Verified Carbon Standard

VERIFICATION REPORT

4.5 MW BUNDLED WIND POWER PROJECT

TÜV SÜD South Asia

Document Prepared By

TÜV SÜD South Asia Pvt Ltd

Report Title	VCS verification of "4.5 MW BUNDLED WIND POWER PROJECT"
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Summary:

TÜV SÜD South Asia Pvt Ltd has performed the verification of VCS 305 project "4.5 MW BUNDLED WIND POWER PROJECT". This report summarizes the findings of the gap verification of this project, performed on the basis of VCS Standard Version 4.3 criteria.
The Project Participants are VVD AND SONS PRIVATE LIMITED (Registry User) and EKI Energy Services Ltd. (Authorized Representative).

Verification purpose: The objective of the verification work is to comply with the requirements of Verified Carbon Standards requirements. According to this assessment TÜV SÜD shall ensure that the project activity has been implemented and operated as per the VCS and VCS PD, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,

The crediting period for VCS 305 project is from 15/04/2006 - 14/04/2016 (Expired). This is Verification of the monitoring period 17-September-2014 to 14-April-2016. The total GHG emission reductions for the current monitoring period are 5,103 tCO_2e. No uncertainties were noticed during the verification.

In conclusion, it is TÜV SÜD's opinion that the project activity "4.5 MW BUNDLED WIND POWER PROJECT", as described in the VCS PD and MR version 1.3 meets all relevant requirements of VCS for the monitoring period 17-September-2014 to 14-April-2016.

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1 INTRODUCTION

1.1 Objective

TÜV SÜD has been commissioned by the aforementioned client to perform an independent verification assessment.
The objective of the verification work is to have an independent evaluation of a project activity by a designated operational entity against the requirements of the VCS Version 4.3, on the basis of the monitoring report version 1.3. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PDD, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable VCS
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- evaluate the data recorded and stored as per the applicable requirements.

1.2 Scope and Criteria

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of VCS project activities, the scope is set by:

- VCS v4.3 requirements
- Baselines and monitoring methodologies
- Environmental issues relevant to the applicable sectoral scope
- Current technical and operational knowledge of the specific sectoral scope and information on best practice
- Stakeholder consultation and feedback

The verification process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the Monitoring Report.

1.3 Level of Assurance

The errors identified in the project are below the threshold limit of materiality and hence not material. The GHG emission reductions are calculated without material misstatements.
The VVB confirms that a reasonable level of assurance has been achieved during the verification process.

1.4 Summary Description of the Project

The main purpose of this project activity is to generate clean form of electricity through renewable wind energy source. VVD AND SONS PRIVATE LIMITED is the promoter of the proposed project activity. The Project has installed 6 numbers of WEGs of 0.75 MW capacity each accounting to a total of 4.5 MW installed in Tirunelveli & Tenkasi talukas of Tirunelveli district, Tamil Nadu. The total project capacity is 4.5 MW.

The Project activity is a new facility (Greenfield) and it plans to utilize wind energy to generate electricity and supply it to TNEB, which is a part of the NEWNE[1] (Northern, Eastern, Western and North-Eastern) grid of India. In the absence of the project the same electricity would have been generated through fossil fuel dominated power plants. Thus, the project displaces the electricity from the grid and hence, the electricity grid has been taken as the baseline to the project activity. Emission reductions are claimed on the net electrical energy that is sold to the grid utility.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The information provided by the project participants is assessed by applying the means of verification specified in the VCS standard V4.3 of 22 June 2022

A competent assessment team is selected prior to the start of the verification. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the VCS project activity. Additionally, a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by an remote audit, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the VVB before submission to the VCS.

[1] now a part of unified Indian grid

2.2 Document Review

The documents referred during the course of this verification are provided in Appendix 1.

2.3 Interviews

The VVB has not conducted the on-site inspection for this current monitoring period due to obligations imposed by COVID 19. However, the VVB has ensured that reasonable level of assurance has been achieved as per Verra regulations on the relaxation of mandatory site visits by the VVB due to Covid-19 (*https://verra.org/covid-19-travel-guidance/*). The VVB has conducted telephonic interviews and video calls to discuss with the client regarding the data and documents pertaining to the current verification period. The interviews and discussions were conducted successfully.

