



**Verified Carbon
Standard**

100 MW BUNDLED WIND POWER PROJECT IN ANANTAPURAM, ANDHRA PRADESH



Certification Pvt. Ltd.

Document Prepared by **VKU Certification Pvt. Ltd.**

Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh, India - 452020

URL: <http://vkucertification.com>

E-mail: info@vkucertification.com

Project Title	100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh
Version	2.1
Report ID	VKU.VER.112.23_VCS_1985

Report Title	100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh
---------------------	--

Client	Infinite Solutions
Pages	59
Date of Issue	25-October-2023
Prepared By	VKU Certification Pvt. Ltd.
Contact	Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh - 452020 URL: http://vkucertification.com E-mail: info@vkucertification.com
Approved By	Dr. Vikas Kumar Aharwal (Founder and Director) vikas.aharwal@vkucertification.com
Work Carried Out By	Vivek Kumar Ahirwar- Team Leader cum Technical Expert TA 1.2 Sanjay Kumar- Technical Reviewer cum Technical Expert TA 1.2 Deepali Sharma- Validator/Verifier Monika Jha- Project Trainee

Summary:

VKU Certification Pvt. Ltd. (here after referred as VKU) was commissioned by Infinite Solutions and has verified the greenhouse gas emission reduction reported for the project activity “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh.” (VCS ID 1985¹), covering third monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) under first renewable crediting period from 22-March-2018 to 21-March-2028 (inclusive of both the dates) with regards to the relevant requirements for VCS activities.

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) emissions. This verification aims to ensure 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 Joint PD & MR /3/.
- To evaluate the project's adherence to relevant regulations, including the legislation of the host country.
- 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 the reported GHG emission data is adequately supported by evidence.

VKU conducted the verification process in accordance with its own established procedures, aligning with the requirements set forth in the VCS Program Guide version 4.4 /6/, VCS Standard version 4.5 and 4.4/7/, VCS Validation and Verification Manual version 3.2 /8/, and relevant decisions of the COP/MOP and applying standard auditing techniques.

These requirements encompass 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 provided by COP/MOP & CDM Executive Board, and other applicable rules, including the Host Country legislation.

The verification process encompassed a desk review, on-site assessment, resolution of any outstanding matters, and the issuance of the final verification report and certification. This

¹<https://registry.verra.org/app/projectDetail/VCS/1985>

comprehensive verification 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.

During this verification, 03 Corrective Action Requests (CARs), 03 Clarification Requests (CLs) and 01 Forward Action Request (FAR) were identified related to operation, monitoring and GHG emission reduction calculation of the VCS project activity in relation to all relevant VCS requirements for the project activity and the applied baseline and monitoring methodology, and these CARs and CLs are successfully closed after necessary corrections/clarifications by the client. 01 FAR was raised during this verification. 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 in accordance with applicable VCS requirements to be certified therefore the verification team has detected no further uncertainties.

In conclusion, it is VKU's opinion that the project activity "100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh." (VCS ID 1985), meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology ACM0002 "Grid Connected Renewable Electricity Generation from renewable sources" Version 19.0 /11/. The monitoring system is in place and the emission reductions are calculated without material misstatement.

Hence, VKU is able to certify that the emission reductions from the project during the third monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) under first renewable crediting period from 22-March-2018 to 21-March-2028 (inclusive of both the dates) amounts to 144,048 tCO_{2e}.

CONTENTS

1. Introduction	7
1.1 Objective	7
1.2 Scope and Criteria	8
1.3 Level of Assurance.....	9
1.4 Summary Description of the Project	10
2.Verification Process	11
2.1 Method and Criteria.....	11
2.2 Document Review	12
2.3 Interviews	14
2.4 Site Visits	16
2.5 Resolution of Findings	16
2.5.1 Forward Action Requests	17
2.6 Eligibility for Validation Activities	17
3.Validation Findings	18
3.1 Participation under Other GHG Programs	18
3.2 Methodology Deviations.....	19
3.3 Project Description Deviations.....	19
3.4 Grouped Project	20
4.Verification Findings	20
4.1 Project Implementation Status	20
4.2 Safeguards	29
4.2.1 No Net Harm	29
4.2.2 Local Stakeholder Consultation	29
4.3 AFOLU-Specific Safeguards	31
4.4 Accuracy of GHG Emission Reduction and Removal Calculations	31
4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals	32
4.6 Non-Permanence Risk Analysis.....	42
5.Verification Opinion	42
APPENDIX A: <ABBREVIATIONS>	46

APPENDIX B: <AUDIT FINDINGS>	47
APPENDIX C: <COMPETENCE STATEMENT>	56

1 INTRODUCTION

1.1 Objective

Infinite Solutions has commissioned VKU Certification Pvt Ltd. (hereafter as VKU) to carry out the third periodic verification of the project “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh” (VCS ID 1985) for the monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) under first renewable crediting period from 22-March-2018 to 21-March-2028 (inclusive of both the dates).

The purpose 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 4.4 /6/, VCS standard version 4.5 and 4.4/7/ and GHG program applied, on the basis of the registered project description /3/.

The verification is for the third monitoring period **from 01-January-2021 to 31-December-2022 (730 days) (inclusive of both the dates)** that falls under the first renewable crediting period² from **22-March-2018 to 21-March-2028 (inclusive of both the dates)**.

