



WIND POWER PROJECT AT ANTHIYUR, TAMIL NADU

Document Prepared By



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Summary:

M/s VKU Certification Pvt.Ltd.(hereafter referred as VKU) was commissioned by Windage Power Company (P) LTD (hereafter referred as Windage Power Company) has verified the greenhouse gas emission reductions reported for the project activity “**Wind Power Project at Anthiyur, Tamil Nadu**” (VCS ID 682¹) in India. This is the seventh verification of second crediting period and overall, ninth periodic verification of the project activity. The monitoring period is from **01-May-2022 to 31-December-2022 (Inclusive of both start and end dates)** under second crediting period from **01-April-2016 to 31-March-2026 (Inclusive of both dates)**.

The purpose of the verification: The objective of the verification process is to obtain an impartial evaluation of the ex-post determination of the monitored reductions in greenhouse gas (GHG) emission. This verification aims that the monitoring methodology was implemented in accordance with the monitoring plan, and that the monitoring data used to validate the reductions in anthropogenic emissions from sources is thorough, conclusive, and presented in a clear and transparent manner.

The verification scope of the project is:

- To verify that the project is implemented as described in the registered VCS PD/3/.
- To evaluate the project's adherence to relevant regulations, including the legislation of the host country (India).
- To verify the implementation and functionality of the monitoring system, ensuring the generation of Verified Carbon Units without any instances of double counting.
- To verify the accuracy, completeness, consistency, transparency, and absence of significant errors or omissions in the reported data by examining monitoring records and emissions reduction calculations.
- To ensure that the actual monitoring systems and procedures align with those described in the monitoring plan.
- To assess the GHG emission reduction data and provide a conclusion with a reasonable level of assurance regarding the absence of material misstatements.
- To verify that reported GHG emission data is sufficiently supported by evidence.

Verification was conducted using VKU's procedures in line with the requirements specified in the VCS Program Guide version 4.3/6/, VCS Standard Version 4.4/7/, VCS Validation and Verification Manual version 3.2/8/, CDM M&P, the latest version of the CDM Validation and Verification Standard 3.0/9/, and relevant decisions of the COP/MOP and the CDM EB viz., the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision /3/ CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation. Furthermore, standard auditing techniques were applied throughout the verification process.

¹ <https://registry.terra.org/app/projectDetail/VCS/682>

The verification process included *inter alia* a desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification. This comprehensive verification is aimed to ensure that the reported emission reductions are thorough and precise, aligning with the relevant VCS requirements, thus enabling the project to obtain certification.

VKU diligently followed the rule-based approach during the verification process, ensuring strict adherence to the applicable VCS requirements. The verification encompassed a comprehensive assessment of the project activity's operations, monitoring procedures, and GHG emission reduction calculations. As a result, a total of six (06) findings were identified, comprising four (04) Corrective Action Request (CARs); two (02) Clarification Requests (CLs) and zero (00) Forward Action Requests (FAR). All the raised findings were successfully resolved/closed after necessary corrections/clarifications by the client. The same has been discussed in [Appendix B](#) of this verification report.

The verification team ensured that the reported emission reductions are complete and accurate by verifying 100% of the data with the supporting documents and evidences made available to the assessment team. This was performed during desk review and also during site visit by conducting personnel interviews and focussed group discussions along with verification of data present on-site in accordance with applicable VCS requirements to be certified therefore the verification team has detected no further uncertainties.

The GHG emission reductions were calculated based on the approved methodology AMS I.D.- Version 18.0: Grid connected Renewable Electricity Generation /10/ and Tool to calculate the emission factor for an electricity system; Version 06.0.0 /19/ and the monitoring plan included in the registered VCS PD (version 01) dated 20-March-2017/3/

Verification Conclusion:

Based on VKU's thorough assessment, it is their professional judgment that the project activity "Wind Power Project at Anthiyur, Tamil Nadu" (VCS ID 682) fully complies with the applicable requirements of VCS standard version 4.4 /7/ and associated guidelines. The project has successfully implemented the designated baseline and monitoring methodology outlined in AMS I.D.: Grid connected Renewable Electricity Generation- Version 18.0 /10/.

The monitoring system in place is effective and reliable, ensuring reasonable level of measurement and precision level allowed by the methodology and the VCS standards without any significant discrepancies. As a result, VKU is able to objectively state that the project has achieved an emission reduction of **28,782 tCO₂e** during the seventh verification of second crediting period (01-April-2016 to 31-March-2026; Including both dates) and overall, ninth periodic verification of the project activity for monitoring period, which spans from **01-May-2022 to 31-December-2022 (Inclusive of both start and end dates)**. This certification affirms the project's substantial contributions towards mitigating greenhouse gas emissions.

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1 INTRODUCTION

1.1 Objective

M/s Windage Power Company (P) Ltd (hereafter referred as Windage Power Company) Commissioned M/s VKU Certification (here after referred as VKU) to carry out seventh verification of the project “Wind Power Project at Anthiyur, Tamil Nadu” (VCS ID 682) project in India for the period from 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates) under second crediting period from 01-April-2016 to 31-March-2026 (Inclusive of both dates).

This report summarizes the findings of the verification of the project, performed based on VCS Requirements and UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting as per VKU’s standard procedure for verification which is in line with VERRA standard version 4.4/7/ for verification.

The agenda of the verification is to have an independent evaluation of a project activity by an accredited validation and verification body against the requirements of the VCS Program Guide Version 4.3 /6/, VCS standard version 4.4 /7/ and GHG program applied, on the basis of the registered VCS PD Version 01 dated 20-March-2017/3/.

This is the seventh verification of **second crediting period (01-April-2016 to 31-March-2026)**, (Inclusive of both dates) for a period of eight months i.e., from 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates) & overall ninth periodic verification of the project activity. The project activity adopts renewable crediting period ² of 10 years period as mentioned in section 1.6 of VCS PD version 01 dated 20-March-2017/3/.

Table No 01: Number and time period of Verification under second crediting period:

Second Crediting Period: 01-April-2016 to 31-March-2026, Including of both dates.		
Periodic Verification No.	Monitoring Period (Inclusive of both dates)	Number of years
1 st in VCS	<u>01-April-2016 to 31-October-2017</u>	1 year 7 months 00 days

² This project is duly registered as per VCS standard 3.7 as per the validation report, in accordance with 3.8.1 of VCS standard 3.7 the project crediting period shall be a maximum of ten years which may be renewed at most twice. Please refer : <https://verra.org/wp-content/uploads/2020/11/PREVIOUS-VERSION-VCS-Standard-v3.7.pdf> Also as per latest VCS standard version 4.4 where Appendix 1 states that “Registered VCS projects and projects that request registration with the VCS Program on or before 31-December-2019 remain eligible under the VCS Program for the entirety of their crediting periods” The Project completed validation before 31-December-2019 i.e. on 29-August-2018 and chose to use the crediting period requirements under VCS version 3.

2 nd in VCS	<u>01-November-2017 to 31-August-2018</u>	10 months 00 days
3 th in VCS	<u>01-September-2018 to 31-October-2019</u>	1 year 2 months 00 days
4 th in VCS	<u>01-November-2019 to 31-October-2020</u>	1 year 00 months 00 days
5 th in VCS	<u>01-November-2020 to 31-August-2021</u>	10 months 00 days
6 th in VCS	<u>01-September-2021 to 30-April-2022</u>	8 months 00 days
7 th (Current Monitoring Period) in VCS	01-May-2022 to 31-December-2022	8 months 00 days

The verification will be performed by review of evidences & documents submitted to the VKU Assessment/Verification Team by PP, for the registered project activity to establish that:

- The project activity has been implemented and operated in strict adherence to the registered VCS PD version 01 dated 20-March-2017 /3/ & MR /1/ and that all physical features (technology employed, technical specifications of the WTGs, project equipment's, metering and monitoring protocols) of the project are in place.
- The monitoring report/1/ and accompanying documentation have been meticulously compiled and are comprehensive in nature.
- The data has been methodically recorded and stored in accordance with the prescribed monitoring methodology outlined in "AMS I.D.: Grid connected Renewable Electricity Generation - version 18.0 /10/ and approved monitoring plan.

The verification process aimed to confirm the seamless implementation and full functionality of the monitoring system, ensuring the accurate generation of Verified Carbon Units (VCUs) without any instances of double counting/27/. Additionally, meticulous scrutiny of the monitoring records and emissions reduction calculations has been carried out to guarantee the completeness, consistency, transparency and absence of any material errors or omissions in the reported data. This aims to establish the reliability and integrity of the data.

1.2 Scope and Criteria

The scope of this verification was the independent, objective review and ex-post determination of the monitored reductions in GHG emissions from the "Wind Power Project at Anthiyur, Tamil Nadu". The verification of this project was based on the validated & registered VCS PD version 01 dated 20-March-2017/3/ & monitoring report/1/ along with supporting documents submitted by the project proponent to the VKU Assessment/Verification team. The documents thus submitted to the VKU Assessment/Verification Team were reviewed against the following guidance & protocols:

- VCS Programme Guide (Version 4.3) /6/
- VCS Standard (Version 4.4) /7/

- iii) VCS Program Definitions (Version 4.3) /4/
- iv) VCS Registration & Issuance Process (Version 4.3) /5/
- v) VCS validation and verification manual version 3.2/8/
- vi) CDM Approved methodology AMS I.D. Version 18.0 /10/
- vii) Tool to calculate the emission factor for an electricity system (Version 06.0)/19/
- viii) CDM Validation and Verification Standard version 3.0/9/

The steps involved are as follows:

- To assess the project's compliance with other relevant rules including the host country (India) legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting
- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement is sufficiently supported by evidence.
- The verification process ensures that the reported emission reductions are comprehensive and accurate in order to obtain certification.

The verification method and criteria encompassed several phases, including

- (i) Desk review of Project Documents and other supporting documents listed in **Table-04;**
- (ii) Onsite interviews & Focussed Group Discussions Stakeholders & PP representatives involved in project's implementation.
- (iii) VKU's Completeness/Quality Check, and
- (iv) The Final issuance of the verification report.

Outstanding issues were resolved, leading to the issuance of the final verification report and the relevant Verification Representation Deed and along with the annexures.

It is important to note that the verification process does not involve providing consultancy to the project proponents. However, requests for clarifications and corrective actions may have contributed to improvements in the monitoring processes.

1.3 Level of Assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent VKU's procedure, with a **Reasonable level of assurance**, as per section 04 clause 4.1.2 and clause 4.1.8 of the VCS Standard version 4.4/7/.

The verification report is based on the Monitoring report/1/, registered VCS PD version 01 dated 20-March-2017/3/ & supporting documents that were made available to the VKU's assessment/verification team (21//22//23//24//25//26//27//28//29/30//35) and information collected through performing interviews with PP Representatives/Local Stakeholders during on-site visit /33/

The technical review was performed by a technical reviewer(s) qualified in accordance with VKU's qualification procedure. The assessment/verification team and the technical reviewers consist of the following personnel.

Table No 02: The Assessment Team comprises of

Role/Qualification of Assessment Team	Last Name	Middle Name	First Name
VCS Team Leader, Technical Expert TA 1.2³	Kumar	NA	Barun
Validator/Verifier	Kaushik	NA	Niharika
Project Trainee	Dhankar	NA	Anil

Table No 03: The Technical Team comprises of:

Role/Qualification of Technical Team	Last Name	Middle Name	First Name
Technical Reviewer & Technical Expert TA 1.2	K	Kumar	Sanjay

1.4 Summary Description of the Project

The project activity "Wind Power Project at Anthiyur, Tamil Nadu" of 14.85 MW involves electricity generation by renewable source (Wind energy) and supplying the generated electricity to the state grid system i.e., Tamil Nadu Electricity Board (TNEB)/Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) which falls under India grid system. The project activity involves implementation of WTGs as a voluntary measure to

³ Please note that the Team Leader and Technical Area Expert is the Local Expert for this project, since the project activity is located in the Country India and the TL and TA 1.2 is by law an Indian Citizen and is aware of the Rules and Regulations of the country.

strengthen the Unified Indian grid⁴ of India through exploitation of wind power generation potential available to India. This is a greenfield project activity i.e., there was no renewable energy-based electricity generation facility at site of this project and equivalent amount of electricity would have been supplied by fossil-fuel dominated grid – which is pre-project scenario as well as baseline scenario for this project activity. The project activity ensures the reduction 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 is grid-connected wind energy generation project located near Village: Anthiyur of Talukas- Udumalpet and Pollachi in the District- Coimbatore of State- Tamil Nadu in Country- India. Windage Power Company (P) Ltd. are the Project Proponents of the project activity. The total capacity of the project activity when it got commissioned was 14.85 MW. The 1st machine (WTG) was commissioned on 26-March-2005 and is functioning continuously since then and dates are verified against registered VCS PD (Renewable Crediting Period Project Description) version 01 dated 20-March-2017 /3/ and commissioning certificates/28/.

Start date of this project activity is earliest date of commissioning of the 1st machine (WTG) of project activity i.e., on 26-March-2005 and the project was fully commissioned on date of commissioning of last machine (9th WTG) i.e., 17-May-2005.

This activity involves installation and operations of 9 numbers of Wind turbine generators (WTGs) of rated capacity 1650 kW. The WTGs are of Vestas NM82/1650kW type, the 1.65 MW capacity turbine is of M/s. Vestas Wind Technology (formerly, NEG Micon India Pvt. Ltd) make. Vestas (India) Pvt. Ltd. is the EPC (Engineering, Procurement & Construction) contractor for the project, which has implemented 9 wind turbine generators (WTG) with a capacity of 1.65 MW each. The project has been connected to the Indian Grid through sub-stations owned and maintained by the state electricity utility, which were locally available. Previously, the project was connected to the Southern Grid (now Unified Indian Grid).

The entire project is in continuous operation since its date of commissioning of the respective machines.

As per MR/1/, the electricity generated from the project is supplied to the earlier called state/regional grid system now upgraded to form Unified Indian Grid which is confirmed from registered VCS PD version 01 dated 20-March-2017/3/ JMRs issued by TANGEDCO /25/ and Invoices raised by PP to TANGEDCO /26/ and, Validation report/11/ and interview with PP/33/.

⁴ Project is located in Tamil Nadu, earlier the projects in this state i.e. Tamil Nadu were recognized under regional grid “Sothern Grid”, which is recently unified under Indian Grid system. This statement was part of the VCS renewal PD version 01 dated 20-March-2017.

This information was verified during on site assessment /34/ and found to be in line with the details provided in the registered VCS-PD version 01 dated 20-March-2017/3/. The net electricity generated by the project activity that was evacuated to the grid during the current monitoring period (7th monitoring period) of 01-May-2022 to 31-December-2022 (inclusive of both the dates) is 29,438.64 MWh. The total emission reductions achieved in this monitoring period i.e., from 01-May-2022 to 31-December-2022 (first and last days included) is 28,782 tCO₂e.

2 VERIFICATION PROCESS

The registered VCS project “Wind Power Project at Anthiyur, Tamil Nadu” (VCS ID 682) is undergoing seventh periodic verification of second crediting period and overall, ninth verification under VCS with VKU Certification Pvt Ltd from 01-May-2022 to 31-December-2022, both dates included. The second crediting period from 01-April-2016 to 31-March-2026 (both dates included)

The approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Verification was conducted using VKU’s procedures in line with the requirements specified in the VCS Requirements, i.e., VCS Program Guide Version 4.3 /6/, VCS standard document version 4.4 /7/. The project activity does not fall under category “grouped projects”, hence no sampling methods was employed by the assessment team and during onsite visit /34/ verification team reviewed 100% data for all the Wind Turbine Generators involved in this project at site for the verification of GHG emission reductions or removals generated by the project.

- The GHG emission reductions are based on the approved Baseline and monitoring methodology AMS I.D. “Grid connected Renewable Electricity Generation” Version 18.0 /10/
- Scope: 01 - Energy Industries (renewable /non-renewable sources)
- Project type: Type I - Renewable energy projects

Tools used for GHG Calculations are as follows as per registered PD /3/:

- Tool to calculate the emission factor for an electricity system, Version 06.0.0 /19/

The verification consisted of the following three phases.

1. Planning: The assessment team plans the GHG-programme site visit and starts with a desk review.

2. Audit and Sampling Plan: An audit plan is prepared, including all sub-elements required for an integrated verification process aligned with the contract, scope, objectives, level of assurance and materiality.
3. Strategic Analysis & Risk Assessment: Based on strategic analysis, the team determines risk assessment and then prepares evidence gathering activities, preparing a plan to collect sufficient and appropriate evidence for each GHG-related activity characteristic, using a risk-based approach.
4. Client Confirmation: The site visit audit plan is sent to the client for review and confirmation.
5. Document Review: Relevant documents, such as the verification report, monitoring plan, methodology, VCS PD and QA/QC procedures are thoroughly reviewed.
6. On-Site Assessment: This includes interviews and evaluation of the actual project scenario.
7. Resolution of Discrepancies: Any non-conformities identified during the assessment are addressed and resolved.
8. Independent Review: A technical reviewer provides an independent assessment.
9. Final Verification: After completeness checks, the verification report and certification are issued.