The following describes the flow of interview process:

- Opening meeting with introduction of the persons involved in the remote audit.
- Brief introduction about the plant (start-up / capacity)
- History and background of the project
- Project starting date and start of crediting period
- Technology employed
- Operational process
- Project activity in the registered PD
- Actual implementation and operation of the project activity
- Monitored data and parameters
- ER calculations
- Comparison between recorded data and calculation spreadsheets
- Storage of data
- Calibration
- Maintenance procedure
- Quality Control procedures
- Quality Assurance procedures
- Interviews with local stakeholders
- Discussions on the observations noted down and closing meeting

S. No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Kabilian	D	Director, VVD AND SONS PRIVATE LIMITED	21 June 2022	Project activity actual implementation, technology employed, monitoring plan implementation, data measurement, recording & storage, ex-ante data & assumptions, calibration of meters, maintenance of plant equipment, QA/QC procedures	Shailendra K Arjun Vyas
2	Murugesan	S	Manager Accounts, VVD AND SONS PRIVATE LIMITED	21 June 2022		
3	Thakur	Juhi	Consultant - EKI Energy Services	21 June 2022	Monitoring plan and ER calculations	
4	Sharma	Barun	Consultant - EKI Energy Services	21 June 2022		
5	Nayakulla	Anil Kumar	Consultant - EKI Energy Services	21 June 2022		

2.4 Resolution of Findings

3 Clarification Requests (CL) and 3 Corrective Action Request (CAR) have been raised during the course of verification process and has been successfully closed. No Forward Action Request (FAR) was raised during this verification. Please refer to Appendix -2 of the report.

2.4.1 Forward Action Requests

This is the 3rd periodic verification of the project activity and no FAR was raised in the previous verification nor the current verification.

2.6 Eligibility for Validation Activities

Not applicable

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project proponent has provided undertaking that it will not claim any GHG credits in any GHG program other than that under VERRA during the current monitoring period. It is also confirmed that the project is not registered with any other GHG programme.

3.2 Project Description Deviations

The project description mentions 0.5s accuracy class meters whereas, the during implementation the meters are installed of 0.2s class accuracy. As per the document CEA Metering regulations 2006 and CEA metering regulation amendment 2019, the energy accounting and audit meters of renewable energy generating stations should not be inferior to 0.2s class accuracy. Also, it is noted that 0.2s class meters are more accurate than 0.5s meters; therefore, the values of electricity generated/used for auxiliary consumption used in ER calculations will be more accurate than 0.5s meter. Hence, the deviation is accepted based on this justification.

3.3 Grouped Project

Not applicable as the project is non-grouped.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the verification remote audit was conducted and was concluded that the project is implemented as per the instruction of the registered PD/21/, final validation report and this is verified from the commissioning certificates/4-9/. During the current monitoring period it was observed that no unforeseen situation evolved which can impact the operation of the project activity. Breakdown summary is submitted by PP for the wind plants. Scheduled maintenance was carried out as per the instruction of the manufacturer and the same is acceptable to the assessment team/27/.

The total installed capacity of the project is 4.5 MW, which involves 6 WTG of 750 kW capacity in Tamil Nadu state by VVD and Sons Private Limited /4-9/. The technical parameters/specification have been verified by the assessment team during the remote audit with the nameplates as well as the same is also verified with the details as provided by the manufacturer/30/.

It has also been verified as per the guidelines in AMS I. D (Version 14) that the calculations for the GHG emission reductions are done in accordance with the aforesaid methodology/1/.

The assessment team also confirmed that the monitoring system for emission reduction calculation was in place and in accordance with the registered VCS PD/21/. There was no deviation observed by the assessment team in the implementation of the monitoring system from the registered VCS PD during the current monitoring period/21/.

During the current monitoring duration, no major events have been found that can change the design of project as per the clause 3.19.2 of VCS standard v4.3 /3/.