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

First Crediting Period: 22-March-2018 to 21-March-2028, inclusive of both the dates		
Periodic Verification No.	Monitoring Period	Number of years
1 st in VCS	22-March-2018 to 03-October-2019 (Inclusive of both the dates)	01 year 06 months 12 days
2 nd in VCS	04-October-2019 to 31-December-2020 (Inclusive of both the dates)	01 year 02 months 28 days
3 rd in VCS (Current Monitoring Period)	01-January -2021 to 31-December-2022 (Inclusive of both the dates)	2 years 00 months 00 days

The objectives of this verification exercise are: -

- review of objective evidence to establish that the monitoring system is operational and capable of generating Verified Carbon Units (VCUs) without any instances of double counting /28/,
- to ensure the accuracy, completeness, consistency, transparency, and absence of significant errors or omissions in the reported data,

² The first renewable crediting period for the project activity is from 22-March-2018 to 21-March-2028 (inclusive of both the dates). (As per registered VCS Joint PD & MR version 3.0, dated 16-June-2020).

- an examination of the monitoring records and emission reduction calculations.

This aims to establish the reliability and integrity of the data.

1.2 Scope and Criteria

The verification scope is:

- To verify that the project is implemented as described in the registered VCS Joint PD & MR /3/
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate VCU's without any double counting.
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.
- 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;
- To verify that reported GHG emission data is sufficiently supported by evidence

The verification process is essential to certify that the reported emission reductions are comprehensive and accurate. The project undergoes evaluation based on the requirements outlined in VCS standard version 4.5 and 4.4 /7/, VCS program guide version 4.4 /6/, VCS validation and verification manual version 3.2 /8/, and relevant rules and guidance.

VKU has followed the recommendations provided in the latest version of the VCS validation and verification manual /8/. The verification process employs a rule-based approach, with a focus on identifying significant reporting rules and ensuring the reliability of project monitoring.

The verification method and criteria encompassed several phases, including

- (i) Desk review of VCS Joint PD & MR, registered under version 3.0 on 16-June-2020 /3/and other supporting documents listed in Table-05;
- (ii) Onsite interviews /32/ & Focussed Group Discussions with Stakeholders & PP representatives involved in project's implementation.
- (iii) Resolution of outstanding issues and Completeness/Quality Check and the Final issuance of the verification report and applicable VCS Verification Deed of Representation.

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 process.

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 of the VCS Standard version 4.5 and 4.4/7/.

The threshold for quantitative materiality with respect to the aggregate of errors, omissions, and misrepresentations, relative to the total reported GHG emission reductions and/or removals was to 5% percent, as required by clause 4.1.13 of the VCS Standard version 4.5 /7/

The verification report is based on the Monitoring report /1/, VCS Joint PD & MR version 3.0 on 16-June-2020 /3/ & supporting documents /23/, /22/, /24/, /25/, /26/, /27/, /28/, /29/, /30/, /31/, /34/, /35/ that were made available to the VKU's assessment team and information collected through performing interviews/32/ with PP Representatives/Local Stakeholders during on-site visit /33/.

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

Table No 02: Role/Qualification of Verification team:

Role/Qualification	Last Name	Middle Name	First Name
Team Leader	Ahirwar	Kumar	Vivek
Technical Expert (TA 1.2, wind)	Ahirwar	Kumar	Vivek
Validator/Verifier	Sharma	NA	Deepali
Project Trainee	Jha	NA	Monika
Local Expert (India)	Ahirwar	Kumar	Vivek

Table No 03: Role/Qualification of Technical Review team:

Role/Qualification	Last Name	Middle Name	First Name
Technical Reviewer & Technical Expert (TA 1.2, wind)	Kumar	NA	Sanjay

1.4 Summary Description of the Project

The project activity involves electricity generation by wind electric generators (renewable source) and supplying the generated electricity to the state grid system which is under the purview of the National Electricity Grid of India. This is a greenfield project activity i. e. there was no renewable energy-based electricity generation facility in the 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.

This project activity involved installations of 50 wind turbines of 2.0 MW capacity each aggregating to 100 MW in the state of Andhra Pradesh out of which only 40 MW has been commissioned. All the 20 WTGs manufactured by Gamesa are functioning well since commissioning and this can be further confirmed from documents uploaded on [VERRA](#). **The project was commissioned on 22-March-2018 this is the date on which first WTG of the project was commissioned** and is running satisfactorily since then and these dates are verified against Registered VCS Joint PD & MR /3/ and commissioning certificate /29/.

Table No 04: Wind Power Project Details

Project Participant	Project Type	Capacity	Date of Commissioning	Project location	State
Guttaseema Wind Energy Company Private Ltd.	Wind	20 MW	22-March-2018	Rudrampalli, Borampalli, Elagalavanka and Basavapuram Anantapuram	Andhra Pradesh
Vayuputhra Energy Private Ltd.	Wind	20 MW	23-March-2018		

Start date of this project activity is 22-March-2018

As per MR /1/, the electricity generated from the project is supplied to the state grid system which is under the purview of the Unified Indian Grid which is confirmed from registered VCS Joint PD & MR, version 3.0, dated 16-June-2020 /3/ JMRs issued by State electricity Board /26/ and last verification report /4/ and interview with PP /32/.