The following sections outline each step in more detail.

2.2 Document Review

During the document review, VKU has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of VCS monitoring report for “Wind Power Project at Anthiyur, Tamil Nadu” version 1.0 of 15-March-2023, version 2.0 of 02-August-2023 and final version 3.0 of 28-August-2023/1/ and the emission reduction calculations spreadsheet version 1.0 of 15-March-2023 version 2.0 of 02-August-2023 and final version 3.0 of 28-August-2023/2/ were assessed as part of the verification. In addition, the registered VCS Renewable Crediting Period Project Description version 01 dated 20-March-2017/3/ in particular the baseline estimations and the monitoring plan for the project was reviewed. The following **table-04** lists the documentation that was reviewed during the verification.

As per section 3.25 and clause 3.25.3 of the VCS Standard version 4.4/7/ it is an obligation for the project proponent to make available to the assessment team the required supporting documents and data needed to support statements and data as documented in the monitoring report. Thus, the assessment team reviewed the following documents during verification:

Table No: 04; Lists of the documentation that were reviewed during the current verification:

/1/	VCS monitoring report for “Wind Power Project at Anthiyur, Tamil Nadu” in India, • Version 1.0 of 15-March-2023 • Version 2.0 of 02-August-2023 • Version 3.0 of 28-August-2023
/2/	Emission Reduction Calculation Spreadsheet, • Version 1.0 of 15-March-2023 • Version 2.0 of 02-August-2023 • Version 3.0 of 28-August-2023
/3/	<u>Registered VCS PD for the project ‘Wind Power Project at Anthiyur, Tamil Nadu’ version 1.0 dated 20-March-2017</u>
/4/	<u>VCS program Definitions (Version 4.3) of 21-December-2022</u>
/5/	<u>VCS Registration & Issuance Process (Version 4.3) of 17-January-2023</u>
/6/	<u>VCS: VCS Program Guide, version 4.3 of 17-January-2023</u>
/7/	<u>VCS: VCS Standard, version 4.4 of 17-January-2023</u>
/8/	<u>Validation and verification manual version 3.2 dated 19-October-2016</u>
/9/	<u>CDM Validation and Verification Standard version 3.0 dated 09-September-2021</u>
/10/	<u>CDM Executive Board: Baseline and Monitoring Methodology “AMS I.D.: Grid connected renewable electricity generation- version 18.0</u>
/11/	<u>LGAI Technological Center, S.A (Applus+ Certification): Validation Report: Wind Power Project at Anthiyur, Tamil Nadu, Version 01, dated 29-August-2018</u>
/12/	<u>YKU Certification Pvt. Ltd.: VCS Verification Report “Wind Power Project at Anthiyur, Tamil Nadu” for monitoring period: 01-September-2021 to 30-April-2022 (including both days), Version 1.1 of 08-May-2023</u>
/13/	<u>VERRA: Project search</u>
/14/	<u>UNFCCC: Project search</u>
/15/	<u>Renewable Energy Certificate Registry of INDIA - Registered RE Generator List (recregistryindia.nic.in)</u>
/16/	<u>I-REC Standard - The International REC Standard Foundation (irecstandard.org)</u>
/17/	<u>Gold Standard Foundation</u>
/18/	<u>EIA NOTIFICATION dated 14-September-2006</u>
/19/	<u>Tool to calculate the emission factor for an electricity system, Version 06.0</u>
/20/	<u>CO2 Baseline Database for the Indian Power Sector</u>
/21/	Central Electricity Authority (Installation and Operation of Meters) Regulations Notified on 17-March-2006 No. 502/70/CEA/DP&D

	Amendments Notified on 26-June-2010 <u>No. 502/6/2009/DP&D/D-I</u> <u>https://cea.nic.in/wp-content/uploads/2020/02/meter_reg.pdf</u> <u>Metering Regulations Archives - Central Electricity Authority (cea.nic.in)</u>
/22/	Wind Energy Wheeling Agreements between Windage Power Company Pvt Ltd and TANGEDCO (Tamil Nadu Generation and Distribution Corporation Limited) at Udumalpet on 12th-July-2018 Please note that there are 09 specific agreements made for individual Old HTSC No. 690//728//751//752//753//754//755//788//808 New HTSC no have been assigned: New HTSC No. 482//497//507//508//509//510//511//533//551 Wind energy generator has sent to the distribution licensee/STU i.e. TANGEDCO his proposal to wheel the wind energy generated from the wind generators i.e. 690//728//751//752//753//754//755//788//808 of NEG Micon make having capacity of 1650 KW installed in District Coimbatore in different villages to his captive users HT services and to bank the surplus energy available after adjustment as per the orders of the commission in force.
/23/	Certificates of Replacement/Calibration for all the energy meters for the project activity active during current monitoring period (01-May-2022 to 31-December-2022, inclusive of both start and end dates) issued by Tamil Nadu Generation and Distribution Corporation Limited and the Calibration is done by the Baroda Calibration Services, Vadodara till 2017 and from 2022 calibration is carried out by Measurement India both the calibration is carried out under the preview State entity i.e., Tamil Nadu Generation and Distribution Corporation Limited
/24/	O & M (Service Agreement) between Windage Power Company Pvt Ltd and Vestas Wind Technology India Private Limited
/25/	JMRs Issued by Tamil Nadu Generation and Distribution Corporation Limited to PP i.e., Windage Power Company Private Limited
/26/	Invoices issued by Windage Power Company Private Limited to different his captive users HT services via second party Distribution Licensee i.e., TANGEDCO
/27/	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the current verification period (01-May-2022 to 31-December-2022, inclusive of both start and end dates)
/28/	Commissioning Certificates of all 9 Machines (Wind Turbine Generators) of the project activity issued by Tamil Nadu Electricity Board.
/29/	Technical Specifications of Wind Turbine Generators (WTGs) of “Wind Power Project at Anthiyur, Tamil Nadu” project as specified by manufacturer Vestas Wind Technology.
/30/	Grievance Register/Grievance-Resolution Letters present on project

	implemented site; more information related to the same has been included in <u>Section 4.2.2</u> of this report
/31/	<u>GPS Map Camera: Geotag Photos & Add GPS Location</u>
/32/	GPS Google earth software used for Location; <u>Google Earth</u>
/33/	Personnel Interviews and Focussed Group Discussions during onsite visit dated (30-June-2022; Saturday) detailed in <u>section 2.3</u> of this report as recorded by VKU Assessment/Verification Team i.e., VKU Certification Pvt Ltd during onsite visit in a form called as VKU.F46W. Attendance Sheet of Onsite Audit
/34/	Onsite visit on (30-June-2022; Saturday) to Project implemented site i.e. Village: Anthiyur of Talukas- Udumalpet and Pollachi in the District- Coimbatore of State- Tamil Nadu in Country- India. Photographs and attendance sheet (F46W. Attendance Sheet of Onsite audit)
/35/	Tripping Details & Monthly Report
/36/	<u>NABL Accreditation Certificate of the Laboratory performing the calibration</u>
/37/	Transformer Technical Details

2.3 Interviews

An on-site inspection/34/ was performed by the assessment team. The representatives of the PP were interviewed personally by assessment team on 30-June-2023; i.e., Tables 05 & 06 provide a comprehensive overview of the onsite interview process/33/ conducted during the verification. These tables outline the personnels involved in the interviews, along with their respective roles. The interviews specifically targeted individuals responsible for monitoring the project activity, data collection and management, as well as those involved in the quality assurance and quality control (QA/QC) procedures. The tables serve to identify the individuals interviewed and provide relevant information regarding their roles within the project. The key personnel interviewed during the opening meeting and closing meeting session of the onsite audit and the main topics of the interviews are summarized in the table below:

Table no: 05: Details of Personnel Interview

S.no	Name	Designation	Topic of Discussion
1	N. Sivathanu Pillai	Assistant General Manager	Implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and monitoring along with QA/QC
2	K. Ramesh Kumar	Windage Power Astt. Manager	
3	Mr.M.Venkatesh	Area Manager	
4	Mr.Kathirvel	Site Incharge	

5	Arun Kumar	Site Incharge Sri Sasatha	SCADA, Breakdown details and maintenance of generation records Data recording, management and archiving procedure
6	M Sathrivan	Arihd Association	
7	C. M. Sowndrash	Scada Operator Sri sastha	
8	N.Sakthivel	Site HT Supervisor	

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, data collection, recording, emergency procedures, internal audit and archiving procedures. The assessment was based on the feedback received during onsite interview/33/ coupled with the documentation.

During Onsite Visit/34/, Assessment team also interviewed the local stakeholders/33/ involved in the projects to verify the implementation of grievance mechanism and process of grievance resolution mentioned in the Monitoring report/1/ (refer section 1.11, & 2.2 of MR/1/) by the PP. The assessment team confirmed the sustainable development claims and assessed the socio-economic impact of the project on the local community. Assessment team also checked the records and observed that the PP provided opportunities for the locals to express their opinions and grievances with efforts to resolve any issues through consultation with stakeholders. Assessment team thus verified all the above statements via focussed group discussions and personal interview/33/ with stakeholders as tabulated below:

Table no: 06: Details of Personnel Interview/Focussed Group Discussion with Stakeholders

S.no	Name	Designation	Category	Topic of Discussion
1	M. Vengit	Site Operator	Local Stakeholder	Execution of Project activity and its impact on the economic, social and environmental parameters on the local people of the area & around the situated project activity
2	Karthikeyan P.	Site Operator		The ongoing communication procedure and the address of their grievance mechanism followed by the project proponent Scope and generation of employment in the locality due to the implementation of said project activity in the area. The ongoing trainings provided to the locals for self-employment.

The VKU Assessment Team meticulously documented the information obtained during the interview with site personnel /33/. This data was recorded using VKU's dedicated form specifically VKU.F46W, known as the Attendance Sheet of Onsite Audit/34/ & there were no negative comments received during the stakeholder consultation interview conducted on site and more detail is enlisted in the [section 4.2.2](#) below.

2.4 Site Visits

Site Location visited:

Location: near Village – Anthiyur of Talukas - Udumalpet and Pollachi, District- Coimbatore of State- Tamil Nadu, Country- India. Further the location along with longitude and latitude is mentioned in [section 4.1](#) of this report.

An On-site visit was undertaken by the verification team to the project location identified in the MR/1/ at Village – Anthiyur, Talukas - Udumalpet and Pollachi, District- Coimbatore of State- Tamil Nadu of India on 30-June-2023/34/, to carry out the following;

- An assessment of the implementation and operation of the registered project activity as per the registered VCS PD version 01 dated 20-March-2017/3/ and VCS MR/1/.
- A review of information flows used to generate, aggregating and reporting the monitoring parameters.
- Interviews/33/ with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the registered VCS Renewable Crediting Period Project Description (PD) version 01 dated 20-March-2017/3/.
- A cross check between information provided in the monitoring report and data from other sources such as plant generation log books, inventories, purchase records or similar data sources.
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS PD version 01 dated 20-March-2017/3/ the applied methodology including applicable tool(s) and where applicable, the applied standardized baseline.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.
- 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 phase of the verification is to resolve any outstanding issues which need to be clarified for VKU's positive conclusion on the project description. To guarantee transparency a verification protocol has been customized for the project. The protocol shows in

a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three situations in tables; the different columns in these tables are described below.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient.
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions.
- Issues identified in a FAR during previous assessment i.e., in validation or verification report to be cross verified during verification have not been resolved by the project participants.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A forward action request is also raised in cases where any required deviation/information is not fulfilled in current verification and thus needs to be taken up in consequent verification for better transparency thus holding the applicability of the methodology eligible to the project activity and there is no impact of the same on additionality, baseline scenario & emission reduction calculation of project.

In summary, **00 FARs, 02 CLs and 04 CARs** were raised during this verification which were closed successfully and details are provided under [Appendix B](#) of this report.

2.5.1 Forward Action Requests

Based on the review of the VCS Validation Report/11/ and previous VCS Verification Report /12/, no FAR was raised during Validation and previous Verification which needs to be closed during this verification and **no FAR has been raised during current verification, (01-May-2022 to 31-December-2022; Inclusive of both start and end dates).**

2.6 Eligibility for Validation Activities

VKU has not undertaken any validation activities as part of the verification and does not hold accreditation for validation of any relevant sectoral scope Hence this section is not applicable. It is to further conclude that during current verification there is no validation assessment undertaken either by VKU itself or parallelly by other certification bodies, as the same was confirmed with focussed group discussions and interview with the PP /33/ during site visit/34/

Assessment team assessed the VERRA's website on 29-August-2023: <https://verra.org/validation-verification/vku-certification-pvt-ltd/#vcs> wherein the scope of services of VKU certification Pvt. Ltd. is mentioned as verification and not validation. Thus, ensuring that the accreditation details mentioned in FVR is consistent and correct.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project has not applied under any other GHG program except VCS for current monitoring period i.e., from 01-May-2022 to 31-December-2022 (inclusive of both dates). The project is registered under VCS only with project ID 682⁵. This was confirmed by checking VERRA registry website and similar exercise was performed for CDM/GS/GCC/UCR registries with similar project title/capacity and Project Proponents but the assessment team was not able to trace any such project registered under any of the above stated registries or under any other similar mechanisms. This was supported from the declaration/27/ submitted by PP in which they claimed that same GHG emission reductions of the project from VCS for the current monitoring period will not be claimed under other registries except VCS. Similarly, an exercise of independently searching for such project registration or claim for current monitoring period was performed for other GHG related benefits such as REC/15/ and I-REC/16/ benefits and based on both independent assessment and declaration submitted by PP/27/, the assessment team accepted the claim that there is no double counting from this project activity for current monitoring period. The assessment team has also cross-checked the issuance records available on the Verra website and thus confirm & ensure that the emission reduction generated from the project activity are not & will not be double counted hence accepted by the assessment team. The details of the registries checked are as follows:

The details of the registries checked are as follows:

- 1) <https://www.recregistryindia.nic.in/>
- 2) <http://cdm.unfccc.int/>
- 3) <http://www.goldstandard.org/>
- 4) <https://verra.org/verra-standards-and-programs/>.
- 5) [I-REC Standard - The International REC Standard Foundation \(irecstandard.org\)](http://irecstandard.org/)
- 6) <https://cri.nccf.in/>
- 7) [International Carbon Registry - International Carbon Registry](http://internationalcarbonregistry.com/)
- 8) [GCC PROJECTS PORTAL \(globalcarboncouncil.com\)](http://globalcarboncouncil.com/)

⁵ <https://registry.verra.org/app/projectDetail/VCS/682>

9) VCU Issuance Records

Rejection by other GHG programs

The Project is not rejected by other GHG programs. A declaration/27/ for the same is checked and found correct by the assessment team. Also, assessment team independently verified with the following registries and checked projects from the PP matching the same project design and found that no such project either exists or were rejected by the registries.

The details of the registries checked are as follows:

- 1) <https://www.recregistryindia.nic.in/>
- 2) <http://cdm.unfccc.int/>
- 3) <http://www.goldstandard.org/>
- 4) <https://verra.org/verra-standards-and-programs/>.
- 5) [I-REC Standard - The International REC Standard Foundation \(irecstandard.org\)](http://www.irecstandard.org/)
- 6) <https://cri.nccf.in/>
- 7) [International Carbon Registry - International Carbon Registry](http://www.internationalcarbonregistry.org/)
- 8) [GCC PROJECTS PORTAL \(globalcarboncouncil.com\)](http://www.gccprojectsportal.com/)
- 9) VCU Issuance Records

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period i.e., from 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates). Also, no methodology deviations identified during the validation & previous verification which were confirmed from the VCS Validation /11/ & previous VCS Verification reports/12/.

3.3 Project Description Deviations

There are no Project description deviations applied during current monitoring period i.e., from 01-May-2022 to 31-December-2022 (Inclusive of both the days).

The following four deviation was reported during the previous monitoring periods and will be considered in subsequent verifications. Description of the deviation and the assessment on conservativeness of the deviations is provided below.