The Details of the location of the project activity located in the state of Tamil Nadu are as follows:

HT.SC.No.	Location (Village)	S. F. No.	Commissioning Date	Latitude	Longitude
1608	Ayan Surandai	474(P) & 510/2	16-March-2006	N 8°59’07.3”	E 77°27’01.9”
1690	Achankuttam	201	26-March-2006	N 8°57’44.9”	E 77°28’45.0”
2122	Sambavar Vadakarai	285/3 (P)	28-December-2006	N 9°01’00.6”	E 77°24’05.5”

2123	Sambavar Vadakarai	188/7(P),8,9(P)	28-December-2006	N 9°00'42.6"	E 77°24'16.7"
2227	Sambavar Vadakarai	200/11,12,13,14,15,16B(P)	26-March-2007	N 9°01'12.5"	E 77°24'05.2"
2245	Kulayaneri	187/4 (P)&356/1A(P)	27-March-2007	N 9°00'30.4"	E 77°26'21.7"

The Project proponent of the project is VVD and Sons Private Limited. The commissioning dates of the WTGs are mentioned in the above table.

Capacity of the projects and date of commissioning verified with commissioning certificates/4-9/ and technical specifications provided by technology supplier/30/

Geo coordinates checked on google earth/19/ and also checked during remote audit and verification team conclude geo coordinates of project locations are consistent with registered PD.

Assessment team checked the technical details of the project activity from the manufactures specification and the detail are as follow:

Operational conditions	
Calculated lifetime	20 years
Cut in wind speed	<3.5 m/s
Cut out wind speed	25 m/s
Maximum rotational speed	22/15 rpm
Main specification	
Rotor Diameter	48.2 m
Number of Blades	3
Rotational speed (synchronous)	22.2/14.8 rpm
Hub height	55 m
Tower type	Conical modular tower
Rotor position	Upwind
Blade	
Blade length	23.5 m
Blade profile	NACA 63 Series
Air Brake	Turn able blade tips,hydraulic
Generator	
Nominal Power	750/200 kW

Rotational Speed	1500/1000 rpm
Yawing System	
Yaw bearing, type	Ball bearing
Motor	4 No's 3Φ Induction Motor,0.37 kW
Gearing ratio	1:2716
Brake	Hydraulic disc, 3 pieces
Mechanical Brake	
Type	Disc brake
Position	Output shaft on gear box
Control system	
Manufacture	DAN CONTROL / VESTAS
Type	Microprocessor based

Assessment team concludes the following:

a) The implementation status of project activity was found to be in compliance with registered PD/21/.

b) DOE has conducted the remote audit to confirm the implementation status of the project/28/.

c) The commissioning date of the project activity was found to be accurately and consistently recorded/4-9/.

d) The actual operation of project activity was found to be in compliance with the description provided in registered PD/1/. Except

e) The emission reductions achieved during the current monitoring period are 5,103 tCO2e.

The project activity contributes to the sustainable development by utilizing wind energy for generating electricity which otherwise would have been generated through fossil fuels. Thereby reduction in usage of non-renewable sources used to generate energy.

Further the GHG emission reductions generated by the project activity has not been included by any other an emissions trading program or any other mechanism that includes GHG allowance trading. Also, the project has not received any other form of environmental credit and has not been participated/rejected under any other GHG programs.

Sustainable Development- The project will contribute to the sustainable development in the following ways:

Social well-being:

- Enhancing local employment of rural area around the project.

- Capacity building and empowerment of vulnerable sections of the rural community dwelling in the project area

Economic well-being:

- During the construction and operation phases, the project activity would generate small business opportunities for local stakeholders such as bankers, suppliers, manufacturers, contractors and landowners.

Environmental well-being:

This project activity contributes to sustainable development through generation of eco-friendly power resulting in the increase of the share of renewable energy power generation in the regional and national grid. It would aid in strengthening India's rural electrification coverage. Wind power projects also aid in reducing GHG emissions and other pollutants (Sox, Nox, and Particulates etc).