This information was verified during on site assessment and found to be in line with the details provided in the registered VCS Joint PD & MR /3/. The total emission reductions achieved in this monitoring period i.e., from of 01-January-2021 to 31-December-2022 (inclusive of both the dates) is 144,048 tCO_{2e}. The net electricity generated by the project activity that was evacuated to the grid during the current monitoring period (third monitoring period) of 01-January-2021 to 31-December-2022 (inclusive of both the dates) is 153,767.99 MWh.

2 VERIFICATION PROCESS

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 4.4 /6/, VCS Standard Document version 4.5 and 4.4/7/. As per VCS Joint PD & MR version 3.0, dated 16-June-2020 /3/ the project activity does not fall under category "grouped projects", hence no sampling methods were employed by VKU's assessment team for the verification of GHG emission reductions or removals generated by the project, however 100% data was verified. The GHG emission reductions are based on the approved Baseline and monitoring methodology ACM0002 "Approved Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 19.0 /11/.

Scope: 01 Energy Industries (renewable- and non-renewable sources) Title: "Grid Connected Renewable Electricity Generation".

Monitoring mechanisms used in the project were checked and as mentioned in MR /1/ and VCS Joint PD & MR /3/ meter readings are the only source for measuring energy generation so these readings are crosschecked from the JMRs /26/ and invoices /27/ and the accuracy class, details for meter calibration, meter type, make and model of the meters are checked via Calibration certificates /24/ during desk review as well as on-site assessment.

The verification consisted of the following phases:

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

The verification was performed primarily based on the review of the monitoring report /1/ (MR) version 01 dated 10-May-2023, version 02 dated 10-July-2023, version 03 dated 12-September-2023 and version 04 dated 16-October-2023 and the emission reduction calculations spreadsheet /2/ version 01 dated 10-May-2023, version 02 dated 10-July-2023, were assessed as part of the verification. In addition, the registered VCS Joint PD & MR /3/ in particular the baseline estimations and the monitoring plan for the project was reviewed. The following table lists the documentation that were reviewed during the verification.

As per section 3.26 and clause 3.26.3 of the VCS Standard version 4.5 /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 /1/. Thus, the assessment team reviewed the following documents during verification:

Table No 05: Lists of the documentation that was reviewed during the verification:

/1/	Infinite Solutions: VCS monitoring report for “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh” Version 01 of 10-May-2023 Version 02 of 10-July-2023 Version 03 12-September-2023 Version 04 16-October-2023
/2/	Infinite Solutions: Emission Reduction Calculation Spreadsheet Version 01 of 10-May-2023 Version 02 of 10-July-2023
/3/	Registered VCS Joint PD & MR- “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh” version 3.0, dated 16-June-2020.
/4/	<u>TUV SUD: Final Verification report “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh” version 3.0 dated 05-July-2021 covering monitoring period 04-October-2019 to 31-December-2020</u>

/5/	<u>LGAI Technological Center S.A- VCS Joint Validation Verification Report version 02 dated 20-December-2019</u>
/6/	<u>VCS: VCS Program Guide, version 4.4 of 29-August-2023</u>
/7/	<u>VCS: VCS Standard, version 4.5 of 04-October-2023</u> <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>VCS Program Definitions version 4.3 dated 21-December-2022</u>
/10/	<u>VCS Registration & Issuance Process (Version 4.4) of 04-October-2023</u>
/11/	<u>CDM Executive Board: Baseline and Monitoring Methodology ACM0002 “Grid Connected Renewable Electricity Generation from renewable sources” Version 19.0</u>
/12/	<u>Tool to calculate the emission factor for an electricity system, Version 07.0</u>
/13/	<u>CO₂ Baseline Database for the Indian Power Sector User Guide Version 13.0</u>
/14/	<u>VCS: Monitoring report Template VCS Version 4.2</u>
/15/	VERRA: https://registry.terra.org/app/projectDetail/VCS/1985
/16/	REC website Renewable Energy Certificate Registry of INDIA https://www.recregistryindia.nic.in/index.php/publics/faqs
/17/	<u>I-REC Standard - The International REC Standard Foundation (irecstandard.org)</u>
/18/	GPS App- GPS map camera
/19/	GPS Google earth software
/20/	EIA Report & EIA NOTIFICATION dated 14-September-2006; https://moef.gov.in/wp-content/uploads/2018/03/so1533.pdf
/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 No. 502/6/2009/DP&D/D-I https://cea.nic.in/wp-content/uploads/2020/02/meter_reg.pdf <u>Metering Regulations Archives - Central Electricity Authority (cea.nic.in)</u>
/22/	PPA: Power Purchase Agreements signed between Project Proponent and Andhra Pradesh Southern Power Distribution Company
/23/	O & M Service Agreement, O& M transfer agreement

/24/	Certificates of Calibration for all the meters belongs to project activity
/25/	Generation Log Book
/26/	JMRs issued by Andhra Pradesh Southern Power Distribution Company to PP for the current verification period
/27/	Invoice issued by PP to Andhra Pradesh Southern Power Distribution Company
/28/	Letter of declaration from PP regarding not having created or sought any other form of environmental credit for the same period
/29/	Commissioning certificate of all the WTGs of the project activity issued by state electricity authority
/30/	Technical Specifications of WTGs.
/31/	Grievance Register present on-site
/32/	On site personnel interview dated 07-June-2023
/33/	Site Visit Photographs and attendance sheet dated 07-June-2023
/34/	Breakdown Details PP has submitted Breakdown Details in an Excel Sheet.
/35/	Training records of Site Personnels
/36/	<u>ISO 14064-3:2019: Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements</u>
/37/	<u>ISO 14065:2020: General principles and requirements for bodies validating and verifying environmental information</u>
/38/	<u>ISO/IEC 17029:2019: Conformity assessment – General principles and requirements for validation and verification bodies</u>

2.3 Interviews

An on-site inspection has been performed by the assessment team. The representatives of the PP and O&M contractors were interviewed personally by assessment team on **07-June-2023 in Andhra Pradesh** i.e., personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed are mentioned in the table below.