Deviation 1: During the monitoring period spanning from (01-April-2016 to 31-October-2017, inclusive of both the days), the energy meters installed at HTSC No-751, 752, 754, 788, 753, 808, 728, 755, and 690 underwent replacement with new meters with an accuracy class of 0.2s, which took place on 08-May-2017. The information pertaining to energy meter replacements can be found in Section 3.3 of the MR. It is important to acknowledge that the calibration and maintenance of the energy meters fall under the sole responsibility of the state utility and are not within the purview of the project participant. The replacement of the existing

energy meters has been identified as a project deviation in accordance with the guidance outlined in Section 3.6.1 of VCS standard v.3.7. Nevertheless, this deviation does not impact the current applicability conditions of the methodology, additionality or the appropriateness of the baseline scenario.

The VKU Assessment/Verification Team conducted an assessment of the meters installed at the site, confirming that they possess accuracy class 0.2s. During an onsite visit, they further verified the details of the replacement with site personnel. These findings were corroborated by the previous monitoring report, as well as the calibration and meter replacement certificates. The VKU assessment team deems this information to be accurate and acceptable.

Deviation 2: In a previous Monitoring Period, spanning from 01-September-2018 to 31-October-2019 (inclusive of both days), a deviation was recorded due to a delay in meter calibration. The project proponent (PP) is fully committed to complying with all mandatory regulatory and statutory requirements at both the state and national levels, as explicitly stated in the VCS PD (Project Design). While the original proposal aimed for annual meter calibration, it is important to note that the prevailing practice in the project region does not have a specific interval for calibration. To address this, the PP has made reference to the national practice, as outlined in the CEA (Central Electricity Authority) order dated 17th March 2006, which mandates that "all meters shall be tested once in five years" (also mentioned in the CEA Gazette released on 23rd December 2019) in paragraph 18(b).

Detailed information regarding the energy meter calibration can be found in Section 3.3 of the MR (Monitoring Report). It is pertinent to mention that the validity of the previous calibration still falls within the five-year period as required by the national regulation. Importantly, it should be emphasized that this deviation from the original proposal does not have any impact on the existing applicability conditions of the methodology, the concept of additionality, or the appropriateness of the baseline scenario. The project remains fully compliant with the necessary requirements, and the deviation is well-justified in accordance with the applicable national regulations.

Deviation 03: During the monitoring period from (01-November-2019 to 31-October-2020, (Inclusive of both the days)), a deviation was requested for HTSC numbers in the project. The state authority (TNEB) has assigned different HTSC numbers to the project due to their internal practices and revisions. However, it is important to note that besides the updated numbers, there have been no other significant changes to the project activity. The project has duly reported the updated HTSC numbers in the Emission Reduction (ER) sheet, and they have been included in Appendix 1 of the monitoring report. During an onsite visit, the VKU assessment team verified the HTSC numbers and also conducted interviews with the site personnel to confirm the accuracy of the updated numbers. The assessment team also cross-checked the last verification reports and Joint Monitoring Reports (JMRs) issued by TANGEDCO, which specify the updated HTSC numbers. As a result, the verification team has approved the requested deviation and is satisfied that the project remains fully compliant with the VCS rules.

Furthermore, it is essential to emphasize that this deviation does not have any impact on the applicability of the methodology, the concept of additionality or the appropriateness of the baseline scenario. The project continues to adhere to all relevant requirements and the verification team has found the project to be in compliance with the VCS guidelines.

Deviation 04: During monitoring period (01-November-2020 to 31-August-2021; Inclusive of both the days), deviation was reported that the project activity was originally undertaken by Nuziveedu Seeds Limited, but in 2011, the assets were sold to Windage Power Company (P) Ltd, making them the rightful owner of the project.

The updated information regarding the project deviation has been duly reflected on the Verra webpage and has received approval from Verra during the last verification process. This deviation was also officially notified in the PD (Registered Crediting Period - Project Design) dated 20-March-2017. The verification team found the requested deviation to be accurate and in accordance with the established guidelines.

It is important to highlight that apart from this approved deviation, there have been no other significant changes to the project activity. The VKU assessment team verified the Certificate of Incorporation uploaded on the Verra Webpage, which justified the correctness of the requested deviation and consequently the team found it acceptable.

The verification team has acknowledged and accepted the deviation, affirming that the project remains fully compliant with the VCS rules. Furthermore, it is important to note that this deviation has no impact on the applicability of the methodology, the concept of additionality or the appropriateness of the baseline scenario. The project continues to meet all relevant requirements and remains in adherence with VCS guidelines.

3.4 Grouped Project

This is not a grouped project. Therefore, this section is Not Applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Based on the onsite audit conducted with the project proponent (PP) representative, it was determined that the project is implemented as per the requirement outlined in the registered VCS PD /3/ and approved monitoring plan. The project activity is a wind energy project with total capacity of 14.85 MW, comprising of 9 Wind Turbine Generators (WTGs) of rated capacity 1650 kW each, commissioned in the period from 26-March-2005 to 17-May-2005/28/. Wind is the main source of power generation. The power generated from the wind turbine generators (WTGs) was exported to previously under southern grid which falls now under Unified under Indian Grid system. Substation Nearest Location is from NSL 06 i.e., 0.7 Km and Longest Location is from NSL 09 i.e., 4.5 Km. During the current monitoring period (01-May-2022 to 31-December-2022; Inclusive of both the days), no unforeseen incidents or events occur that could significantly impact the operation of the project activity were identified, with the exception of scheduled maintenance and service breakdowns. The total duration of these breakdowns was calculated to be 1864.5 hours /35/. It is important to note that these breakdowns did not have any substantial repercussions on the project activity's reduction of greenhouse gas (GHG) emissions or the monitoring methodology employed.

Table no: 07: Breakdown Hours for the current Monitoring Period (01-May-2022 to 31-December-2022

MONITORING PERIOD	TOTAL HOURS FOR THE MONTH	TOTAL HOURS	PRODUCTION HOURS	PERCENTAGE OF PRODUCTION HOURS	BREAKDOWN HOURS	PERCENTAGE OF BREAKDOWN HOURS	SCHEDULED HOURS	UNSCHEDULED HOURS
01-September-2021 to 30-April-2022								
May	744	6696	5988.3	89.43%	356.8	5.33%	256.9	99.9
June	720	6480	6298.9	97.21%	169.4	2.61%	130.3	39.1
July	744	6696	6127.7	91.51%	110.4	1.65%	57.1	53.3
August	744	6696	6053.2	90.40%	198.5	2.96%	107.7	90.8
September	720	6480	5884.5	90.81%	90.1	1.39%	55.6	34.5
October	744	6696	4135.6	61.76%	255.5	3.82%	95.8	159.7
November	720	6480	6035.6	93.14%	444.4	6.86%	284.9	159.5
December	744	6696	6456.6	96.42%	239.4	3.58%	190.3	49.1
TOTAL	5880	52920	51055.5	96.48%	1864.5	3.52%	1178.6	685.9

During the monitoring period, the project activity experienced no unexpected incidents or events that could have had a significant impact on its operation. However, there were some scheduled breakdowns amounting to 1178.6 hours for the purpose of plant maintenance and service. Additionally, there were unscheduled breakdowns lasting 685.9 hours, caused by either internal or external grid failures. The total duration of these breakdowns was found to be 1864.5 hours.

Despite these breakdowns, it is important to highlight that they did not have any significant adverse effects on the project activity's ability to reduce greenhouse gas (GHG) emissions. The project remained successful in achieving its emission reduction goals, and the monitoring methodology used was not compromised or impacted by these breakdowns.

The breakdowns were attributed to various minor reasons, which may include:

- Pitch acc pressure sensor fault.
- Transformer LV 1 Side 2 Nos Power cable replacement work.
- Power Transformer Change
- High Voltage L1, L2, L3 & Transformer Oil filtration, BDV test and Tap position Interchange 2 to 1
- Pump time yaw brake too long & Pump time Shaft brake.
- External/Internal grid failure
- Machine servicing and repairing
- External/Internal grid maintenance

The loss of generation hours as a percentage of total operating is:

$$(\text{Total Breakdown Hours} / \text{Total Operating Hours}) * 100 = (1865.5 / 52,920) * 100 = 3.52\%$$

Out of 3.52% the 2/3rd of the breakdown due to Operation and maintenance & the rest is due to lower PLF, grid unavailability and others.

The project activity was operational for a total of 5,880 hours, representing 245 days. However, during the monitoring period i.e., from 01-May-2022 to 31-December-2022, the project experienced breakdowns for a duration of 1864.5 hours, as detailed in Appendix 2 of the monitoring report (MR). The breakdown due to scheduled maintenance is as per the manufacture's specification. Moreover, it is important to note that all the nine WTGs was not entirely shut down during these breakdown hours; only the affected WTGs were temporarily taken out of operation.

The verification process involved reviewing the monthly generation records/35/ and breakdown excel sheet provided by the project proponent (PP). Additionally, an onsite visit to the project site/34/ was conducted, where it was confirmed that only the affected WTGs were shut down while the rest of the WTGs remained operational. This information is consistent with the details mentioned in Section 3.1 and Appendix 2 of the MR/01/. The assessment team also conducted interviews with key personnel from the PP, including senior engineers, junior

engineers and an assistant manager/33/. These interviews took place on 30-June-2023 during the onsite visit /33/.

The assessment team has concluded that the breakdowns and the resulting partial shutdown of the project activity do not have a significant impact on the calculation of emission reductions (ER). The project underwent continuous operation, with only the affected parts being temporarily shut down. This approach is deemed acceptable by the assessment team and is verified to align with the methodology. Furthermore, no unforeseen incidents were identified that would affect the applicability of the methodology.

it was observed through monthly generation records, breakdown log sheet records present on project site and tripping details for each month submitted to VKU Assessment/Verification Team by PP that the plant supplied 29,438.64 MWh of electricity and thus contributing to 28,782 tCO_{2e} GHG reductions. The emission reduction for this monitoring period pro rata comparing with registered VCS PD is 20,759 tCO_{2e}, whereas actual emission reductions achieved are 28,782 tCO_{2e}, which is 38.65% higher than the estimated emission reductions for the current verification period. Further explanation is provided section 4.5 of this report The ERs achieved in this monitoring period is basically due to high wind and high PLF during this monitoring period.

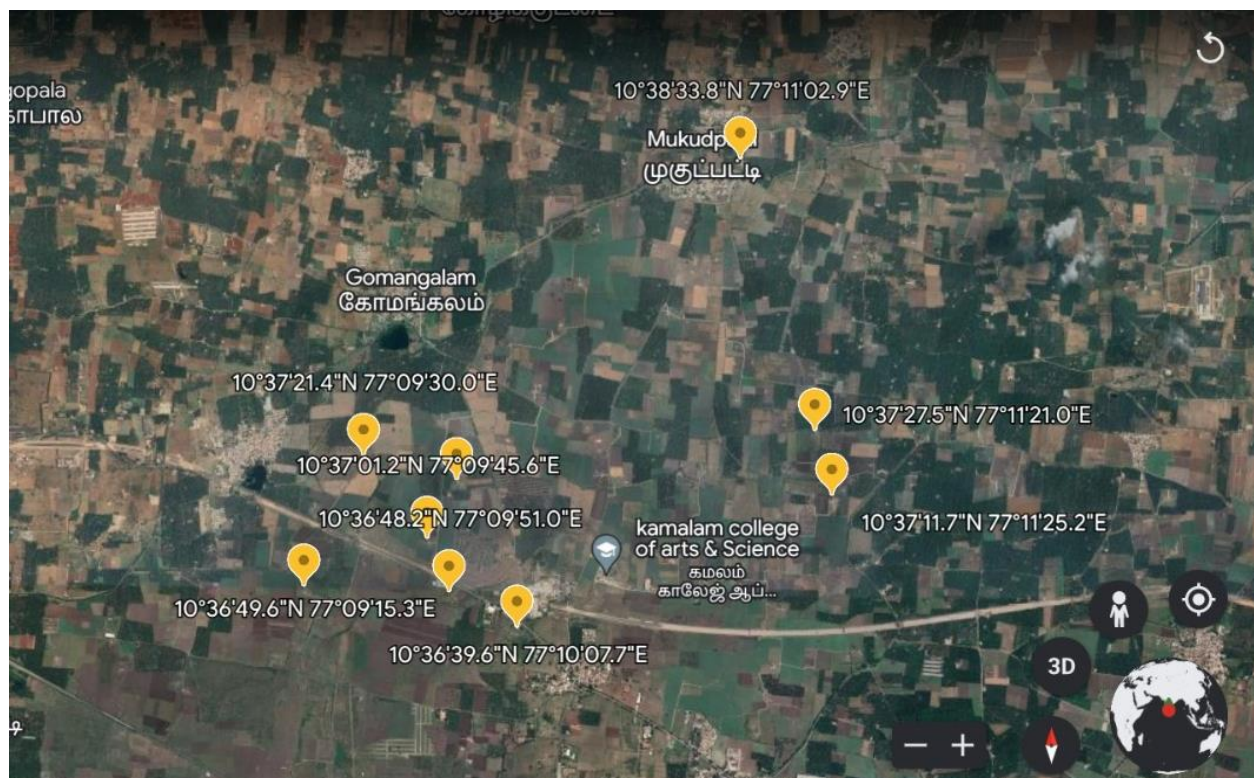


Figure 01: Project implemented Location verified and mapped down WTG-wise

The project location was verified by the assessment team through Google earth/32/ during desk review and GPS map camera software during onsite visit /31/. Moreover, assessment team confirm that the latitude and longitude as mentioned in the registered VCS PD dated 20-March-2017/3/, VCS Validation Report/11/, VCS MR/1/

Table no 08: The WTG wise latitudes and longitudes are confirmed below:

Make of all WTGs – Vestas

S. No	Location Name	S.F. No	Village Name	Taluk Name	Co-ordinates			HT
					North	East	Altitude in meters	Service Number
1	NSL1	38&39/3	Koolanayakan Patti	Pollachi	<u>10° 36' 49.6~N</u> <u>77° 09' 15.3~E</u>		385	507
2	NSL2	150/3A2,150/3B,158/1	Gomangalam Puthoor	Pollachi	<u>10° 37' 21.2~N</u> <u>77° 09' 33.2~E</u>		380	508
3	NSL3	104/1&109/1	Gomangalam Puthoor	Pollachi	<u>10° 36' 48.2~N</u> <u>77° 09' 51.0~E</u>		386	510
4	NSL4	56/1C,47/8 & 56/1B	Gomangalam Puthoor	Pollachi	<u>10° 37' 01.2~N</u> <u>77° 09' 45.6~E</u>		383	533
5	NSL5	431/3	Gomangalam	Pollachi	<u>10° 37' 15.5~N</u> <u>77° 09' 52.9~E</u>		379	509
6	NSL6	95/2,95/3 & 95/4	Gomangalam Puthoor	Pollachi	<u>10° 36' 39.6~N</u> <u>77° 10' 07.7~E</u>		385	551
7	NSL7	17&18	Venasa Patti	Udumalpet	<u>10° 37' 11.7~N</u> <u>77° 11' 25.2~E</u>		383	497
8	NSL8	2/1	Venasa Patti	Udumalpet	<u>10° 37' 27.5~N</u> <u>77° 11' 21.0~E</u>		379	511
9	NSL9	254/A1, 255/2B,255/2C	Pannai Kinaru	Udumalpet	<u>10° 38' 33.8~N</u> <u>77° 11' 02.9~E</u>		364	482

Start date of the operation of the project activity is commissioning of S.F no 254/A1,255/2B,255/2C, New HTSC No. 482 on 26-March-2005 which is the date of commissioning/commercial operation of the 1st WTG and the project activity was fully commissioned on 17-May-2005 which is the date of commissioning/commercial operation of the 9th WTG. Assessment team checked the commissioning certificate/28/ and confirmed that the dates of Commission for all the WTGs are correct. State authority TNEB has assigned different HTSC nos. as per their internal practice and revision. However, there is no other material change to the project activity except the HTSC Numbers. PP has already taken deviation for HTSE nos. which is approved in previous monitoring period i.e., (From 01-November-2020 to 31-August-2021; Including of both dates) and same has also mentioned in section 3.3 of this report. The dates of commissioning and HTSE nos. were also verified at site. Assessment team also confirm during the onsite audit/34/ that there is no change in project design with reference to previous verification/12/and VCS standard version 4.4 /7/ in section 3.3 of the report. The project is implemented as per the description provided in the registered VCS PD/3/.