Technological well-being:

The Project activity helps in increasing the share of renewable energy power generation in the regional and natural grid the project activity also, encourage clean, renewable, and efficient technologies.

The project activity doesn't monitor it's impact on SDG as it was registered under older version of VCS programme where in it was not required to assess project's SDG contribution.

The total emission reductions achieved in this monitoring period i.e., from 17 September 2014 to 14 April 2016 are 5,103 tCO2e.

Assessment team checked the start date of the project activity which is 16-March-2006. This is the day on which first WTG was commissioned under the project activity. The same is checked from the registered VCS PD as well.

The crediting period for the project is fixed. The details are as below:

The project crediting period is of 10 years.

Start Date of Crediting Period: 15-April-2006

End Date of Crediting Period: 14-April-2016

CL 01, CL 02 and CAR01 were raised in this section by the assessment team.

4.2 Safeguards

4.2.1 No Net Harm

As PP does not see and identify any potential negative environmental and socio-economic impacts, hence this section is not required.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. As confirmed by PP during interviews, for on-going stakeholder's communication, PP has maintained feedback/complaint register/29/ at the site office. Local stakeholders can anytime lodge their grievances if any in the register over the operational lifetime of the project.

During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder communication mechanism is adequate and appropriate.

4.3 AFOLU-Specific Safeguards

Not applicable to this as this is not an AFOLU project activity.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the MR.
Findings	CL 03 and CAR 02 were raised by assessment team.
Conclusion	Ex-ante Parameter: EFgrid,OM,y = Parameter is fixed ex-ante for the entire crediting period and as per the validated VCS PD same is fixed 0.9981 tCO2/MWh. Verification team found same was used in the ER calculations. Ex ante value of emission factor is taken from CEA database, version 4, September 2008. Verification team checked the EF value and found in consistent with registered PD EFgrid,BM,y = Parameter is fixed ex-ante for the entire crediting period and as per the validated VCS PD same is fixed 0.7133 tCO2/MWh. Verification team found same was used in the ER calculations. Ex ante value of emission factor is taken from CEA database, version 4, September 2008. Verification team checked the EF value and found in consistent with registered PD EFgrid,CM,y = Parameter is fixed ex-ante for the entire crediting period and as per the validated VCS PD same is fixed 0.9269 tCO2/MWh. Verification team found same was used in the ER calculations.

	Ex ante value of emission factor is taken from CEA database, version 4, September 2008. Verification team checked the EF value and found in consistent with registered PD. Baseline Emissions: The baseline Emissions for a given year is calculated by multiplying the energy baseline with the grid emission factor. The grid in this case would be the 'Indian Grid' Formula Used: - $BEy = EGen \times EFGrid_{,CM}$ Where: BEy = Baseline emissions in year y (t CO2/yr) EGen = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr) $EFGrid_{,CM}$ = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO2/MWh). The emission factor is also abbreviated as EFgrid,CM,y as per tool. Monitored Parameter: $EGen = E_{Exp} - E_{IMP} = 5{,}505{,}932$ kWh The verification team has checked the entire monthly JMR reports/16/ for net electricity generated & supplied to the grid and crosschecked same with the invoices/17/ raised by PP towards State Utilities for the monitoring period. All values are found correct. All the parameters are monitored and recorded as per the monitoring plan in the MR. The verification team has crosschecked the revised emission reduction sheet and monitoring report data with the JMR sheet and invoice and found all the values are matching. PEy = AMS I. D (Version 14), all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. As the project activity involved wind power project emissions (PEy) are taken as zero. Leakage: AMS I. D (Version 14), Leakage emissions are not considered for the project activity.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the break down log for the monitoring period. During the verification remote audit and the feeder wise location of the wind plants is also checked. The metering arrangement is tri-vector bi-directional energy meters (main and check and one standby meter) at the State Electricity Board (SEB) substation. These meters record parameters including electricity exported & imported. Moreover, the meters are of accuracy class of 0.2S for project activity applied for verification. These electricity meters are being used by state electricity board for JMR (Joint Meter Reading) electricity generation statements. The Net electricity supplied to the grid is then calculated from export and import values. The net electricity exported to the grid is also cross checked from the invoices raised to respective state electricity board which is in line with Methodology requirement for small scale project activity. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of state utility and O&M personnel. In the event of failure of main meter, the check meter is used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other wind farm projects. Verification team confirms the metering process by interviewing PP representatives during remote audit and found the monitoring process is in line with approved PD. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration is done once in a year as described in the PD /21/. The details of Calibration of the meters as confirmed during remote audit and calibration certificates are mentioned in Appendix 3 of this report. The assessment team checked the same and found correct. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly, O&M contractor is responsible for monitoring of the generation data at CMS. PP representatives confirmed that the CMS data as well as JMR sheets and invoices will be kept for 2 years following the end of the crediting period. During remote audit and discussion with PP, assessment team confirm that the data will be kept for 2 years following the end of the crediting period. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the remote audit by interviewing PP representative and checking of records/ logbooks copy maintained at site.
Findings	CAR 03 was raised by the assessment team.