Table No 06: Interviews at Wind Power Project site with site personnel

S No.	Name	Organization	Topic
-------	------	--------------	-------

1.	E.V Vemgguli (Male)	Guttaseema	Responsibility for Maintaining the data records, completeness of data, and reliability of data (calibration of equipment's), QA/QC
2.	Vijay Bhallu (Male)	Guttaseema	O&M discussion of WTGs, SCADA System, Management Practices
3.	S. Niranjan (Male)	Guttaseema	Site management practices
4.	Siddannagovind H. (Male)	Guttaseema	Responsibility for Maintaining the data records, completeness of data, and reliability of data (calibration of equipment's), QA/QC
5.	Galla. Hari Kiran (Male)	Guttaseema	Site management practices

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

During Onsite Visit /33/ Assessment team also interviewed the local stakeholders involved in the projects to verify the implementation and process of grievance resolution as claimed and mentioned in the Monitoring report /1/ (refer section 2.2 of MR) by the PP. The assessment team confirmed the sustainable development claims and assessed the socio-economic impact of the project on the local community and details about the same is provided in [section 4.1](#) of this report. 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 /32/ with stakeholders and was hence acceptable to VKU that PP has a well-defined procedure for involving local stakeholders in the project implementation and that their grievances are resolved appropriately as tabulated below:

Table No 07: Interviews at Wind Power Project site with Local Stakeholders

S No.	Name	Occupation	Category	Topic
1.	B. Madhav Babu (Male)	Office Boy	Local Stakeholder	Implementation of Project activity and its impact on the

2.	T. Romi Reddy (Male)	Office Boy	Local Stakeholder	economic, social and environmental parameters around the located project activity and on the local people of the area.
3.	M. Ramjitendra (Male)	Office boy	Local Stakeholder	The employment generation due to project activity implementation. Salary and other facilities like safety equipment provided on site during

2.4 Site Visits

An Onsite visit was undertaken by the verification team to the project location identified in the MR at Anantapuram District on **07-June-2023** in Andhra Pradesh state India to carry out the following;

- A review of the operation and implementation of the registered project activity in accordance with the VCS Joint PD & MR /3/ and MR /1/ approved documents;
- An analysis of the information flows used to generate, aggregating and reporting the monitoring parameters;
- Interviews /32/ with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the registered VCS Joint PD & MR /3/;
- A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;
- 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:

- If monitoring and reporting reveal non-conformities with the monitoring plan or methodology, or if the evidence offered to demonstrate conformity is insufficient;
- Errors in the application of assumptions, data, or calculations of emission reductions have been made, which will affect the estimate of emission reductions;
- The project's proponent has not addressed issues encountered in a FAR during validation to be assessed during verification.

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 (FAR) is also raised in cases where any required deviation/information is not fulfilled in current verification and thus needs to be taken up in subsequent 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, **03 CLs and 03 CARs** were raised during this verification which were closed successfully and **01 FAR** was raised during this verification. Details are given under Appendix B of this report.

2.5.1 Forward Action Requests

This is third periodical VCS verification of the project activity and no FAR is raised from previous VCS verifications based on the review of previous Verification Report /4/. One FAR is raised in the current verification.

01 FAR: - During the current verification, it was observed that out of the proposed 50 WTGs only 20 WTGs have been commissioned as confirmed from commissioning certificate/29/. Further 30 WTGs referring to the project are still under the implementation stage due to land acquisition issue as clarified by PP during interviews /32/. Based on PP's clarification it is estimated that remaining 30 WTGs will be commissioned till next monitoring period. Hence 01 FAR is raised.

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 and the same was confirmed with group discussions and interview with the PP during site visit /32/. Assessment team assessed the VERRA's website on 23-October-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. VKU Certification Pvt. Ltd is currently undergoing validation accreditation with ANAB for which witness audit has

already been conducted. 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, 01-January-2021 to 31-December-2022 (inclusive of both the dates). The project is registered under VCS only with project ID VCS 1985³. 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 /28/ 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 claiming under other registries except VCS. Similar exercise of independently searching for such project registration or claim for current monitoring period was performed for other GHG related benefits such as REC /16/ and I-REC /17/ benefits and based on both independent assessment and declaration submitted by PP /28/.

Assessment team has also verified the issuance of VCUs claimed in previous verification against the VCU issuance record registry. Thus, ensuring emission reduction generated from the project activity will not be double counted hence accepted by the assessment team.