Table No 09: Commissioning dates of WTGs are given below:

Location Name	S.F. Nos	New HT. Service Number ⁶	Old HT. Service Number ⁷	Date of Commissioning
NSL 1	38&39/3	507	751	31-March-2005
NSL 2	150/3A2,150/3B,158/1	508	752	31-March-2005
NSL 3	104/1&109/1	510	754	31-March-2005
NSL 4	56/1C,47/8&56/1B	533	788	29-April-2005
NSL 5	431/3	509	753	31-March-2005
NSL 6	95/2,95/3&95/4	551	808	17-May-2005
NSL 7	17&18	497	728	30-March-2005
NSL 8	2/1	511	755	31-March-2005
NSL 9	254/A1,255/2B,255/2C	482	690	26-March-2005

⁶ These are current HTSC nos. different from the ones at the time of validation. HTSC nos. are assigned by TNEB as per their internal practice which is not under the control of PP. The change in HTSC nos. was already reported under previous verification in monitoring period (01-November-2019 to 31-October-2020, (inclusive of both the days), Also the New HTSC nos were verified during on-site visit by VKU Assessment/Verification Team.

⁷ The Old HTSC nos. are mentioned in the registered VCS RCP-PD (version 01) dated 20-March-2017/3/

The power rating of the WTGs has been verified with the name plates as well as with the technical specifications of WTGs and Transformers is submitted to VKU Assessment/Verification Team by PP and also cross checked from the technical manual of the Manufactures/29/. The same could be verified from the VCS Validation Report/11/ Assessment team confirms that the technical parameters are consistent with the registered VCS PD/ 3/. The major technical specifications of the WTG are as follows:

Table no 10: Technical specifications of generator:

Operational conditions	
Calculated lifetime	20 years
Cut in wind speed	3.5 m/s
Cut out wind speed	20m/s
Maximum rotational speed	14.4 rpm
Main specification	
Rotor Diameter	82 m
Number of Blades	3
Rotational speed (synchronous)	14.4 rpm
Rotor	
Rotor Diameter	82 m
Tilt angle	5°
Swept area	5281 m2
Generator	
Nominal Power	1650 kW
Rotational Speed	1012 rpm at rated power
Control system	
Manufacture	VESTAS control systems
Type	Microprocessor based

Table No 10.1 Technical details of the Transformers reported below:

Transformer Rating:	2250KVA
Type of Cooling:	Onan
HV Side Voltage:	22KV
HV Side Current:	59 Amps
Transformer LV 1 Side Voltage:	690 V Connected to Hub
Transformer LV side Current:	1883 Amps.
Transformer Lv2 Side Voltage:	400V connected to capacitor Panel.
Transformer Lv2 Side Amps:	722 Amps.

The assessment team confirmed through onsite visit with PP representative that there is no proposed or actual change to the project design during this monitoring period. It was observed that the monitoring plan was implemented as per the registered VCS PD/3/ and applied methodology AMS I.D., Version 18.0 /10/. The organizational role and responsibility as mentioned in the registered VCS PD/3/ is followed onsite. Meters are calibrated as per

calibration frequency in registered PD/3/. All the emergency preparedness as mentioned in MR/1/ are followed onsite and no discrepancies were found regarding the same.

Assessment team concludes the following:

- a) There are no material discrepancies between project implementation and the project description provided in the registered PD /3/.
- 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 are no material discrepancies between the actual monitoring system and the monitoring plan set out in the second crediting period of renewable crediting period project description/3/ and the applied methodology/10/.
- d) The GHG emission reductions or removals generated by the project have not been included in any emissions trading program or any other mechanism that includes GHG allowance trading/27/.
- e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since VCS Validation/11/ or previous VCS Verification/12/
- f) The project Activity is a wind power project and does not involve any supply chain in the project such as manufacturers, wholesalers, distributors and retailers. So, no indirect upstream and downstream GHG emissions are involved in the project activity. Thus, the Scope 3 emissions are not applicable in this project activity.
- g) The project is registered under VCS⁸, however PP has submitted the declaration/27/ stating that they will not claim same GHG emission reductions of the project from any other GHG programme for the current monitoring period when project is seeking to get GHG emission reduction from VCS. Audit team also checked the REC/15/ Mechanism database of India and I-REC/16/ mechanism database found that the project activity is not accredited / registered under REC or I-REC mechanism which was verified from the (Renewable Energy Certificate Registry of India) REC/15/ (International-Renewable Energy Certificate Standard Standard) I-REC/16/ website and same was verified by checking in other GHG programs including GS Registry, CDM, GCC, UCR & CR-I, however PP has submitted the declaration/27/ for the same.
- h) The project activity complies with indicators for **sustainable development** in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under **section 1.11 of MR/1/**. Assessment team has verified the same during on site visit/34/ and found all the indicators to be effective and applicable for the project activity.

⁸ <https://registry.verra.org/app/projectDetail/VCS/682>

As per the VCS Standard Version 4.4⁹ Appendix 03: Document History and Effective dates, For V4.2, serial number 04 states that “it is required by project proponents to demonstrate contributions to a minimum of three SDGs in all monitoring reports verified after the effective date. Effective immediately for all projects that request registration on or after 20-January-2023. Projects that request registration before 20-January-2023 shall demonstrate contributions to at least three SDGs by 20-January-2025”. This is project's overall ninth periodic verification & seventh Verification of second crediting period for the Monitoring Period 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates), Since this project is registered before 20-January-2023, so the Project Proponent (PP) must demonstrate contributions to at least three SDGs by 20-January-2025.

For the current monitoring period, the PP is voluntarily showing contributions to three SDGs, as indicated below but has only claimed two SDGs i.e., SDG no 7.2 & SDG no 13.2.

- **SDG no 7.2: (Renewable energy share in the total final energy consumption)**
- **SDG no 8.5: (8.5.1 Employment Generation from the project Activity)**
- **SDG no 13.2 (13.2.1: Tonnes of greenhouse gas emissions avoided or removed)**

The project activity has implemented activities that results in 3 SDG Contributions; 7.2, 8.5 & 13.2

1. **7.2 i.e. (Renewable energy share in the total final energy consumption)** As a part of this project activity lifetime $(29,438.64 + 10,725.355^{10} = 40,163.995)$ MWh Net renewable electricity has been exported to Indian grid that helps to strengthen the renewable energy share in the energy mix¹¹. VKU Assessment/Verification Team has referred previous verification reports /12/ monitoring report for current monitoring period/1/ & emission reduction sheet/2/ which were cross checked from JMRs/25/ & Invoices/26/ submitted to the VKU Assessment/Verification Team for current monitoring period and thus found the above claimed renewable electricity supplied to Indian grid is correct.
2. **8.5 i.e. (Employment Generation from the project Activity):** Due to installation of the project activity PP has provided direct employment to more than 10 people in project implemented area. VKU Assessment/Verification Team has referred the employment records submitted by the PP and focused group discussions/interviews/33/. However, project proponent is

⁹ <https://verra.org/documents/vcs-standard-v4-4/>

¹⁰ Contribution to the 6th monitoring period 01-September-2021 to 30-April-2022 (Inclusive of both the days) of 2nd crediting period (01-April-2016 to 31-March-2026) (Including both dates)

¹¹ As per VERRA's guidelines to claim SDGs for contributions Over Project Lifetime “The cumulative impact should be calculated by summing the current project contributions with all impacts included in previously approved VCS monitoring reports or Sustainable Development Contribution Reports, PP has only claimed the SDGs in last 6th verification hence in this Monitoring period, PP is only applying values of last verification along with current monitoring period.

not claiming this SDG benefit. Hence, PP did not quantify the same in MR/1/ which is found to be correct by VKU.

3. **13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)** Due to installation of this project activity i.e., Wind Turbine generators (WTGs) PP has prevented the release of $(28,782 + 10,485^{12} = 39,267)$ tCO₂ into the atmosphere during current monitoring period i.e., 01-May-2022 to 31-December-2022 (Inclusive of both the days). Thus, proving that the project generates eco-friendly, GHG free power which contributes to sustainable development of the region. VKU Assessment/Verification Team has referred previous verification reports /12/ monitoring report for current monitoring period/1/ & emission reduction sheet/2/ which were cross checked from JMRs/25/& Invoices/26/ submitted to the VKU Assessment/Verification Team for current monitoring period that now conclude that the above claimed greenhouse gas emissions avoided or removal is correct.

In view of the information as verified above the VKU assessment team is able to conclude that the project has been implemented as described in the registered VCS Project Description version 01 dated 20-March-2017/3/and MR /1/.

All the above stated information was verified by VKU Certification assessment team during onsite visit/34/ at the project implemented site and also by interviewing the site personnel and by conducting focussed group discussion with them /33/.

There are no potential harmful socio-economic and environmental effects in the project activities. The net impact under environmental pollution category is positive as all necessary abatement measures are adopted and periodically monitored. No potential negative environmental and socio-economic impacts in the project activity. The project activity does not have any major adverse impacts on environment during its construction or operational phase. VKU Assessment/Verification Team has assessed the project activity on site and confirms that there were no negative environmental and socio-economic impacts observed during current monitoring period as all necessary measures were found in place which was confirmed during site visit /34/.

As per the section 1.1 of the MR/01/, PP has provided the audit history as below:

Audit Type	Period	Program	VVB Name	Number of years
Verification	01-April-2006 to 07-February-2010	VCS	Perry Johnson Registrars	3 years 10 months 07 days
Verification	08-February-2010	VCS	LGAI	6 years 01 month

¹² Contribution to the 6th monitoring period 01-September-2021 to 30-April-2022 (Inclusive of both the days) of 2nd crediting period (01-April-2016 to 31-March-2026) (Including both dates)

	to 31-March-2016		Technological Center, S.A. (APPLUS)	21 days
Verification	01-April-2016 to 31-October-2017	VCS	LGAI Technological Center, S.A. (APPLUS)	1 year 7 months 00 days
Verification	01-November-2017 to 31-August-2018	VCS	Earthood Services Pvt. Ltd.	10 months 00 days
Verification	01-September-2018 to 31-October-2019	VCS	Earthood Services Pvt. Ltd.	1 year 2 months 00 days
Verification	01-November-2019 to 31-October-2020	VCS	LGAI Technological Center, S.A. (APPLUS)	1 year 00 months 00 days
Verification	01-November-2020 to 31-August-2021	VCS	4K EARTH SCIENCE PRIVATE LIMITED	10 months 00 days
Verification	01-September-2021 to 30-April-2022	VCS	VKU Certification Pvt. Ltd.	8 months 00 days
Verification	01-May-2022 to 31-December-2022	VCS	VKU Certification Pvt. Ltd.	8 months 00 days
Total				16 years 08 months 28 days

This has been checked by the verification team through validation and previous verification reports already approved and uploaded on Verra's webpage which is deemed accurate and satisfactory to VKU's assessment team

4.2 Safeguards

4.2.1 No Net Harm

The project activity involves implementation of WTGs as a voluntary measure to strengthen the regional grid of India through exploitation of wind power generation potential available to India and in accordance with the Ministry of Environment, Forest and Climate Change (MoEF&CC) Notification dated 14-September-2006 (S.O. 1533(E)¹³, the current project is exempt from Environmental Impact Assessment (EIA) submission. Since the project involves wind-based activities, it is not required to obtain clearance from the Pollution Control Board.

Throughout the monitoring period, the project operation had no negative impacts on air, water, soil quality, surroundings or socio-economic factors. Moreover, there were no anticipated adverse environmental or socio-economic effects, eliminating the need for mitigation measures. The use of wind energy as a renewable resource not only preserved natural resources but also promoted environmental well-being without any detrimental consequences for the local environment.

Additionally, the Monitoring Report MR/1/ explicitly confirmed that the project proponent (PP) ensured that the operational and maintenance phases had no adverse effects on air, water or ecological aspects. The project's commitment to eco-friendly power generation has resulted in sustainable development within the region, as highlighted in MR/1/.

Furthermore, the project activity has positively impacted the local community by creating job opportunities during construction and operation phases, as verified through on-site interviews and visits by the VKU Assessment/Verification Team /33/. This has led to an increase in employment rates and an improvement in the standard of living for the residents.

4.2.2 Local Stakeholder Consultation

The project in question i.e., VCS 682:“Wind Power Project at Anthiyur, Tamil Nadu” has undergone stakeholder consultation in compliance with the Verified Carbon Standard (VCS) and local regulations. Various stakeholder groups, including employees of the TNEB, local residents, farmers and contractors were engaged through multiple phases using methods such as focus group discussions and social mapping.

A meeting was organized for stakeholders at the wind farm site office and they were invited through public notices in local newspapers with sufficient notice to encourage their participation. As stated in the MR/1/ and verified through on-site interviews with site personnel, it was evident that local stakeholders recognized and appreciated the positive impacts of the wind power project. These positive impacts included increased employment

¹³ <http://www.environmentwb.gov.in/pdf/EIA%20Notification,%202006.pdf>

opportunities, enhanced land value and improved infrastructure in the region. The stakeholders expressed gratitude for the project proponent's efforts towards environmental welfare and acknowledged the project's contribution in generating employment locally.

To ensure open communication and address any concerns a complaint register was established on-site for stakeholders to lodge their complaints. However, during the monitoring period, no complaints were received, as confirmed by the VKU assessment team during their on-site visit. Additionally, the VKU verification team did not come across any negative comments or feedback from local stakeholders during their on-site assessment, as summarized in section 2.2 of MR/1/.

During the on-site interviews, the verification team specifically examined the compilation of inputs and feedback from stakeholders, and they found that the project proponent had appropriately considered and accounted for them. As a result, the verification team concluded that the ongoing communication with local stakeholders complies with the established guidelines defined in section 3.18, clause 3.18.5 of the VCS Standard version 4.4/07/. The project proponent's efforts in engaging with stakeholders have been deemed suitable and in line with the prescribed requirements.

The local stakeholders interviewed in section 2.3 of this report confirmed the same. Hence confirming that the project activity does not have a negative impact on the surrounding environment, thus promoting environmental wellbeing.

4.3 AFOLU-Specific Safeguards

As the project comes under the category of NON-AFOLU projects therefore this section does not apply for this verification. Hence Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The equations and choices provided in the methodology /10/ and all other methodological tools are correctly quoted in the MR /1/. The emission reductions of the project activity are calculated using the formulae mentioned in the applied methodologies i.e., AMS I.D. Version 18.0 /10/. The verification team has reviewed the emission reduction spread sheets (ER sheets) /2/ and checked all the formulae and found they are correct and are in accordance with the monitoring plan of the PD /03/ and the applied monitoring methodology /10/.

The project monitoring plan involves total 3 parameter to be monitored;

- 1) **EG_{Gross,y}** (Gross Electricity export to the grid by the project during the year y (kWh/y);
- 2) **EG_{Net,y}** (Net electricity supplied to the grid)
- 3) **EG_{Import,y}** (Electricity imported from the grid by the project during the year y)

All monitored parameters are according to the monitoring plan and monitoring report/1/.

The parameter **EG_{Gross, y}** value is sourced from Certified Joint Meter Reading (JMRs)/25/, Proper calibrated meters of 0.2s accuracy class installed at each WTG and regularly monitor the Gross electricity generated by each WTG, the parameter **EG_{Net, y}** value is sourced from Joint Meter Reading (JMRs) /25/ and Invoices/26/, Proper calibrated two-way meters of 0.2s accuracy class installed at substation regularly monitor the import and export value which is aggregated on a monthly basis in JMRs & invoices, the parameter **EG_{import, y}** value is sourced from energy meters available at the generation points and cross checked from Monthly invoices issued by PP /26/, ER sheet/2/ prepared by PP has been reviewed by assessment team thoroughly by cross checking the values of JMRs and Invoices/26/ submitted by PP and found correct including all the formulae and conversions and aggregations.

The monitoring plan specified in the registered VCS Project Design (PD) version 01, dated 20-March-2017, is diligently being followed at the site. The assessment team has conducted a thorough verification of the entire information flow, starting from data generation and aggregation to recording, calculation and reporting of the relevant parameters in the Monitoring Report (MR/1/). The emission reductions are based on the net electricity generated and exported from the project.

The project proponent (PP) has provided all the necessary data for the current monitoring period, ensuring a comprehensive and accurate assessment. The values of the parameter "net electricity generation supplied to the grid," which were used in deriving the greenhouse gas (GHG) emission reduction have been found to be well correlated between the data sets and the Emission Reduction (ER) spreadsheet provided by the PP.

The verification of each monitoring parameter has been discussed later in [section 4.5](#) of this report.

According to applied methodology AMS I.D.; Version 18.0 /10/ the emissions are calculated as below:

According to applicable methodology AMS I.D.; Version 18.0-page 12¹⁴ under section 5.7 of Baseline Methodology Procedure with further description under paragraph about Leakage emissions & Project emissions confirms that since project activity is a Wind power project and no other kind of fossil fuel has been used in the current monitoring period on site thus no leakage emission is considered according to the methodology used & since this is a renewable project activity no project emissions from the project activity are considered.