Conclusion	The assessment team confirms that the value of net electricity exported to the grid as used in emission reduction calculation is correct. Comparison of actual and estimate emission reductions achieved: Assessment team checked the calculation of estimated VER vs. Actual VER. As per the registered VCS PDD the amount of VERs annually is 8,820 tCO2e. The days involved in present monitoring period are 576. Therefore, on pro-rata basis, the estimated VERs for the monitoring period is 13,918 tCO2e. Actual VERs obtained for the monitoring period is 5,103 tCO2e and thus the actual VER is 63% lower than the estimated VER. This variation is majorly due to the grid availability in the year 2015 and 2016 as can be verified by the breakdown details /27/ and minorly due to change in the wind patterns which are not in the control of PP.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

TUV SUD South Asia Pvt Ltd, contracted by VVD and Sons Private Limited has performed the independent verification of the emission reductions for the VCS project activity reference number 305 “4.5 MW bundled wind power project” in India for the monitoring 17-September-2014 to 14-April-2016 (First and last date included) reported in the Monitoring Report Version 1.3 dated 19-September-2022.

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

TUV SUD South Asia Pvt Ltd commenced the verification on the basis of the baseline and monitoring methodology “AMS I. D (Version 14) the monitoring plan contained in the PD version 1.3 and VCS standard version 4.3; Monitoring Report Version 1.3 dated 19-Sep-2022 as per the process described under Section 2 of this report.

TUV SUD South Asia Pvt Ltd 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. TUV SUD South Asia Pvt Ltd planned and performed the verification by obtaining evidence and other information and explanations that TUV SUD South Asia Pvt Ltd 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 17-September-2014 to 14-April-2016 (First and last date included) are fairly stated in the Monitoring Report Version 1.3 dated 17-Sep-2022. The GHG emission reductions were calculated correctly based on the approved baseline and monitoring methodology “AMS I. D (Version 14)” and the VCS standard v4.3.

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)
2014	695	0	0	695
2015	4,217	0	0	4,217
2016	191	0	0	191
Total	5,103	0	0	5,103

APPENDIX 1: DOCUMENTS REVIEWED

No	Title	References to the document
1	AMS-I.D./Version 14: "Grid connected renewable electricity generation"	31/07/2009
2	VCS Program Guide, v 4.2	22/06/2022
3	VCS Standard v4.3	19/09/2019
4	Commissioning Certificates for HT SC No. 1608	12/04/2006
5	Commissioning Certificates for HT SC No. 1690	17/04/2006
6	Commissioning Certificates for HT SC No. 2122	08/01/2007
7	Commissioning Certificates for HT SC No. 2123	08/01/2007
8	Commissioning Certificates for HT SC No. 2227	05/04/2007
9	Commissioning Certificates for HT SC No. 2245	13/04/2007
10	Calibration Certificate of HT SC No. 1608	05/12/2014
11	Calibration Certificate of HT SC No. 1690	12/05/2015
12	Calibration Certificate of HT SC No. 2122	16/02/2015
13	Calibration Certificate of HT SC No. 2123	06/08/2014
14	Calibration Certificate of HT SC No. 2227	29/03/2015
15	Calibration Certificate of HT SC No. 2245	15/05/2014
16	JMRs from September 2014 to April 2016	Multiple dates
17	Invoices from September 2014 to April 2016	Multiple dates