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://www.ucarbonregistry.io/>
5. <https://projects.globalcarboncouncil.com/>
6. <https://www.irecstandard.org/registries/>

Rejection by other GHG programs

The Project is not rejected by other GHG programs. A declaration /28/ for the same is checked and found correct by the assessment team. Also, assessment team independently verified with

³ <https://registry.verra.org/app/projectDetail/VCS/1985>

the following registries and checked projects from the PP matching the same project design, description, monitoring report 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://www.ucarbonregistry.io/>
5. <https://projects.globalcarboncouncil.com/>
6. <https://www.irecstandard.org/registries/>

3.2 Methodology Deviations

During the current monitoring period, no methodology deviation was observed and even during the previous verification /4/ no methodology deviations were observed.

3.3 Project Description Deviations

During the current monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates), two Project Description deviations are requested by PP.

Deviation 1:

During Site Visit it was observed via JMRs that the formula mentioned in the registered PD for the quantity of net electricity generation supplied by the project activity to the grid was inconsistent from the formula actually used for calculation onsite.

Net electricity generation-

Net Electricity = Export – Import (**earlier used formula**)

As confirmed from personnel interviews /32/ Net electricity supplied is calculated based on the difference between the calculated values of "export", "import" and "transmission loss" on the EB (Electricity Board) energy meters and at the substation". Transmission loss is calculated on a pro-rata basis as per the readings of the 220KV substation and "primary metering Point".

Formula used as per the JMR in the current monitoring period to follow a more conservative approach-

Net Electricity = Export – Import – Transmission Loss

The net electricity is calculated by the state electricity board and provided in the monthly generation statement (JMR). Hence, the net electricity reading is directly sourced from the monthly generation statement /JMRs /26/ which is in line with the actual monitoring process.

Deviation 2:

The project activity was registered under VCS with a total capacity of 100 MW located at Anantapuram District, Andhra Pradesh in India. There are two SPVs involved in the project activity Guttaseema Wind Energy Company Private Ltd. having capacity 80 MW and Vayuputra Energy Private Ltd. having 20 MW capacity. Out of 100 MW, only 40 MW has commissioned the remaining capacity of project is not commissioned due to land acquisition problem as mentioned by PP in the MR /1/. Therefore, in this monitoring period out of 100 MW, generation of only 40 MW has considered for calculation of emission reduction under VCS mechanism.

During review of the MR /1/ and other supporting docs like JMRs /26/, Commissioning certificates /29/. VVB is able to assess that deviation is described and justified appropriately and further the project is in compliance with the VCS rules as per para 3 of section 3.2.9 of VCS Validation and Verification Manual /8/. Hence the deviation is acceptable to the VVB.

As per the assessment team, the deviation taken is in line with the guidelines provided in VCS Standard Version 4.4/7/ Section 3.20; it doesn't impact existing applicability conditions, methodology, baseline, and additionality.

During the previous verification /4/ no such project description deviations were observed.

3.4 Grouped Project

As per VCS Joint PD & MR version 3.0 dated 16-June-2020, the project is not a grouped project. This can further be confirmed as per para 3.5.7 of VCS Standard V 4.5 /7/. Therefore, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the onsite audit, it was observed that the implemented project is as per the requirement mentioned in the registered VCS Joint PD & MR /3/ and approved monitoring plan.

This project activity involves the installation of Wind project and consists of a bundle of 50 Wind Electric Generators (WEGs) which comprises of 2 MW capacity each totalling to 100 MW capacity in Anantapuram District, Andhra Pradesh. In this monitoring period only 40 MW has been installed and is considered for calculating emission reduction under VCS mechanism. **Hence, 60 MW (30 WTGs) capacity is yet to be commissioned.** The project activity comprises of 21 WEGs of G 97-2 MW and 29 WEGs of G 114-2 MW WEGs supplied by Gamesa Wind Turbines Private Limited. The project is promoted by Guttaseema Wind Energy Company Private Limited (GWECPL) and Vayuputhra Energy Private Limited (VEPL) which is part of Greenko Group and

O&M is also done by Greenko⁴. The nearest distance from PSS end is of WTG-G10 at approx. 2.9 km and the longest distance from PSS end is of WTG-G01 at approx. 6.5 km. A total of 03 dedicated Feeders are present in the substation and the energy generation is measured in respective feeder by use of Tri vector meters. Internal available automatic metering system recently installed. The Voltage generated at the generator is 690V and it is stepped up to 33 kV voltage and the same is connected to PSS. From PSS again, the 33 kV is stepped up to 220 kV and synchronized to the grid. ABT meters are available on 220kV side in PSS for Billing purpose.

The details are feeders are connected WTGs are as follows:

Feeder Number	WTG number
07	WTG-G11, WTG-G12, WTG-G23
10	WTG-G01, WTG-G02, WTG-G03, WTG-G06, WTG-G08, WTG-G09, WTG-G10
11	WTG-V01, WTG-V02, WTG-V03, WTG-V04, WTG-V05, WTG-V06, WTG-V07, WTG-V08, WTG-V09, WTG-V10

Table No 08:- Total Installed Capacity

Project Name	No. of WTGs	Installed WTGs	Total Capacity	Installed capacity	Location
Guttaseema Wind Energy Company Private Ltd.	40	10	80 MW	20 MW	Andhra Pradesh
Vayuputra Energy Private Ltd.	10	10	20 MW	20 MW	Andhra Pradesh

There are three meters main, check and standby meters of L&T, ABT Type, ER 300P type installed at 220KV at the substation. The energy supplied to APTRANSCO Grid from the 100 MW Wind Power Project at Rudrampalli, Borampalli, Elangavanka, and Basavapuram Village, Anantapuram

⁴ During site visit it was observed that the O & M was earlier done by Gamesa from 09-July-2018 and 19-February-2019 to 31-May-2023 and was later transferred in-house to the Greenko Group itself from 01-June-2023. The O & M entity now and earlier was cross verified from the O & M Agreement and O & M change agreement provided by the PP.