Leakage emissions: $LE_y = 0$

Project Emissions (PE_y) = 0

¹⁴ [EB81_repan24_AMS-I.D_ver18.pdf \(unfccc.int\)](#)

GHG Calculations:

The calculation of emission reduction has been done in accordance with the applied methodology used i.e., AMS I.D. Version 18.0 /10/. As per the applied methodology, the values of project emission and leakages are considered as zero for the project activity. The equation used for calculation of baseline emission is given below:

Baseline emissions are calculated as follows:

Where,

$BE_y = EG_{BL,y} \times EF_{CO_2}$	
$BE_y =$	Baseline Emissions (tCO ₂ /year)
$EG_{BL,y} =$	Energy Baseline in year y, kWh
$EF_{CO_2} =$	CO ₂ Emission Factor in year y; t CO ₂ / kWh
Therefore, the baseline emissions for Year 2022 (from 01-May-2022 till 31-December-2022)	
= 29,438.64 MWh * 0.9777 tCO ₂ /MWh	
= 28,782 tCO₂e (Round down Value)	
The Total baseline Emissions = 28,782 tCO₂e	

All of the 9 WTGs were in operation throughout the current monitoring period, and the project activity generated 29,438.64 MWh of energy, resulting in 28,782 tCO₂e GHG reductions.

Estimated Emission Reduction as in VCS PD for the equivalent period of the current Monitoring period, 01-May-2022 to 31-December-2022 (Inclusive of both the days):	
Monitoring Period Start Date	01-May-2022
Monitoring Period End Date	31-December-2022
Days in Current Monitoring period	245
Annual VCUs as per revised VCS PD (renewal CP)	30,928 (tCO ₂ e)
Estimated Emission Reduction as in VCS PD for the equivalent period of the current Monitoring period	= (Annual Estimated GHG emission reductions as per revised VCS PD/Total days in a year) * days in current monitoring period = (30,928/365) * 245 = 20,759 (tCO₂e)

The estimated emission reduction for the present monitoring period is 20,759 tCO₂e, however the achieved emission reductions are 28,782 tCO₂e (round down value), or around 38.65% higher than the estimated emission reductions.

Section 5.4 of the Monitoring Report (MR/1/) presents detailed calculations, which have been cross-checked and verified through the compiled Emission Reduction (ER/2/) spreadsheet. The verification team ensured the accuracy of these calculations by referencing the Joint Meter Readings (JMRs/25/) and cross-checking the data with invoices (26/).

The daily generation schedule is prepared by the plant team and the Power is sold to the Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) according to the (EWA/22/). The VESTAS Wind Technology India Private Limited team is responsible for monitoring the generation of the Wind Turbine Generators (WTGs) daily and maintains a log book recording daily generation details for each WTG within the project, as measured at the wind farm. The VKU assessment team verified these records during their on-site visit (34/).

The electricity generated by both the project activity WTGs and non-project WTGs is metered at a feeder-wise common metering point. This metering point comprises a main meter and a check meter, both having an accuracy of 0.2s. These meters measure parameters such as export and import for all connected WTGs. As specified in the registered VCS Project Design (PD/3/) and MR/1/, the net electricity supplied to the grid is calculated by summing up the net electricity export figures of individual WTGs. The difference is then multiplied by the applicable meter multiplication factor.

The monitoring and measurement of electricity at the project metering point are carried out continuously, while the recording is done on a monthly basis through Joint Meter Readings, performed jointly by representatives of the State Utility and the project proponent (PP).

Calculation of net electricity export to the grid by project activity WTG:

The HTSC No. for the individual or group of turbines represents the unique identification of the joint meter. The net electricity supplied to the grid is calculated by the summation of the net electricity export figures of individual WTGs.

The value of the monthly net electricity delivered to the Grid by the project activity WTG is aggregated annually to get quantity of net electricity supplied by the project plant/unit to the grid in year y.

PP has submitted all the evidences like JMRs /25/and Invoices /26/ to VKU Assessment/Verification Team for verification and assessment of ER Sheet/2/

Hence VKU Assessment/Verification Team can state that the calculation method and formulae used in calculating baseline emission is following the methodology used i.e., AMS I.D.: "Grid connected Renewable Electricity Generation - version 18.0" /10/.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

When verifying the reported emission reduction, VKU ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown above.

When assessing the audit trails, VKU also examined:

1. whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period
2. the source and nature of the evidence
3. if comparable information was available from sources other than that used in the monitoring report/1/, VKU cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in [Section 2.2](#) above.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant lack of evidence and missing data were detected during verification. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures.

There is total 03 parameters to be monitored;

- 1) **EG_{Gross,y}** (Gross Electricity export to the grid by the project during the year y (kWh/y);
- 2) **EG_{Net,y}** (Net electricity supplied to the grid)
- 3) **EG_{Import,y}** (Electricity imported from the grid by the project during the year y) according to the monitoring plan and monitoring report/1/.

The below table describe how the parameter **EG_{Gross,y}** (Gross Electricity export to the grid by the project during the year y), 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 No: 11 Assessment of Parameter EG_{Gross,y} (Gross Electricity export to the grid by the project during the year y)

Parameter	EG _{Gross,y} (Gross Electricity export to the grid by the project during the year y)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is a measured parameter & will be monitored continuously and recorded at least monthly by energy meter. The electricity generated by each individual wind turbine generator (WTG) is recorded using an energy meter located at individual WTG machine, which measures the gross electricity generated in kilowatt-hours (kWh). This data is used for cross-checking the

		import and net electricity supplied to the grid, ensuring accurate monitoring of the project's electricity generation.
	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/3/ and monitoring methodology/10/. Also, in current monitoring period there is no deviation from the stated procedures in the registered monitoring plan. This was verified by assessment team during desk review and by assessment team members during onsite visit and interviews/33/ with site personnel.
	Monitoring equipment	Monitoring equipment used for continuously measuring, and recording the Gross electricity generated by each WTG is energy meters with accuracy class: 0.2s, make: Genus, L&T & EDM I and type 03D-183(DLMS), ER300P (DLMS) & MK6E DLMS respectively installed at 110/22 KV substation (Transformer Capacity: 4 x 25 MVA) of the details of meters and calibration details are provided in section 4.3 of MR/1/.
	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?	Yes, the accuracy of the monitoring equipment used to measure the gross electricity to calculate total electricity produced by each WTG, including the electricity supplied to the grid and the electricity supplied to machine loads, in year y. is 0.2s which is as per the registered PD/3/ which is as per the norm defined in the EWA/22/. Also, the monitoring equipment used to measure the input values such as import and export is highly accurate with a precision of 0.2s, as per the registered PD/3/ and in accordance with the norms defined in the EWA/22/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels	Yes, the accuracy is valid for the entire current monitoring period i.e., 01-May-2022 to 31-December-2022 (Inclusive of both the days)

	apply to different measuring ranges?	
	Calibration frequency /interval:	PP has considered CEA order dated 17-March-2006/21/; which prescribes under the para 18(b) that "all the meters shall be tested once in five years." Thus, frequency of the calibration is considered for five years. To support the same PP took deviation in previous Monitoring Period (i.e., <u>01-September-2018 to 31-October-2019</u> (Inclusive of both the days) deviation had been taken on account of delay in meter calibration. As per VCS PD "The project adheres to all the mandatory regulatory and statutory requirements at the state as well as national level." This applies to current monitoring period too.
	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, it is in line with the monitoring plan & registered methodology. Outlined in the registered VCS PD dated 20-March-2017/3/ The calibration frequency is once in a tariff year as per EWA/22/ However due to uneven practise of performing calibration of state electricity board Accordingly, PP has considered CEA order dated 17-March-2006/21/; which prescribes under the para 18(b) that "all the meters shall be tested once in five years." Thus, validity of the calibration is considered for five years & for that PP took deviation in previous Monitoring Period (i.e., <u>01-September-2018 to 31-October-2019</u> (Inclusive of both the days) deviation had been taken on account of delay in meter calibration. As per VCS PD "The project adheres to all the mandatory regulatory and statutory requirements at the state as well as national level." Thus, validity of the calibration is considered for five years which is in accordance with the national standards i.e., Clause 18 of Central Electricity Authority

		(Installation and Operation of Meters) 2018 /21/
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes, Calibration certificates /23/ of the measuring equipment's is carried out by NABL accredited Laboratory i.e., <u>Measurematic India, (NABL Certificate Number: TC-8483)</u> which is done under the preview State entity i.e., Tamil Nadu Generation and Distribution Corporation Limited VVB verified the accreditation status of the Laboratory performing the calibration of the meters and found it correct and authentic, the required weblinks of the NABL accredited certificate is added for ready reference/36/ All the meters are tested by Tamil Nadu Generation and Distribution Corporation Limited on a periodic basis. In case of any faulty readings observed appropriate corrective action will be taken. If the error is found beyond the permissible limits, the PP will inform the respective agency so as to immediately rectify the error in the instrument, which was confirmed during onsite visit while interviewing/33/ the site personnel at project site/PP/Consultant. The Project Proponent (PP) has followed the national standards prescribed by the Central Electricity Authority (CEA) for meter calibration, which requires testing of meters once every five years as per the CEA order dated 17-March-2006/21/. The PP has taken deviation in the previous monitoring period to account for the delay in meter calibration, in line with the VCS PD and Clause 18 of the Central Electricity Authority (Installation and Operation of Meters) 2018/21. This demonstrates the PP's adherence to mandatory regulatory and statutory

		requirements at the state and national level.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibration is valid throughout the reporting period. The Project Proponent (PP) has followed the national standards prescribed by the Central Electricity Authority (CEA) for meter calibration, which requires testing of meters once every five years as per the CEA order dated 17-March-2006/21/. The PP has taken deviation in the previous monitoring period PP (i.e., <u>01-September-2018 to 31-October-2019</u> (Inclusive of both the days to account for the delay in meter calibration, in line with the VCS PD and Clause 18 of the Central Electricity Authority (Installation and Operation of Meters) 2018/21. This demonstrates the PP's adherence to mandatory regulatory and statutory requirements at the state and national level. Hence the calibration is valid for the whole reporting period. i.e., 01-May-2022 to 31-December-2022 (Inclusive of both the days).
	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 for current monitoring as per the registered monitoring plan and VCS VVS manual version 3.2/8/& as per EWA/22/ The calibration is carried out for a measuring range i.e., CTR: 50/5A, PTR: 22KV/110V & MF: 2000 with accuracy class 0.2s, Voltage/Frequency: 3*63.5 Volts, 50Hz, Current: -/5A
	How were the values in the monitoring report verified?	Cumulative value of EG _{Gross,y} for entire monitoring period 01-May-2022 to 31-December-2022 (inclusive of both dates) is reported in the monitoring report/1/, and monthly values in the ER calculation sheet/2/ in kWh. The monthly values were verified from the JMRS/25/ and cross checked from

		invoices/26/ thus found to be consistent. Value of this parameter for the current monitoring period was verified as 29,653,168 <table><tr><th>Year</th><th>Gross Electricity Generation (kWh)</th></tr><tr><td>2022</td><td>29,653,168</td></tr><tr><td>Total</td><td>29,653,168</td></tr></table> kWh.	Year	Gross Electricity Generation (kWh)	2022	29,653,168	Total	29,653,168
	Year	Gross Electricity Generation (kWh)						
	2022	29,653,168						
	Total	29,653,168						
If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of EG_{Gross,y} in JMRs/25 were further cross checked with the monthly invoices /26/ raised by the PP to individual captive user who is receiving electricity via distribution licensee i.e., TANGEDCO which is found to be consistent with the EWA/22/							
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site personnel interview/33/ with the project stakeholder of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable.							
In case project proponents 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#02 & CAR#03 were 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 emission reduction calculation for the project activity is estimated based on							

	the electricity supplied by the project. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.
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The below table describe how the parameter **EG_{Net,y}** (Net electricity supplied to the grid), 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 No: 12 Assessment of Parameter EG_{Net,y} (Net electricity supplied to the grid)

Parameter	EG _{Net,y} (Net electricity supplied to the grid)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is a calculated parameter & is monitored continuously and recorded at least monthly by energy meter. The net electricity supplied to the grid is calculated by the summation of the net electricity export figures of individual WTGs taken from the energy meters which is mentioned in the JMRs issued by the TANGEDCO & can be further cross-checked with the Invoices.
	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/3/ and monitoring methodology/10/. Also, in current monitoring period there is no deviation from the stated procedures in the registered monitoring plan. This was verified by assessment team during desk review and by Team Leader during onsite visit and interviews/33/ with site personnel.
	Monitoring equipment	Since this a calculated value No monitoring equipment was used however the value for Net generation is calculated by the summation of the net electricity export figures of individual WTGs taken from the energy meters which is mentioned in the JMRs issued by the TANGEDCO & can be further cross-checked with the Invoices. Thus, the

		description for Monitoring equipment used for continuously measuring, and recording the EG_{Gross,y} generated by each WTG is energy meters with accuracy class: 0.2s, make: Genus, L&T & EDM I and type 03D-183(DLMS), ER300P (DLMS) & MK6E DLMS respectively installed at 110/22 KV substation (Transformer Capacity: 4 x 25 MVA) of the details of meters and calibration details are provided in section 4.3 of MR/1/.
	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?	This is a calculated value; hence this section is not applicable, however as explained above that value for Net generation is derived by summing the electricity export data from individual wind turbine energy meters, The details for the accuracy of the monitoring equipment are already elaborated in the above table no 11. Please refer the section above.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	This is a calculated value; hence this section is not applicable, the details for the accuracy validity of the monitoring equipment is already elaborated in the above table no 11. Please refer the section above.
	Calibration frequency /interval:	This is a calculated value; hence this section is not applicable, the details for the Calibration frequency /interval of the monitoring equipment is already elaborated in the above table no 11. Please refer the section above.
	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	This is a calculated value; hence this section is not applicable, the details for the <i>"Is the calibration interval in line with the monitoring plan and/or methodology"</i> of the monitoring equipment is already elaborated in the above table no 11. Please refer the section above.

	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?	This is a calculated value; hence this section is not applicable, the details for " <i>Is the calibration of measuring equipment carried out by an accredited person or institution?</i> " of the monitoring equipment is already elaborated in the above table no 11. Please refer the section above.
	Is(are) calibration(s) valid for the whole reporting period?	This is a calculated value; hence this section is not applicable, the details for " <i>Is(are) calibration(s) valid for the whole reporting period?</i> " of the monitoring equipment is already elaborated in the above table no 11. Please refer the section above.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	This is a calculated value; hence this section is not applicable, the details for the section with respect to the monitoring equipment is already elaborated in the above table no 11. Please refer the section above.
	How were the values in the monitoring report verified?	Cumulative value of $EG_{Net,y}$ for entire monitoring period 01-May-2022 to 31-December-2022 (inclusive of both dates) is reported in the monitoring report/1/, and monthly values in the ER calculation sheet/2/ in MWh. The monthly values were verified from the JMRs/25/ and cross checked from invoices/26/ thus found to be consistent. Value of this parameter for the current monitoring period was verified as 29,438.64 MWh.