18	Power Purchase Agreement dated 07 March 2008	07/03/2008
19	Google Earth (Desktop/Mobile Application (https://earth.google.com/web/)	Accessed on 03/08/2022
20	Site photographs of WTGs and energy meters	29/07/2022
21	VCS-PD for the project titled "4.5 MW Bundled Wind Power Project"	15/09/2009
22	VCS-MR for the project titled "4.5 MW Bundled Wind Power Project"	version 1.3 of 04/04/2023
23	ER spread sheets (VCS_305_ER Sheet_V01.3_19-09-2022.xlsx)	version 1.3 of 04/04/2023
24	EIA notification	14/09/2006
25	Central Electricity Authority (Installation and Operation of meters) Regulations 2006	22/03/2006
26	Double Counting avoidance undertaking	29/07/2022
27	Generation and Breakdown details Spread sheet	29/07/2022
28	Interview with PP site team	21/06/2022
29	Grievance Register	29/07/2022

APPENDIX 2: RESOLUTION OF FINDINGS

Table 1. CL from this verification

CL ID	01	**Section no.**	4.1	**Date:** 24/06/2022
Description of CL				
Project Participant is required to submit documents listed below. 1) WTG and meter photographs 2) Grievance record for the monitoring period 3) Shut down records				
Project participant response				**Date:** 29/07/2022
The WTGs and Meter Photographs, Grievance record for the monitoring period and shut down records are now submitted to DOE assessment team.				
Documentation provided by project participant				

1. WTGs and meter photographs 2. Grievance record for the monitoring period 3. Shut down records
DOE assessment **Date:** 03/08/2022
Sufficient documents are provided by the PP to address the issues. The CL request can be considered closed.

CL ID	02	**Section no.**	4.1	**Date:** 24/06/2022
Description of CL				
The frequency of calibration reported in MR is not consistent with the VCS PD. PP to clarify how the frequency of 2 years is considered during the monitoring period and provide references/supporting evidence.				
Project participant response				**Date:** 29/07/2022
According to the "Central Electricity Authority (Installation and Operation of meters) Regulations 2006 (https://cea.nic.in/regulations-category/metering-regulations/?lang=en), Para 18 "all the interface & consumer meters shall be calibrated at least once in 5 years". The MR is corrected with frequency of calibration inline with the VCS PD monitoring plan. Correction factor has been applied to the generation in months without valid calibration.				
Documentation provided by project participant				
Updated MR V1.3 Updated ER V2.1				
DOE assessment				**Date:** 19/09/2022
PP has applied the corrections factor for all the months with expired calibration and hence the corrections are accepted.				

CL ID	03	Section no.	4.4	Date: 24/06/2022
Description of CL				
PP to clarify the discrepancy in the JMRs below: 1. JMR missing for the WTG/SC 1690: June, Nov and Dec 2015. 2. JMR for March 2016 for WTG/SC 1690 contains data only for the period of 05/02/2016 to 09/02/2016.				
Project participant response				**Date:** 29/07/2022
1. JMR missing for the WTG/SC 1690: June, Nov and Dec 2015 is now submitted to assessment team. 2. JMR for March 2016 for WTG/SC 1690 contains data only for the period of 05/02/2016 to 09/02/2016 and JMR for the rest of the month is now provided to assessment team.				
Documentation provided by project participant				
1. JMR for WTG/Sc 1690 –month June, Nov, and Dec 2015 2. JMR for March 2016 for WTG/SC 1690 for the entire billing month.				
DOE assessment				**Date:** 03/08/2022
JMR submitted are verified and cross checked with the invoice.---				

Table 2. CAR from this verification

CAR ID	01	Section no.	4.1	Date: 24/06/2022
Description of CAR				
The dates of commissioning for the 6 nos. WTGs are not included in the MR.				
Project participant response				**Date:** 29/07/2022
The Details of Commissioning dates of 6 WTGs in the Monitoring report are now Provided to the DOE assessment team.				
Documentation provided by project participant				
Revised MR V1.3				
DOE assessment				**Date:** 19/09/2022
Corrections are accepted.				