District. The metering arrangement, accuracy class of meters, calibration frequency is under control of SEB and PP does not have any control on it. The export, import and transmission loss are measured continuously using dedicated energy meters installed at substation and readings of the same are taken by the authorized officer of SEB. The Voltage generated is stepped up to 33 kV and the same is connected to PSS. From PSS again, the 33 kV is stepped up to 220 kV and synchronized to the grid. ABT meters are available on 220kV side in PSS for Billing purpose.

Breakdown in Current monitoring period: -

During the current monitoring period, it was observed **through breakdown log sheet records /34/** present on site and also provided by PP as soft copy to the VVB where it was verified that the plant underwent breakdown through various reasons like-Grid Failure, Schedule maintenance. In the current monitoring period it was observed that, all the WTGs are active. The breakdown that occurred was for a **total of 0.21% of total hours of all WTGs** and was beyond the control of PP /34/. Other than that, the project underwent continuous operation and only scheduled maintenance took place as per the manufacturer's specification /30/ which is acceptable to the assessment team as verified during the interview with PP personnel /32/ Senior engineers/ Junior engineer/ Assistant manager present at site during onsite visit /33/.

Table No 9: Breakdown Hours for the current Monitoring Period (01-January-2021 to 31-December-2022)

S. No.	Total Hours	Net Operational Hours	Breakdown hours
1.	350,400 hours ⁵	349,696 hours, 51 minutes/ 99.79% of total hours	704 hours, 09 minutes/ 0.21% of total hours

Project location is confirmed by the assessment team through the GPS Google software /19/ during desk review and site visit as well via GPS Map Camera /18/. Moreover, assessment team confirm that the latitudes and longitudes as mentioned in the registered VCS Joint PD & MR /3/ are correct.

Table No 10: The WTG wise latitudes and longitudes are confirmed below:

Guttaseema Wind Energy Company Private Limited					
Sl. No.	WTG Loc. No.	Latitude	Longitude	Villages	Commissioning Date
1	WTG-G01	N14° 27'37.5"	E77° 12'8.7"	Rudrampalli, Borampalli,	07-February-2019

⁵ Total Hours = 17520*Number of WTGs (i.e., 20). So, 17520*20=350,400

2	WTG-G02	N14°27'54.9"	E77°12'10.7"	Elagalavanka and Basavapuram villages of Anantapuram District in Andhra Pradesh	07-February-2019
3	WTG-G03	N14°28'4.8"	E77°12'9.3"		07-February-2019
4	WTG-G06	N14°28'13.2"	E77°12'52.8"		07-February-2019
5	WTG-G08	N14°28'41.10"	E77°13'17.60"		22-March-2018
6	WTG-G09	N14°28'15.6"	E77°12'52.50"		07-February-2019
7.	WTG-G10	N14°29'20.5"	E77°13'11.4"		22-March-2018
8	WTG-G11	N14°29'43.00"	E77°14'33.80"		22-March-2018
9	WTG-G12	N14°29'24.20"	E77°14'31.10"		22-March-2018
10.	WTG-G23	N14°29'32.10"	E77°15'28.50"		22-March-2018

Vayuputhra Energy Private Limited					
Sl. No.	WTG Loc. No.	Latitude	Longitude	Villages	Commissioning Date
1.	WTG-V01	N14°28'3.10"	E77°14'53.00"	Rudrampalli, Borampalli, Elagalavanka and Basavapuram villages of Anantapuram District in Andhra Pradesh	23-March-2018
2.	WTG-V02	N14°27'48.00"	E77°14'50.20"		23-March-2018
3.	WTG-V03	N14°27'37.80"	E77°14'51.90"		23-March-2018
4.	WTG-V04	N14°27'15.10"	E77°14'29.00"		23-March-2018
5.	WTG-V05	N14°26'57.10"	E77°14'5.60"		07-February-2019
6.	WTG-V06	N14°27'41.00"	E77°13'42.50"		07-February-2019
7.	WTG-V07	N14°28'5.6"	E77°14'4.9"		23-March-2018
8.	WTG-V08	N14°28'17.1"	E77°13'40.6"		23-March-2018
9.	WTG-V09	N14°27'47.2"	E77°12'59.2"		23-March-2018

10.	WTG-V10	N14° 27'3.5"	E77° 12'30.1"	23-March-2018
-----	---------	--------------	---------------	---------------

Starting date of the operation of the project activity is **22-March-2018** which is the date on which first WTG of the project was commissioned. Assessment team checked the commissioning certificate and confirmed that the dates of Commission for WTGs are correct. Assessment team also confirm during the onsite audit /33/ that there is no change in project design and the project is implemented as per the description provided in the registered VCS Joint PD & MR /3/. This has been further verified from the previous verification report /4/.