		<table><tr><th>Year</th><th>Net Electricity Generation (MWh)</th></tr><tr><td>2022</td><td>29,438.64</td></tr><tr><td>Total</td><td>29,438.64</td></tr></table>	Year	Net Electricity Generation (MWh)	2022	29,438.64	Total	29,438.64
	Year	Net Electricity Generation (MWh)						
	2022	29,438.64						
	Total	29,438.64						
If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of $EG_{Net,y}$ in JMRs/25 were further cross checked with the monthly invoices /26/ raised by the PP to individual captive user who is receiving electricity via distribution licensee i.e., TANGEDCO which is found to be consistent with the EWA/22/							
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site personnel interview/33/ with the project stakeholder of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable. Every month these meter readings will be recorded by TNEB representative and plant personnel. The meters at the substation will be two-way meters and will be in the custody of TNEB. The quantity of net electricity supplied is cross-verified from the invoice raised on TNEB by the project proponent							
In case project proponents 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#02 & CAR#03 were 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 emission reduction calculation for the project activity is estimated based on the electricity supplied by the project. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.
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The below table describe how the parameter **EG_{Import,y}** (Electricity imported from the grid by the project during the year y), 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 No: 13 Assessment of Parameter EG_{Import,y} (Electricity imported from the grid by the project during the year y)

Parameter	EG _{Import,y} (Electricity imported from the grid by the project during the year y)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is monitored continuously and recorded at least monthly by energy meter. The electricity imported by each WTG is recorded with the aid of energy meter for individual WTG in kWh for cross check of gross and net electricity supplied to the grid.
	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/3/ and monitoring methodology/10/. Thus, there is no deviation from the stated procedures in the registered monitoring plan. This was verified by assessment team during desk review and by Team Leader during onsite visit and interviews/33/ with site personnel.
	Monitoring equipment	Monitoring equipment used for continuously measuring, and recording the EG_{Import,y} by each WTG is energy meters of accuracy class: 0.2s, make: Genus, L&T & EDMI and type 03D-183(DLMS), ER300P (DLMS) & MK6E DLMS respectively installed at 110/22 KV substation (Transformer Capacity: 4 x 25 MVA) of the details of meters and calibration

		details are provided in section 4.3 of MR/1/. Please note that during the monitoring period, (01-May-2022 to 31-December-2022, inclusive of both the days) energy meter installed at HTSC No-508 was replaced with new meters with accuracy class of 0.2s, make L&T & type ER300P (DLMS) on 10-August-2022. Details of replacement of energy meter are provided in Section 3.3 of MR. The calibration and maintenance of energy meters is beyond the control of project participant and is sole responsibility of state utility, it does not impact the existing applicability conditions of the methodology, additionality or the appropriateness of the baseline scenario.	
	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?	Yes, based on the information provided, it appears that the monitoring equipment used to measure the input values such as import and net export for calculating net electricity supplied to the grid in year y has an accuracy of 0.2s, which is in accordance with the norm defined in the registered PD/3/ and EWA/22/. Additionally, the precision of the monitoring equipment used to measure the input values, such as import and export, is also reported to be highly accurate with a precision of 0.2s, as per the registered PD/3/ and in accordance with the norms defined in EWA/22/. It's important to note that accuracy refers to the closeness of the measured value to the true value, while precision refers to the consistency and repeatability of the measurements.	
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire current monitoring period i.e., 01-May-2022 to 31-December-2022 (Inclusive of both the days)	

	Calibration frequency /interval:	The calibration frequency is once a year as per EWA/22/ and VCS PD dated 20-March-2017/3/. However, compared to the VCS PD, which prescribes annual calibration, meters can be calibrated with some delay during the monitoring period. PP considers the CEA order dated 17-March-2006/21/ which mandates testing meters once in five years, validating the calibration for five years. PP previously took deviation in the monitoring period (<u>01-September-2018 to 31-October-2019; Inclusive of both days</u>) due to meter calibration delay. VCS PD ensures compliance with state and national requirements. Thus, the calibration validity of five years aligns with national standards as per Clause 18 of Central Electricity Authority (Installation and Operation of Meters) 2018/21.
	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?	The calibration interval in line with the monitoring plan The Project Proponent (PP) follows national standards set by the Central Electricity Authority (CEA) for meter calibration, which requires testing every five years as per the CEA order dated 17-March-2006/21/. The PP accounts for the delay in meter calibration through deviation taken in the previous monitoring period, in line with VCS PD and Clause 18 of the Central Electricity Authority (Installation and Operation of Meters) 2018/21, showcasing compliance with mandatory regulatory and statutory requirements at the state and national level.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	NABL Accredited Laboratory i.e., <u>Measurematic India. (NABL Certificate Number: TC-8483)</u> which is under the supervision of Tamil Nadu Generation and

		Distribution Corporation Limited. VVB verified the accreditation status of the Laboratory performing the calibration of the meters and found it correct and authentic, the required weblinks of the NABL accredited certificate is added for ready reference.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. The calibration is carried out for a measuring range i.e., for current monitoring period 01-May-2022 to 31-December-2022 (Inclusive of both the days) The Project Proponent (PP) adhered to national standards for meter calibration, as per the Central Electricity Authority (CEA) order dated 17-March-2006/21/, which requires testing of meters every five years.
	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 for current monitoring as per the registered monitoring plan and VCS VWS manual version 3.2/8/& as per EWA/22/ The calibration is carried out for a measuring range i.e., CTR: 50/5A, PTR: 22000/110V & MF: 2000 with accuracy class 0.2s Voltage/Frequency: 3*63.5 Volts 50Hz & Current: -/5A
	How were the values in the monitoring report verified?	Cumulative value of EG_{Import,y} for entire monitoring period 01-May-2022 to 31-December-2022 (inclusive of both dates) is reported in the monitoring report/1/, and monthly values in the ER calculation sheet/2/ in kWh. The monthly values were verified from the JMRs/25/ and cross checked from invoices/26/ thus found to be consistent. Value of this parameter for the current monitoring period was verified as 214,528 kWh.

		<table><tr><th>Year</th><th>Total Import Electricity (kWh)</th></tr><tr><td>2022</td><td>214,528</td></tr><tr><td>Total</td><td>214,528</td></tr></table>	Year	Total Import Electricity (kWh)	2022	214,528	Total	214,528
	Year	Total Import Electricity (kWh)						
	2022	214,528						
	Total	214,528						
If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of EG _{Import,y} were verified from JMRs issued to PP by state entity i.e, TANGEDCO which were further cross checked with the monthly invoices /26/ raised by the PP to respective captive user as specified in EWA/22/ and thus 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?	On site personnel interview/33/ with the project stakeholder of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable. The electricity imported by the individual WTG is recorded. The electricity imported is adjusted against the gross export by the project activity to the grid. To be cross-checked with monthly invoices or receipts of payments.							
In case project proponents 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#02 & CAR#03 were 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 emission reduction calculation for the project activity is estimated based on the electricity supplied by the project. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.
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Table No: 14 Data and Parameters Available at Validation or Ex-ante parameters:

Parameter	Unit	Description	Value
EF _{grid,y}	tCO ₂ /MWh	Combined Margin CO ₂ Emission Factor in year y	0.9777 tCO₂/MWh is consistent with the registered VCS PD version 01 dated 20-March-2017/3/ Referred from <u>Tool to calculate the emission factor for an electricity system, Version 06.0/19/</u> The Central Electricity Authority (CEA) has provided estimates for the simple operating margin and build margin emission factors for the regional grids. In order to calculate the CO₂ emission factor using the combined margin method for the second crediting period, weights of 0.75 for operating margin and 0.25 for build margin for the Indian grid are considered, as per the 'Tool to calculate the emission factor for an electricity system' (Version 06.0).
EF _{om,y}	tCO ₂ /MWh	Simple operating margin emission factor of Indian Grid	0.9941 tCO₂/MWh is consistent with the registered VCS PD version 01 dated 20-March-2017/3/ Calculated from <u>CEA database, Version 11, April 2016/20/</u>

EF _{BM,y}	tCO ₂ /MWh	Combined Margin CO ₂ Emission Factor in year y	0.9285 tCO ₂ /MWh is consistent with the registered VCS PD version 01 dated 20-March-2017/3/ Calculated from <u>CEA database, Version 11, April 2016/20/</u>
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Calibration of meters/23/:

During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate by assessment team during onsite visit/34/. The installation and working conditions of the meters were checked during the site inspection/34/ and were found to be satisfactory as compared to the provision of calibration/testing frequency, prescribed under the VCS PD/3/, the meters are supposed to undergo testing/calibration once in a year. The meter calibration is not under the purview of PP.

TANGEDCO¹⁵ is the sole authority to conduct the meter calibration and in absence of annual practice of calibration, PP has considered CEA order dated 17-March-2006; which prescribes under the para 18(b) that "all the meters shall be tested once in five years." Thus, validity of the calibration is considered for five years, whereas error factor has been considered to estimate a conservative ER value. Details of meters are provided in below table:

Table No: 15 Calibration details of Feeder meters: The calibration details of meters installed by Tamil Nadu Electricity Board for measurement of EG_{Gross,y}, EG_{net,y} EG_{import,y} are as below.

Location Name	HT. Sc. No	Energy Meter - S.No	Make	Accuracy Class	Type	Date of Calibration /Installation	Latest Date of calibration/ replacement	Validity of calibration*
NSL-1	507	4321904	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022	04-May-2027
NSL-2	508	4321911	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022 Replaced on 10-August-2022	04-May-2027 However, NA Since it has been replaced

¹⁵ Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) is a subsidiary of TNEB Limited. TANGEDCO is the successor to the erstwhile Tamil Nadu Electricity Board. The electricity board's generation and distribution wings are its nucleus.

		22002286 ¹⁶	L&T	0.2s	ER300P (DLMS)	Installed on 10-August-2022	Calibrated on 20-June-2022	19-June-2022
NSL-3	510	4321912	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022	04-May-2027
NSL-4	533	4321910	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022	04-May-2027
NSL-5	509	5839987	Genus	0.2s	03D-183 (DLMS)	11-November-2020	05-May-2022	04-May-2027
NSL-6	551	4321909	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022	04-May-2027
NSL-7	497	HT218007 ₅	EDMI	0.2s	ME6EDLMS	06-December-2019	05-May-2022	04-May-2027
NSL-8	511	4321905	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022	04-May-2027
NSL-9	482	4322619	Genus	0.2s	03D-183 (DLMS)	08-May-2017	05-May-2022	04-May-2027

There are nine WTGs involved for the electricity export. The provision of calibration/testing frequency prescribed under the VCS PD/3/. PP has considered CEA order dated 17 March 2006; which prescribes under the para 18(b)/21/ that "all the meters shall be tested once in five years." Thus, validity of the calibration is considered for five years. This is verified by assessment team from the calibration certificates/23/ submitted by the PP. As per VCS PD "The project adheres to all the mandatory regulatory and statutory requirements at the state as well as national level" & hence acceptable to VKU assessment team.

The energy meter calibration certificates/23/ are checked and found that the calibration details provided in the MR /1/ are correct. From the verification of above table, verification team also confirms that the energy meter calibrations are valid for the complete monitoring period i.e., from 01-May-2022 to 31-December-2022, including both the start and end dates.

During onsite visit /34/ the verification team checked all the meters and confirmed that the meters were working satisfactorily. Also, the calibration of meters is completely under purview of Tamil Nadu Electricity Board (TNEB) and PP has no control over the same as confirmed through interviews of site personnel /33/ and EWA /22/.

¹⁶ As a part of emergency procedure, PP had spare meter which was calibrated on 20-June-2022 and was kept in laboratory, however due to technical failure in energy meter no 4321911, Make Genus, type; 03D-183 (DLMS) installed at WTG NSL 02, HTSC no 508 was replaced with energy meter number 22002286, Make L&T, type ER300P (DLMS)

Hence it can be concluded that the approach followed by the PP is conservative and in line with the guidelines provided under paragraph 3.4.2 of Validation and verification manual version 3.2./8/.

The registered VCS renewable Crediting Period Project Description (PD) version 01 dated 20-March-2017/3/ & MR /1/ and site audit observations confirm that the metering equipment are sealed and maintained by the Tamil Nadu Electricity Board (TNEB).

The company has installed meters of a static type, in accordance with the latest IEC-687/IEC-62053-22 and Indian Electricity Grid Code Regulations. Each WTG have a main meter to record frequency quantities of active and reactive energy for energy exported to and imported from the grid during settlement periods. All meters are sealed in the presence of the Tamil Nadu Electricity Board (State Utility) and the Company representatives, with the seal remaining intact unless broken for testing and calibration by a testing laboratory, which is also under the purview of the state entity. Measuring instrument accuracy class requirements are 0.2% for kWh measurement of meters, 0.2% for KVArh measurement of meters, and 0.5% for current and voltage transformers. The meter calibration is not under the purview of PP. TNEB is the sole authority to conduct the meter calibration.

The assessment team has verified the JMRs /25/ issued by TANGEDCO to PP & Invoices/26/issued to respective captive user identified in the EWA /22/ by Windage Power Company Pvt Ltd confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid consequently for ER calculations recorded in ER sheet /2/ In view of the above discussion the VKU assessment team is 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:

$$BE_y = EG_{BL,y} * EF_{CO2}$$

Where:

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

tCO₂e/MWh: Energy Baseline in year y, MWh

EF_{CO2} : CO₂ Emission Factor in year y (tCO₂e/MWh)

The project activity being a greenfield project, $EG_{BL,y}$: Energy Baseline in year y, (MWh/year) = $EG_{Net,y}$:Net electricity exported to grid by the project activity (MWh/year)

and

EF_{CO_2} : CO₂ Emission Factor in year y (tCO₂e/MWh) = $EF_{Grid,y}$: Combined margin CO₂ Emission Factor of Indian Grid (tCO₂e/MWh)

Parameter	Unit	Value
$EG_{Net,y}$	MWh	29,438.64
EF_{CO_2}	tCO ₂ e	0.9777
BE_y	=	29,438.64 * 0.9777
	=	28,782 (Round down value)
PE _y (tCO ₂ e)	=	0
LE _y (tCO ₂ e)	=	0
Net GHG emission reductions or removals tCO ₂ e	=	28,782 (tCO ₂ e)

The verification team attests to the correctness of the formulas and methodologies used to compute baseline emissions. The applied default values, emission factors, and assumptions in the calculations are all reasonable.

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 38.65% higher than the estimated ERs in the registered PD/3/. We as VKU Assessment/Verification Team accepted this as this is mainly due to the variations in high PLF, high wind speed and minor shutdown periods during the monitoring period. The assessment/verification team further performed the analysis of the achieved PLF against the ex-ante PLF for current monitoring period.

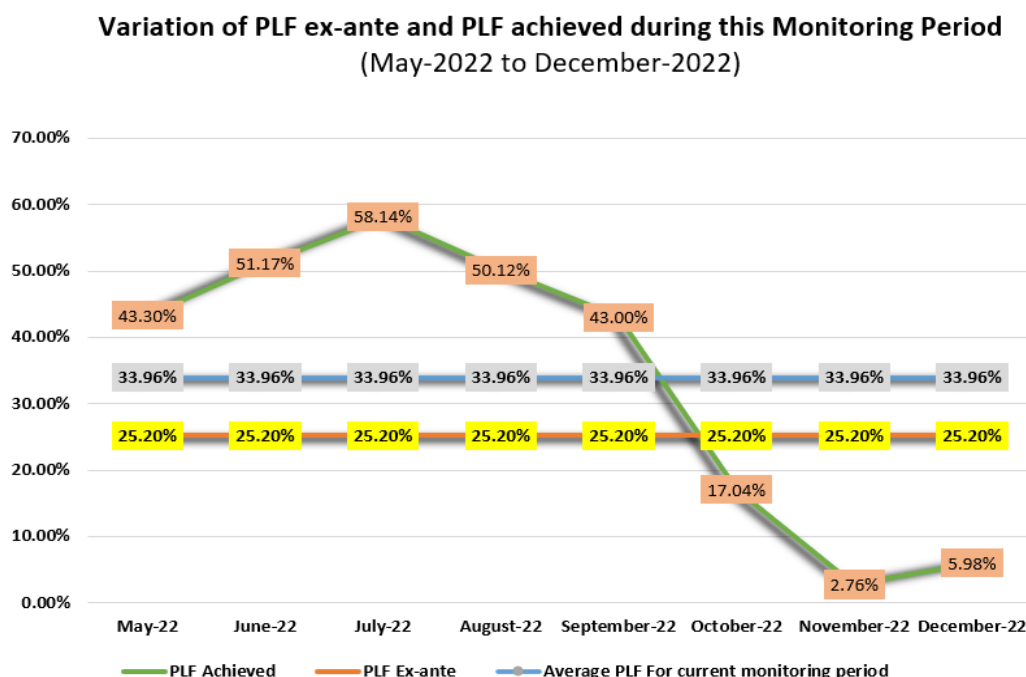
Table No: 16 Variation of PLF from ex-ante estimation for current monitoring period 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates)

Monitoring Period	Actual Generation in MWh	As per operating hours in MWh	PLF achieved %	PLF ex ante	% variation
May-22	4,783.987	11,048.4	43.30%	25.20%	71.83%
June-22	5,471.147	10,692	51.17%	25.20%	103.06%
July-22	6,423.979	11,048.4	58.14%	25.20%	130.73%
Aug-22	5,537.42	11,048.4	50.12%	25.20%	98.89%
Sep-22	4,597.736	10,692	43.00%	25.20%	70.64%
Oct-22	1,882.676	11,048.4	17.04%	25.20%	-32.38%
Nov-22	295.552	10,692	2.76%	25.20%	-89.03%

Dec-22	660.671	11,048.4	5.98%	25.20%	-76.27%
	87,318	29,653.17	33.96%	25.20%	34.76%

Since the data available for current monitoring period is from September-2021 to April-2022, assessment team plotted the graph for study the trend.

Figure 02: Trends of PLF from May 2022 to December 2022



Based upon the Figure 02, it is clear that the trend of PLF from May-2022 to September-2022 is higher than the estimated and also after September-2022 the trend of PLF is lower than the estimated. This is reflected in higher emission reductions for the current monitoring period.

