MR to provide the updated information of the energy meters covering the complete monitoring period. *2.* PP is hereby submitting the latest calibration certificates of all the meters installed at substation which are used to measure the data.				
Documentation provided by project participant				
- MR Version 2, 30 Oct 2018. - Meter Calibration Certificates				
DOE assessment				**Date:**31/10/2018
Calibration details of the energy meters are provided in the revised MR and the same is found consistent with calibration certificates provided by the PP. CL #1 is closed.				

Table 3. CAR from this verification

CAR ID	02	**Section no.**	1.6	**Date : 29/10/2018**
Description of CAR				
1. Please submit declaration confirming that the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions. 2. Please submit the monthly statements/credit notes issued by TNEB and invoices raised by the project proponent to the state utility in the current monitoring period.				
Project participant response				**Date : 30/10/2018**
1. PP is submitting the declaration letter confirming that the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions. 2. PP is hereby submitting the monthly statements/credit notes issued by TNEB and the corresponding invoices.				
Documentation provided by project participant				
- MR Version 2, dated 30 Oct 2018 - TNEB Monthly statements/credit notes and the Invoices				
DOE assessment				**Date:** 31/10/2018

Project proponent has submitted the declaration pertaining to confirmation for the GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions, found satisfactory, hence accepted. Also, the PP has submitted monthly statements/credit notes issued by TNEB. Same was checked and verified and found to be correct. CAR #2 is closed.

CAR ID	03	**Section no.**	4.1	**Date : 29/12/2018**
Description of CAR				
1. In section 2.2.2 of the MR V02; Meters were replaced during previous monitoring period, why this instance is not considered as project deviation, please clarify? 2. In section 3.1 of the MR V02; How the data can be verified as there is no reference of updated PDD, please clarify? 3. In section 3.3 of the MR V02; Since the new meter is installed well before start date of current monitoring period (01/11/2017) hence it is not required to report older meter Serial Number? 4. In Appendix I of the MR V02; please further clarify the information as same is not clear.				
Project participant response				**Date : 31/12/2018**
1. *PP would like to clarify that meter replacement has happened in previous monitoring period and the same was considered as deviation during the previous monitoring period. Therefore, PP had not included the replacement of meter as the deviation in the current monitoring period. However, PP has revised the section 2.2.2 of the MR to provide the same details and explicitly mentioned that "the energy meter replacement has happened in previous monitoring period and the same as considered as deviation in previous as well as in current monitoring period. However, it does not impact the existing applicability conditions of the methodology, additionality or the appropriateness of the baseline scenario".* 2. *PP has revised section 3.1 of the MR to provide the reference of the renewal PD under comments as "Please refer to the VCS PD of Renewal of Crediting Period, version 01 (Dated: 20/03/2017)." Furthermore, PP is providing the VCS database link to refer the VCS project ID "682" under the renewal of crediting period review report: https://www.vcsprojectdatabase.org/services/publicViewServices/downloadDocumentById/34166.* 3. *PP has revised section 3.3 of the MR to remove the older meter Serial Number of 2014 reported in MR.* 4. *PP has revised the Appendix I of the MR to provide the detailed description on the ER calculation specifically for the first & last month of the current monitoring period.*				
Documentation provided by project participant				
MR Version 3, dated				
DOE assessment				**Date: 08/01/2019**
Meter replacement was done during the previous monitoring period and the project proponent has considered the same as project deviation and reported under section 2.2.2 of the MR, found to be satisfactory. This is confirmed that it does not impact the existing applicability conditions of the methodology, additionality or the appropriateness of the baseline scenario. Information under section 3.1 are updated and found to be correct, hence accepted. The project proponent has removed the meter details not relevant to the current monitoring period, found to be satisfactory. Information's under Appendix-1 of the MR are updated and found to be appropriate, hence accepted. CAR #3 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
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				**Date:** DD/MM/YYYY
N/A				

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