Table No 11: Commissioning dates for project activity are given below:

Project Promoters (Wind)	Installed Capacity	WTGs	Commissioning Date	Means of Verification
Guttaseema Wind Energy Company Private Ltd.	20 MW	10	22-March-2018	Commissioning Certificates
			07-February-2019	
Vaayuputra Energy Private Ltd.	20 MW	10	23-March-2018	
			07-February-2019	

The technical parameters have been verified with the name plates as well as with the technical specifications /30/ of WTGs and also cross checked from the technical manual of the Manufacturer. Assessment team confirms that the technical parameters are consistent with the registered VCS Joint PD & MR /3/ and previous verification report /4/. The major technical specifications of the WTGs are as follows:

The technical specification for 40 MW (20WTGs* 2 MW) Wind project are provided below.

Table No 12: The technical details of the WTGs are as follows:

Parameter	Specifications
	Gamesa- G97 - 2.0 MW
Power	
Installed electrical output	2,000 kW
Cut-in wind speed	3m/s
Rated wind speed	11m/s
Cut-out wind speed	25m/s
Regulation	Pitch
Rotor	

Diameter	97.0 m
Rotor swept area	7,390.0 m ²
Number of blades:	3
Tip speed:	90 m/s
Generator	
Type	Double Fed Asyn
Speed, max	1,904.0 U/min
Operating voltage	690 V
Frequency	50 Hz / 60 Hz

Parameter	Specifications
	Gamesa- G114 CS 2.0 MW
Power	
Installed electrical output	2,000 kW
Cut-in wind speed	2.5 m/s
Rated wind speed	10m/s
Cut-out wind speed	25m/s
Regulation	Pitch
Rotor	
Diameter	114.0 m
Rotor swept area	10,207.0 m ²
Number of blades:	3
Tip speed:	96m/s
Generator	
Type	Double Fed Asyn
Speed, max	1,280.0 U/min
Operating voltage	690 V
Frequency	50 Hz / 60 Hz

Transformer details (Gamesa)	2 in No's
Make	ABB
Voltage	33KV/690 V
Rated Power	2350kVA
Power Transformer details	
Make	Prime Meiden
Voltage	220/33kV
Rated Power	1 X 80/100/110 MVA

The assessment team confirmed through onsite visit /33/ that the monitoring plan was implemented as per the registered VCS Joint PD & MR /3/ and applied methodology ACM0002, Version 19.0 /11/. The organizational role and responsibility as mentioned in the registered VCS Joint PD& MR /3/ is followed onsite. Meters are calibrated as per calibration frequency in registered VCS Joint PD & MR /3/.

Assessment team concludes the following:

- There were two deviations observed between project implementation and the project description provided in the registered VCS Joint PD& MR /3/ that is related to the JMR /26/ (Transmission loss calculation) and commissioning of WTGs that was resolved by the PP.
- 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.
- There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology /11/.
- 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 /28/.
- The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation /5/ or previous verification /4/
- The project is registered under VCS; and, PP has submitted the declaration stating /28/, they are not claiming same GHG emission reductions of the project from any other GHG program for the current monitoring period when project is seeking to get GHG emission reduction from VCS. Audit team also checked the REC mechanism which was verified from the REC website Renewable Energy Certificate Registry of India ([Renewable Energy Certificate Registry of INDIA - Registered RE Generator List \(recregistryindia.nic.in\)](http://recregistryindia.nic.in)) /16/

- g) 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 /33/ and found all the indicators to be effective and applicable for the project activity.
- h) According to VCS Standard 4.5 /7/, specific guidelines are applicable when the producer(s) or retailer(s) of the impacted good or service are identified but not involved in the project or do not possess a website. 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.

As per the VCS Standard Version 4.5 /7/, projects registered on or after 20-January-2023, must demonstrate contributions to a minimum of three Sustainable Development Goals (SDGs). Projects registered with VERRA before this date must show contributions to three SDGs by 20-January-2025⁶, as stated in the Quarter 1 VCS Program Update released on 20-January-2022.

This is project's third Periodic Verification for the Monitoring Period from 01-January-2021 to 31-December-2022 (Inclusive of both the dates) 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 two SDGs, as indicated below:

- **7.2 i.e. (Renewable energy share in the total final energy consumption)** In this monitoring period about- 153,767.99 MWh renewable electricity has been supplied to Indian National grid that helps to increase the renewable energy share in the energy mix.
- **13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)** In this monitoring period release of about- 144,048 tCO₂e was prevented into the atmosphere

Table No. 13: Audit History Table

Audit Type	Monitoring Period	Program	VVB Name	Number of years	Conclusion
Validation+ Verification	22-March-2018 to 03- October - 2019	VCS	LGAI Technological Center S. A	01 Year 04 months 05 days	VKU's assessment team has cross verified the emission reductions reported in the

⁶ <https://verra.org/wp-content/uploads/2022/01/VCS-Summary-of-Effective-Dates-2022-01.pdf>