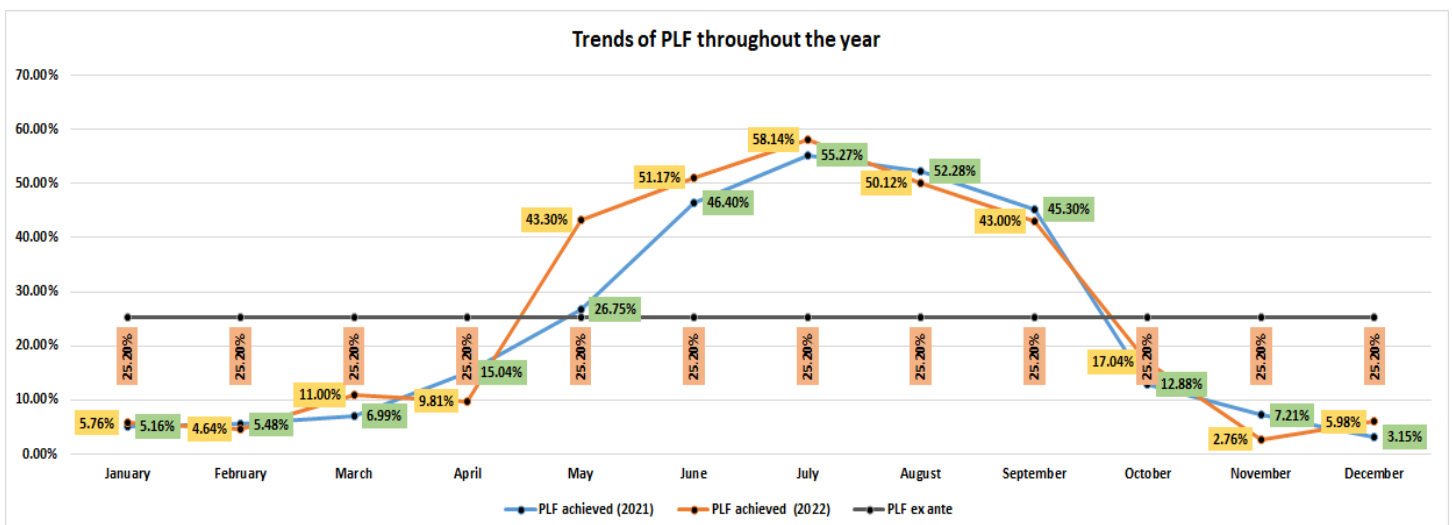
To further understand the trend and compare the PLF achieved and ex ante values, assessment team evaluated the PLF data for year 2021 and 2022 and plotted the graph which is as follows :

For Year 2021	No. of days	Actual Generation achieved	Ex ante Generation as per operating hours	PLF achieved %	PLF ex ante
01-January-2021	31	571	11048.4	5.16%	25.20%
01-February-2021	28	546	9979.2	5.48%	25.20%
01-March-2021	31	772	11048.4	6.99%	25.20%
01-April-2021	30	1608	10692	15.04%	25.20%
01-May-2021	31	2956	11048.4	26.75%	25.20%

01-June-2021	30	4961	10692	46.40%	25.20%
01-July-2021	31	6107	11048.4	55.27%	25.20%
01-August-2021	31	5776	11048.4	52.28%	25.20%
01-September-2021	30	4,843	10692	45.30%	25.20%
01-October-2021	31	1,423	11048.4	12.88%	25.20%
01-November-2021	30	771	10692	7.21%	25.20%
01-December-2022	31	349	11048.4	3.15%	25.20%
		30,681	1,30,086	23.59%	25.20%

For Year 2022	No. of days	Actual Generation achieved	Ex ante Generation as per operating hours	PLF achieved %	PLF ex ante
01-January-2022	31	636	11048.4	5.76%	25.20%
01-February-2022	28	463	9979.2	4.64%	25.20%
01-March-2022	31	1,215	11048.4	11.00%	25.20%
01-April-2022	30	1,048	10692	9.81%	25.20%
01-May-2022	31	4,784	11048.4	43.30%	25.20%
01-June-2022	30	5,471	10692	51.17%	25.20%
01-July-2022	31	6,424	11048.4	58.14%	25.20%
01-August-2022	31	5,537	11048.4	50.12%	25.20%
01-September-2022	30	4,598	10692	43.00%	25.20%
01-October-2022	31	1,883	11048.4	17.04%	25.20%
01-November-2022	30	296	10692	2.76%	25.20%
01-December-2022	31	661	11048.4	5.98%	25.20%
		33,016	1,30,086	25.23%	25.20%

Figure 2.1: Trend of PLF in year 2021 and 2022



The above graph clearly signifies high wind period from Month of May to September (Peak Time) also when compared with the PLF ex-ante as per registered RCP PD it was 25.20%. The ER achieved is although higher for the comparable period of the monitoring period, at the same time upon analysing the PLF for the entire year and the previous years, the PLF achieved is 25.23%, thus proving that the PLF did not affect the IRR when checked with the ex-ante values mentioned in PD.

The higher generation during the current verification period is hence due high wind flow, grid availability, High PLF & Low scheduled & unscheduled breakdown as verified and traced through evidences and calculative computation by VKU assessment team during desk review, onsite visit and interview with site personnel confirmed the reasons of higher emissions reduction as compared with registered VCS PD version 01 dated 20-March-2017/3/ & hence acceptable to VKU.

Hence the actual higher emission reduction achieved during the current monitoring period neither affects additionality nor there is any deviation from the registered monitoring plan, which was verified by the VKU Assessment/Verification Team during onsite visit.

The electricity produced by a wind plant relies on the amount of wind passing through it, and changes in wind availability can have an impact on its output. The flow of wind is a natural phenomenon and nobody have control over it, which can in turn affect the amount of electricity generated. The fluctuation in the wind flow is not under the control of the project proponent. Hence, it is acceptable to the VKU Assessment/Verification Team.

All the data were made available to the assessment team by PP during site visit and verification assessment stage/34/ and as supporting evidences which have been monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is tabulated above in Table 04.

The verification team has checked and confirmed the emission reduction calculations in the spreadsheet and found to be accurate. The monitoring report/1/ is supported by emission reduction spreadsheet/2/. The consistency and formula were verified and found to be accurate.

VKU is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.4 and that the verification of the GHG statement was conducted in accordance with ISO 14064-3; 2019.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk that could lead to material errors, omissions or misstatements rating determined by the project proponent for the project activity and no risk was identified in the audit/verification plan hence not applicable.

5 VERIFICATION OPINION

VKU Certification Pvt. Ltd. has performed the seventh verification of the second crediting period (01-April-2016 to 31-March-2026 which is inclusive of both dates) & overall ninth periodic verification for the project activity “Wind Power Project at Anthiyur, Tamil Nadu” in India, VCS Registry Project ID 682, for the monitoring period i.e., from 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates), with regard to the relevant requirements for VCS activities. The project proponents of the “Wind Power Project at Anthiyur, Tamil Nadu” amounts to 28,782 tCO₂e of carbon dioxide equivalent (tCO₂e). These reported reductions have been assessed in accordance with the relevant requirements outlined in the VCS Standard version 4.4/07/.

The project proponents of the “Wind Power Project at Anthiyur, Tamil Nadu” project is responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered VCS PD version 1.0 of 20-March-2017 /3/
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of VKU to express an independent verification opinion about the project’s conformity with the requirements of VCS Standard version 4.4/7/ and GHG program applied on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment, VKU can confirm that:

- The project has been implemented and operated as per the registered VCS PD version 1.0 of 20-March-2014 /3/
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.4/7/ requirements;
- The monitoring is in place as per the applied baseline and monitoring methodology;
- The monitoring plan in the registered VCS PD version 1.0 of 20-March-2017 /3/ is as per the applied baseline and monitoring methodology.

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

As per VCS Standard Version 4.4, clause 4.1.19, 4.1.20 and 4.1.21 VKU hereby concludes that the GHG emission reduction stated in the monitoring report version 03 of 28-August-2023 for

the “Wind Power Project at Anthiyur, Tamil Nadu” in India for the period 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates) are fairly stated.

Opinion	Final Documents	Monitoring Period	Emission Reductions achieved	Remarks
☒ Positive opinion ☐ Negative Opinion	Monitoring Report Version 3.0 dated 28-August-2023 Emission Reduction Sheet Version 3.0 dated 28-August-2023	01-May-2022 to 31-December-2022 (Inclusive of both start and end dates)	28,782 tCO₂e	The GHG emission reductions are calculated on the basis of approved methodology AMS I.D. version 18 /10/ and the monitoring plan included in the registered VCS PD version 1.0 of 20-March-2017 /3/ Hence VKU is able to certify that the emission reduction from the project during the monitoring period 01-May-2022 to 31-December-2022 (Inclusive of both start and end dates) amounts to 28,782 tCO₂e is in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.4/07/ and that the verification of the GHG statement was conducted in accordance with ISO 14064-3; 2019.

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2022 (01-May-2022 to 31-December-2022)	28,782	0	0	28,782
Total	28,782	0	0	28,782

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
Year 2022 (01-May-2022 to 31-December-2022)	20,759	28,782	38.65%	The actual ER achieved are higher than as estimated for the given current monitoring period. It is mainly due to high wind and high PLF during the current MP, The PLF achieved during current year i.e., 2022 (January-December) is 25.23 % and PLF for ex-ante as given in registered PD is 25.20%. Hence on comparing the values it can be concluded that the achieved PLF is within the limit as per sensitivity analysis and PLF achieved did not affect the IRR.
Total	20,759	28,782	38.65%	

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
ER	Emission Reductions
EWA	Energy Wheeling Agreement
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Proponent(s)
PWA	Power Wheeling Agreement
PSA	Power Sale Agreement

RCP	Renewable Crediting Period
Ref.	Document Reference
SLDC	State Load Dispatch Centre
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
TANGEDCO	Tamil Nadu Generation and Distribution Corporation
TNEB	Tamil Nadu Electricity Board
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit
VKU	VKU Certification Ltd.
VVS	Validation and Verification Standard

APPENDIX B: AUDIT FINDINGS

CAR: Corrective Action Request_04

CL: Clarification Request_02

FAR: Forward Action Request_00

Type	Date	22-July-2023
CL#01	Reference	Section 01 and 02 of Ver protocol
Description of the Non-Conformance		
- In Section 1.8 of MR: PP is requested to provide a hyperlink for the reference document in the footnote for the section 1.8 of the MR - In Section 1.9 of MR: PP is requested to submit a declaration for not Participation under other GHG Programs - In Section 1.10 of MR: PP is requested to submit the declaration to the VVB confirming there is no credit received or claimed for this monitoring period - In Section 1.11 of MR: PP is requested to submit the evidence for the verification of Employment Generation from the project Activity - In Section 2.2 of MR: A copy of grievance register is required to be submitted by the PP to the VVB as it was not found on the site.		
1 st Response from PP	Date	02-August-2023
- In Section 1.8 of MR: The hyperlink for the reference document in the footnote for the section 1.8 of the MR has been revised - In Section 1.9 of MR: PP has submitted the declaration for not participation under other GHG Programs - In Section 1.10 of MR: PP has submitted the declaration to the VVB confirming there is no credit received or claimed for this monitoring period - In Section 1.11 of MR: PP has submitted the evidence for the verification of Employment Generation from the project Activity - In Section 2.2 of MR: PP has submitted the copy of grievance register to the VVB.		
1 st Assessment by Audit Team	Status	Closed
	Date	03-August-2023
- In Section 1.8 of MR: Assessment team confirms that PP has incorporated a hyperlink for the reference document in the footnote for the section 1.8 of the MR - In Section 1.9 of MR: Assessment team confirms that PP has submitted a declaration for not Participation under other GHG Programs - In Section 1.10 of MR: Assessment team confirms that PP has submitted the declaration to the VVB confirming there is no credit received or claimed for this monitoring period - In Section 1.11 of MR: Assessment team confirms that PP has submitted the evidences for the verification of Employment Generation from the project Activity. - In Section 2.2 of MR: Assessment team confirms that a copy of grievance register has been submitted by the PP to the VVB.		
Hence VKU's assessment team confirms that CL#01 is closed.		

Type	Date	22-July-2023	
CL#02	Reference	Section 03 and 04 of Ver protocol	
Description of the Non-Conformance			
1) In Section 3.2.2 of MR: PP is requested to provide a hyperlink for the reference document in the footnote for the section 3.2.2 of the MR. 2) In Section 4.1 of MR: Please provide a working hyperlink. 3) In Section 4.2 of MR: PP is requested to Provide monthly Joint Meter Readings to the VVB for verification 4) In Section 4.2 of MR: PP is requested to Provide monthly Invoices to the VVB for verification 5) In Section 4.3 of MR: PP is requested to provide Calibration Certificates to the VVB for verification 6) In Section 4.3 of MR: The PP has not provided break-down details of project during current monitoring period, also please help share some pictures of the same from the Logbook			
1 st Response from PP		Date	02-August-2023
1) In Section 3.2.2 of MR: The hyperlink for the reference document in the footnote for the section 3.2.2 of the MR is now provided 2) In Section 4.1 of MR: Working hyperlink is now provided in this section of MR. 3) In Section 4.2 of MR: The monthly Joint Meter Readings has been submitted to the VVB for verification 4) In Section 4.2 of MR: The monthly Invoices has been submitted to the VVB for verification 5) In Section 4.3 of MR: PP has submitted the Calibration Certificates to the VVB for verification 6) In Section 4.3 of MR: The break-down details has been submitted to the VVB of the current monitoring period.			
1 st Assessment by Audit Team	Status	Closed	Date 03-August-2023
1) In Section 3.2.2 of MR: Assessment team confirms that PP has incorporated a hyperlink for the reference document in the footnote for the section 3.2.2 of the MR. 2) In Section 4.1 of MR: Assessment team confirms that PP has provided a working hyperlink. 3) In Section 4.2 of MR: Assessment team confirms that PP has submitted the monthly Joint Meter Readings to the VVB for verification 4) In Section 4.2 of MR: Assessment team confirms that PP has submitted the monthly Invoices to the VVB for verification 5) In Section 4.3 of MR: Assessment team confirms that PP has submitted the Calibration Certificates to the VVB for verification 6) In Section 4.3 of MR: Assessment team confirms that the PP has submitted the break-down details of project during current monitoring period. PP has also submitted the Monthly Generation Records thus provided PLF details and regular operational hours.			
Hence VKU's assessment team confirms that CL#02 is closed.			