CAR ID	02	Section no.	4.4	Date: 24/06/2022
Description of CAR				
1. PP to provide the details of meter replacement if any during the monitoring period. The details provided under Appendix cannot be matched with the certificates. 2. For few meters, calibration details for the period prior to the monitoring period are not provided to understand the continuity of calibration for the meters.				
Project participant response				**Date:** 29/07/2022
The details of meter replacement and their Calibration are now provided in the revised MR as Appendix 1 & the Calibration Certificates attached for DOE assessment				
Documentation provided by project participant				
1. Revised MR V1.3 2.Calibration Certificates				
DOE assessment				**Date:** 19/09/2022
1. Revised MR containing details of the meter replacement are verified and found correct. 2. Calibration reports are submitted for certain period while correction factor is applied for the rest period and hence calculation of ERs is appropriate.				

CAR ID	03	Section no.	4.5	Date: 24/06/2022
Description of CAR				
The ER sheet has the following issues 1. The MP starts from 17/09/2014, however the monthly data provided starts from Oct 2014 and ends in May 2016. 2. Apportioning details for some months are not provided 3. It is not clear if the correction factors have been applied for months having delay in calibration.				
Project participant response				**Date:** 29/07/2022
1. Monthly Billing Cycle for the project activity starts from the 05th of previous month to 05th of present month. i.e., Monthly Generation Report of "Oct 2014" reads the generation from 05/09/2014 to 05/10/2014 Hence, MP start date is covered in Oct 2014 billing cycle and same is mentioned in the ER sheet. In order to ensure more clarity, PP now mentioned the initial & final reading dates of particular month in the revised ER sheet & the same is attached for DOE perusal. 2. Apportioning details provided for all the months as required. 3. Yes, correction factors have been applied for all the months having delay in calibration.				
Documentation provided by project participant				
Revised ER Sheet V2.1				
DOE assessment				**Date:** 31/10/2022
1. Apportioning is done correctly using daily generation data and applied in the revised ER sheet. 2. Apportioning information is now provided and is correct 3. Corrections are accepted.				

Table 3. FAR from this verification

NA

APPENDIX 3: Electricity Meter Details

HTSC No	Meter Serial No	Make	Accuracy class	Year	Date of calibration	Validity of calibration
1608	21009412	L&T	0.2s	2014	05-December-2014[2]	04-December-2015
1690	HT2170281	EDMI	0.2s	2015	12-May-2015[3]	11-May-2016
2122	HT2170565	EDMI	0.2s	2015	16-Feburary-2015[4]	15-Feburary-2016
2123	HT2170537	EDMI	0.2s	2014	06-August-2014[5]	05-August-2015
2227	HT2160523[6]	L&T	0.2s	2015	29-March-2015[7]	28-March-2016
2245	21009410	EDMI	0.2s	2014	15-May-2014[8]	14-May-2015

[2] Due to delay in calibration error factor has been applied from the month of September 2014 to December 2014 and December 2015 to April 2016 .
[3] Due to delay in calibration error factor has been applied from the month of September 2014 to May 2015.
[4] Due to delay in calibration error factor has been applied from the month of September 2014 to February 2015 and February 2016 to April 2016.
[5] Due to delay in calibration error factor has been applied from the month of August 2015 to April 2016.
[6] In the year 2016 the main meter having the serial number HT5110160 having the accuracy class 0.5s was replaced with the main meter having the serial number HT2160523 having the accuracy class 0.2s
[7] Due to delay in calibration error factor has been applied from the month of September 2014 to March 2015 and March 2016 to April 2016
[8] Due to delay in calibration error factor has been applied from the month of May 2015 to April 2016