Type	Date	22-July-2023
CAR#01	Reference	Section 01 and 02 of Ver protocol
Description of the Non-Conformance		
1) In Title page of MR: PP is requested to use the latest version of MR Template i.e., Version 4.2. 2) In Title page of MR: PP is requested to update the font size as per the requirements of MR Template version 4.2 and keep it consistent throughout the MR. 3) In Content Table: PP is requested to update the content table as per the latest VCS monitoring report template version 4.2 4) In Section 1.1 of MR: PP is requested to provide the name of the regional grid. 5) In Section 1.1 of MR: PP is requested to keep the date format consistent throughout the MR. 6) In Section 1.1 of MR: The project is an RCP. Please include this critical information in the project description. 7) In Section 1.4 of MR: Please update this section as per the requirements and guidelines of the MR Template version 4.2. 8) In Section 1.5 of MR: PP is requested to keep the date format consistent throughout the report. 9) In Section 1.6 of MR: PP is requested to - Specify the nature of crediting period viz Fixed or renewal with justification required as per VCS standard version 4.4 - Mention the number of monitoring period for the ongoing second crediting period. - Please mention the dates of previous crediting period. - However as per PD PP has opted for a renewal crediting period for 10 years, but as per VCS standard 4.4, for non-AFLOU project RCP allowed is 7 years twice renewable. Please clarify how this is consistent with the clause 3.9.1 of the VCS standard 4.4. 10) In Section 1.7 of MR: The S. F. number of the WTG is not consistent with the commissioning certificates and registered RCP PD. 11) In Section 1.8 of MR: Please provide working hyperlink 12) In Section 1.10 of MR: As per the guidance document, PP has to "provide a list of all and any other programs under which the project is eligible to create another form of GHG-related environment credit. 13) In Section 1.11 of MR: PP is requested to update the section as per the guidance template viz., A summary description of project activities implemented during the monitoring period that result in SD contributions (i.e., technologies/measures implemented, activity location). An explanation of how project activities result in the SD contributions described in Table 1 of this report. Identification of which SD contributions described in Table 1 of this report contribute to achieving any nationally stated sustainable development priorities, including any provisions for monitoring and reporting the same" Additionally evidences to support SD contributions have to be presented as separate appendix 14) In Section 1.11 of MR: This is not as per the requirement of the guidance template. PP is requested to provide the cumulative impact by summing up current project contributions		

with all impacts included in previous monitoring reports or SD contribution reports				
1 st Response from PP		Date	02-August-2023	
1) In Title page of MR: The MR has been updated as per latest Version 4.2. 2) In Title page of MR: The font size has been updated as per the requirements of MR Template version 4.2 and made it consistent throughout the MR. 3) In Content Table: The content table has been revised. 4) In Section 1.1 of MR: The name of the grid has been updated as Unified Indian Grid. 5) In Section 1.1 of MR: The date format has been made consistent throughout the MR. 6) In Section 1.1 of MR: PP has revised the section as required 7) In Section 1.4 of MR: PP has revised the section as required 8) In Section 1.5 of MR: The date format has been made consistent throughout the report. 9) In Section 1.6 of MR: The required justifications for opting renewal crediting period have been provided by the PP. 10) In Section 1.7 of MR: The S. F. number is now made consistent with the registered PD. 11) In Section 1.8 of MR: Working hyperlink has been provided. 12) In Section 1.10 of MR: The project is not eligible neither creating or has created another form of GHG-related environment credit. The section is updated required as per MR template version 4.2 13) In Section 1.11 of MR: The SDG table is revised as per MR template version 4.2 14) In Section 1.11 of MR: PP has only claimed the SDGs in last 6th verification hence in this Monitoring period, PP is only applying values of last verification along with current monitoring period.				
1 st Assessment by Audit Team	Status	Closed	Date	03-August-2023
1) In Title page of MR: Assessment team confirms that PP has updated the title page using latest version of MR Template i.e., Version 4.2. 2) In Title page of MR: Assessment team confirms that PP has updated the font size as per the requirements of MR Template version 4.2 and keep it consistent throughout the MR. 3) In Content Table: Assessment team confirms PP has update the content table as per the latest VCS monitoring report template version 4.2 4) In Section 1.1 of MR: Assessment team confirms PP has provided the name of the regional grid. 5) In Section 1.1 of MR: Assessment team confirms PP has made the date format consistent throughout the MR. 6) In Section 1.1 of MR: Assessment team confirms that PP has included information about RCP. 7) In Section 1.4 of MR: Assessment team confirms this section is updated by PP as per requirements and guidelines of the MR Template version 4.2. 8) In Section 1.5 of MR: Assessment team confirms PP has kept the date format consistent throughout the report. 9) In Section 1.6 of MR: Assessment team confirms that PP has confirmed and provided description about 1. Nature of crediting period viz renewal with justification required as per VCS VVS Version 4.4 2. 7th Monitoring period for the ongoing second crediting period. 3. The dates of previous crediting period. 4. As per VCS Standard (v3.6, 19-October-2016), section 3.8.1 the crediting period (for				

non-AFOLU projects and ALM projects) will be renewed twice for the duration of ten year each. The first crediting period of the project activity was considered from 01-April-2006 to 31-March-2016, both days including. Hence, the project has been applied for Renewal Crediting period for a period of 10 years.

Also as per latest VCS standard version 4.4 where Appendix 1 states that “Registered VCS projects and projects that request registration with the VCS Program on or before 31-December-2019 remain eligible under the VCS Program for the entirety of their crediting periods” The Project completed validation before 31-December-2019 i.e. on 29-August-2018 and chose to use the crediting period requirements under VCS version 3.

- 10) **In Section 1.7 of MR:** Assessment team confirms that PP has now made the S. F. number of the WTG consistent with the commissioning certificates and registered RCP PD.
- 11) **In Section 1.8 of MR:** Assessment team confirms that pp has now included the working hyperlink
- 12) **In Section 1.10 of MR:** Assessment team confirms that as per the guidance document, PP has clearly stated that project is not creating another form of GHG-related environment credit.
- 13) **In Section 1.11 of MR:** Assessment team confirms that PP has updated the section as per the guidance template.
- 14) **In Section 1.11 of MR:** Assessment team confirms that PP has referred the MR template version 4.3 and has thus stated SDGs in line with the VVS standard version 4.4.

Hence VKU's assessment team confirms that CAR#01 is closed.

Type	Date	22-July-2023
CAR#02	Reference	Section 02 and 03 of Ver protocol
Description of the Non-Conformance		
1) In Section 2.1 of MR: PP is requested to fill this section as per the requirements of VCS Standard version 4.4 and guidelines to fill the MR template version 4.2. 2) In Section 2.2 of MR: This section is incomplete as per the guidance template. PP is requested to describe, "...the process for, and the outcomes from, ongoing communication with local stakeholders conducted prior to verification." 3) In Section 2.3 of MR: PP is requested to explain the reason for the non- applicability of the section 4) In Section 3.1 of MR: PP is requested to incorporate in MR the technical specifications of WTGs being put to use in the project activity. 5) In Section 3.2.2 of MR: PP is requested to incorporate in MR the technical specifications of WTGs being put to use in the project activity. 6) In Section 3.2.2 of MR: Please mention the monitoring period number as well as the crediting period to make the references less ambiguous. Since this project is the 2nd crediting period, it is important to mention the monitoring period number along with the dates of the MP as per VCS VVS version 4.4 7) In Section 3.2.2 of MR: PP is requested to provide sub headings to three different deviations mentioned in the section for better clarity and transparency. 8) In Section 3.2.2 of MR: PP is requested to provide a hyperlink for the reference document in the footnote.		

1 st Response from PP		Date	02-August-2023	
1) In Section 2.1 of MR: The section is updated as per the requirements of VCS Standard version 4.4 and guidelines to fill the MR template version 4.2. 2) In Section 2.2 of MR: The process for, and the outcomes from, ongoing communication with local stakeholders conducted prior to verification is now included. 3) In Section 2.3 of MR: The reason for the non- applicability of the section is now added. 4) In Section 3.1 of MR: The technical specifications of WTGs being put to use in the project activity are included in Appendix 01 of MR 5) In Section 3.2.2 of MR: The technical specifications of WTGs being put to use in the project activity are included in Appendix 01 of MR. 6) In Section 3.2.2 of MR: The section is updated as per VCS MR template guidelines and the details about crediting period are included in section 1.6 7) In Section 3.2.2 of MR: Th respective sub headings to three different deviations are included in the section for better clarity and transparency. 8) In Section 3.2.2 of MR: A working hyperlink is now included for the reference document in the footnote.				
1 st Assessment by Audit Team	Status	Closed	Date	03-August-2023
1) In Section 2.1 of MR: Assessment team confirms PP has updated the section as per the requirements of VCS Standard version 4.4 and guidelines to fill the MR template version 4.2. 2) In Section 2.2 of MR: Assessment team confirms that PP has updated this section as per the guidance template. PP has provided description about the grievance process & ongoing communication with local stakeholders. 3) In Section 2.3 of MR: Assessment team confirms that PP has elaborated the reason for the non- applicability of the section 4) In Section 3.1 of MR: Assessment team confirms that PP has incorporated in MR the technical specifications of WTGs being put to use in the project activity in Appendix 01 5) In Section 3.2.2 of MR: Assessment team confirms that PP has incorporated the required information about WTGs and its technicality, PP has submitted the required supporting documents to support the claim made in MR, hence acceptable to VKU. 6) In Section 3.2.2 of MR: Assessment team confirms that PP has mentioned the monitoring period number as well as the crediting period as per VCS VVS version 4.4 7) In Section 3.2.2 of MR: Assessment team confirms that PP has provided sub headings to three different deviations mentioned in the section. 8) In Section 3.2.2 of MR: Assessment team confirms that PP has provided a hyperlink for the reference document in the footnote.				
Hence VKU's assessment team confirms that CAR#02 is closed.				

Type	Date	22-July-2023
CAR#03	Reference	Section 04 and 05 of Ver protocol
Description of the Non-Conformance		

- 1) **In Section 4.1 of MR:** Please provide a working hyperlink
- 2) **In Section 4.2 of MR:** Specify the name of the state utility and also mention the name of the accredited NABL laboratory who performed the calibration/testing of meters under the purview of state utility as mentioned in calibration certificates.
- 3) **In section 4.2 & 4.3 of MR:** During on-site visit, assessment team found a meter change occurred during current monitoring period, PP has not mentioned about the same in MR.
- 4) **In Section 5.1 of MR:** Unified Indian Grid?
- 5) **In Section 2.1 of MR:** PP is requested to specify the methodology used

1stResponse from PP	Date	02-August-2023
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- 1) **In Section 4.1 of MR:** Working hyperlink has been updated
- 2) **In Section 4.2 of MR:** The name of the state utility is TNEB (Tamil Nadu Electricity Board) and the name of the accredited NABL laboratory who performed the calibration/testing of meters is done by Measurematic India which is under the purview of state utility the same information is now incorporated in the section 4.3 of MR.
- 3) **In section 4.2 & 4.3 of MR:** The information about Meter change at WTG NSLO2 is now added and the supporting documents are submitted to the VVB.
- 4) **In Section 5.1 of MR:** Unified Indian Grid is now updated
- 5) **In Section 2.1 of MR:** The methodology used is AMS-I.D. version 18.

1stAssessment by Audit Team	Status	Closed	Date	03-August-2023
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- 1) **In Section 4.1 of MR:** Assessment team confirms that PP has added a working hyperlink
- 2) **In Section 4.2 of MR:** Assessment team confirms that PP has mentioned the name of the state utility and also added the name of the accredited NABL laboratory i.e., Measurematic India who performed the calibration/testing of meters under the purview of state utility as mentioned in calibration certificates.
- 3) **In section 4.2 & 4.3 of MR:** Assessment team confirms that meter change has now been incorporated in MR in the stated section.
- 4) **In Section 5.1 of MR:** Unified Indian Grid?
- 5) **In Section 2.1 of MR:** PP is requested to specify the methodology used

Hence VKU's assessment team confirms that CAR#03 is closed.

Type	Date	25-August-2023
CAR#04	Reference	Section 01,04 and 05 of Ver protocol

Description of the Non-Conformance

- 1) **In Section 4.3 of MR:** It is not clear how the monitoring parameters are measured using one meter located at each WTG. If all the three monitoring parameters are measured, for 9 WTG there should be 27 meters.
- 2) **In Section 4.3 of MR:** PP to clarify how the energy supplied to grid was measured? Why is the meter used during that period not mentioned here, since there is a discontinuity in data disclosure.
- 3) **In Section 5.4 of MR:** The substantiation is insufficient. PP needs to clarify how the annual PLF mentioned in the registered PD is compared with the PLF of this monitoring period which is less than a year? As per registered PD, the variation allowed from the assumed PLF is 10% i.e., 10% of 25.20% is 2.72%, whereas the PLF achieved in this MP is 34.76% higher for even 8 months duration in this MP.

4) In Appendix 01:

- The voltage generated at the hub is not mentioned.
- Additionally, the voltage, current that is generated at the rotor that is transformed and connected to PSS. Is the voltage stepped up further to synchronise with the grid?
- Specification of the transformers
- Any internal available automatic metering system installed?
- Meters installed at PSS if any and its relevance in the overall measurement of energy generation?
- Distance (nearest and longest) distance from the WTGs to the sub-station connected?
- How many feeders are present in sub-station? Are they dedicated feeders? If not, how is the measurement of energy generation done?

1stResponse from PP

Date

28-August-2023

- 1) **In Section 4.3 of MR:** There is only one meter installed at each 09 WTGs, that measures the Value of $EG_{import,y}$ & $EG_{Gross,y}$ which is further used to calculate the value of Net electricity generation.
- 2) **In Section 4.3 of MR:** Gross electricity generated by each WTG is recorded with the aid of energy meter for that WTG. The procedures for metering and meter reading will be as per the provisions of the power purchase agreement. Every month meter readings are recorded by TNEB representative and plant personnel. The meters at the substation are two-way meters and are in the custody of TNEB. The quantity of net electricity supplied is cross-verified from the invoice raised on TNEB by the project proponent.
- 3) **In Section 5.4 of MR:** The ER achieved is higher for the comparable period of the monitoring period, at the same time upon analysing the PLF for the entire year and the previous years, the PLF achieved is 25.23 % for this MP. Thus proving that the PLF did not affect the IRR when checked with the ex ante values as specified in the registered PD. This higher generation falls within the sensitivity analysis of PLF as stated in the registered PD.
- 4) **In Appendix 01: The information requested is provided as:**
 - The voltage generated at the hub is not mentioned. - **690 V in Hub site V 82 Specification enclosed.**
 - Additionally the voltage, current that is generated at the rotor that is transformed and connected to PSS. Is the voltage stepped up further to synchronise with the grid? - **WTG to transformer 690 V then step-up to 22KV connected to grid**
 - Specification of the transformers -
Transformer Rating: 2250KVA
Type of cooling : Onan
HV Side Voltage: 22KV
HV Side Current: 59 Amps
Transformer LV 1 Side Voltage: 690 V Connected to Hub
Transformer LV side Current: 1883 Amps.
Transformer Lv2 Side Voltage: 400V connected to capacitor Panel.
Transformer Lv2 Side Amps: 722 Amps.
Transformer name plate photo enclosed.
 - Any internal available automatic metering system installed? - **Only turbine as on measuring the generation called as LCS (Local Control System).**
 - Meters installed at PSS if any and its relevance in the overall measurement of energy generation? - **Only one energy meter installed in turbine yard.**
 - Distance (nearest and longest) distance from the WTGs to the substation connected?-

Substation Nearest Location NSL 06 in 0.7 KM and Longest Location NSL 09 in 4.5 KM. - How many feeders are present in substation? Are they dedicated feeders? If not, how is the measurement of energy generation done? - Machine connected with dedicated feeder. 11 feeders are available at substation. Energy generation is measured only through turbine yard energy meter. Anthiyur SS Single line diagram enclosed - Any other suitable information. OPEN - NA				
1 st Assessment by Audit Team	Status	Closed	Date	28-08-2023
1) In Section 4.3 of MR: PP has provided elaboration on how monitoring parameters are measured. 2) In Section 4.3 of MR: PP has clarified about the measurement of energy supplied to grid. 3) In Section 5.4 of MR: PP has provided substantiation on the higher achieved emissions. 4) In Appendix 01: PP has provided all the details regarding the technical specifications of the WTGs and the transformers along with required evidences. Hence VKU's assessment team confirms that CAR#04 is closed.				
2 nd Response from PP			Date	DD-Month-YYYY
2 nd Assessment by Audit Team	Status	Open/Closed	Date	DD-Month-YYYY

Type	Date	DD/MM/YYYY		
FAR	Reference	Section — of — Val/Ver protocol		
Description of the Non-Conformance				
1 st Response from PP		Date	DD/MM/YYYY	
1 st Assessment by Audit Team	Status	Open/Closed	Date	DD/MM/YYYY

APPENDIX C: COMPETENCE STATEMENT

Team Leader



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Barun Kumar
Nationality	Indian
Countries of Experience	India, South Africa, Kenya, Uganda, DR Congo, Zambia
Education Qualification	B.Sc. (Environmental Science & Water Management) M.Sc. (Ecology & Environmental Sciences)
Year of Experience	12 Years +
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	TA 1.2 - Renewables TA 3.1 - Energy Demand TA 6.1 - Construction TA 7.1 - Transport

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	NO
Verifier	NO
Team Leader	YES
Technical Reviewer	YES
Local Expert (Country Wise)	NO
TA Expert (1.2, 3.1, 6.1, 7.1)	YES
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	06/12/2022
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	06/12/2022

Validator/Verifier



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Niharika Kaushik
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (Zoology Honours) M.Sc. (Environmental Sciences)
Year of Experience	2.5+ Years
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	NA

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	NO
Technical Reviewer	NO
Local Expert	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	09.05.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	09.05.2023

Project Trainee



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Anil Dhankar
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (BCZ) M.Sc. (Environmental Science)
Year of Experience	NA, Fresher
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	NA

Roles

Project Trainee	YES
Validator/Verifier Trainee	NO
Validator	NO
Verifier	NO
Team Leader	NO
Technical Reviewer	NO
Local Expert (Country Wise)	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	06/12/2022
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	06/12/2022

Technical Reviewer



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Sanjay Kumar K
Nationality	Indian
Countries of Experience	India
Education Qualification	B.E. (Civil Engineering) M. Tech (Environmental Engineering)
Year of Experience	20 Years +
Area of Expertise	Climate Change & Environment Sustainable Development GHG Footprints
Eligible Sectoral Scope	TA 1.2 - Renewables TA 3.1 - Energy Demand TA 6.1 - Construction

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	YES
Technical Reviewer	YES
Local Expert (Country Wise)	YES
TA Expert (1.2, 3.1, 6.1)	YES
Financial Expert	YES

Reviewed by	Vandana Gupta (Quality Manager)	Date	03.03.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	03.03.2023