	(Inclusive of both the dates)				monitoring report for MP 1 along with the Joint Validation and verification report for MP 1 and VCU's issued were cross verified from the VCU's issuance record link available on the project webpage /15/.
Verification	04-October-2019 to 31-December-2020 (Inclusive of both the dates)	VCS	TÜV SÜD South Asia Pvt Ltd	01 Year 02 months 28 days	VKU's assessment team has cross verified the emission reductions reported in the monitoring report for MP 2 with the verification report for MP 2 and VCU's issued were cross verified from the VCU's issuance record link available on the project webpage/15/.
Verification	01-January - 2021 to 31-December-2022 (Inclusive of both the dates)	VCS	VKU CERTIFICATION PVT. LTD.	02 Year 00 months 00 days	VKU assessment team conducted the verification for current monitoring period (3 MP) and verified the emission

					reductions reported in the ER Sheet and MR via supporting documents.
Total	22-March-2018 to 31-December-2022 (Inclusive of both the dates)	VCS	N/A	04 Year 09 months 09 days	The Total emission reduction prevented by the project activity since commissioning was verified by VKU's Assessment team via previous verification reports and other supporting documents

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description, All the above stated information was verified by VVB during onsite visit /33/ and onsite personnel interviews /32/.

4.2 Safeguards

4.2.1 No Net Harm

There are no significant impacts due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

VVB has assessed the project activity on site and confirms that there were no negative environmental impacts observed during current monitoring period as all necessary measures were found in place which was confirmed during site visit /33/.

4.2.2 Local Stakeholder Consultation

The Project is already registered with VCS and registered VCS Joint PD & MR section 5.3 describe the Local Stakeholder Consultation Process. As Per VCS Joint PD & MR /3/. The Local Stakeholder Meetings were organized at the project site substation. The local stakeholder were

informed regarding the meeting on 20-January-2018. The following are the stakeholders for the project activity:

- Local community
- Local village administration
- Technology suppliers
- Local vendors

All the stakeholders were invited through invitation letters and/ or public notice to attend the stakeholders meeting on 28-January-2018. The stakeholders were briefed about the VCS/CDM project activity and also that the electricity generation from wind power project is an environment friendly technology and contributes in reducing GHG Emissions. They were abput informed about benefits like: increase in energy availability and improving quality of power and its assisstance to the local population by providing employment opportunities. A discussion was held in which the views of the local stakeholders were addressed and no negative comments were received.

As per MR /1/ PP is open for the continuous stakeholder interaction and formed a grievance/suggestion register and a grievance box placed at the project site for the comments at any point of time during the project crediting period. PP has explained this mechanism for on-going communication to the local stakeholders and transparently kept the notice mentioning the grievance register and box at the project site.

During the current monitoring period, there were no additional significant objections or comments made by the stakeholders as part of ongoing feedback as verified onsite from the suggestion box and grievance register present.

The verification team has interacted with local stakeholders during on-site assessment /33/ and details are summarized in section 2.3 of this report. There were no negative comments or feedback from local stakeholders as recorded by the verification team.

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 project monitoring has been carried in accordance with the registered VCS Joint PD & MR /3/ and the monitoring report /1/. The monitoring plan laid in the registered VCS Joint PD & MR /3/ is being followed at the site /33/ and involves just one parameter to be monitored $EG_{PJ,y}$ (Quantity of net electricity generation supplied by the project plant/unit to the grid during this monitoring period) according to the registered monitoring plan mentioned in the monitoring report /1/ and VCS Joint PD & MR /3/. The parameter value is sourced from JMRs /26/. The import and export value, which is recorded monthly in JMRs, is properly monitored by installed, calibrated metres of 0.2s accuracy class. The verification team has carefully analysed ER sheet /2/ that was provided by PP by cross-checking the values from the JMRs /26/, Invoices /27/ and logbooks /25/ that PP submitted and it has determined that all of the equations, conversions, and aggregations are correct. The estimated emission reduction was 154,278 tCO₂e for current monitoring period i.e., 01-January-2021 to 31-December-2022 whereas the actual emission reductions achieved were 144,048 tCO₂e which is 6.63% lower than what was anticipated and it is due to the breakdown hours observed and due to the climatic conditions in the current monitoring period.

The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR /1/. The emission reductions are purely based on the net electricity generated and exported from the WTGs.

PP has provided all the sufficient data for current monitoring period. The values of the parameter net electricity generation supplied to the grid by each phase used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet /2/ provided by PP. The verification of each monitoring parameter has been discussed later in section 4.5.

In [section 4.5](#) of this report and section 5.4 of MR /1/ calculations have been stated which can be further compiled in ER /2/ that has been verified by the assessment team from JMRs issued to PP by State utility and further cross verified from the daily generation report available on the site /25/submitted to assessment team by PP. Hence VKU states that the calculation method and formulae used in calculating baseline emission is in compliance to the methodology used. The calculation method and formulae used in calculating baseline emission is in compliance to the **Methodology used i.e., ACM0002 Version 19.0** /11/. Since project activity is a wind power project, leakage emission and project emission have been considered as zero.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

All relevant records were examined as part of the verification process to evaluate the accuracy and reliability of the information provided by the project participants, which is used to calculate emission reductions.

According to the requirements of the registered monitoring plan, all records necessary for monitoring are archived. During the verification process, no substantial gaps in the evidence or missing data were found. In order to assure the quality of the monitored data, the verification team therefore confirms that the monitoring system ensures the necessary quality of the monitoring system. Measures for QA/QC are applied to every internal data set.

The only monitoring parameter in the project activity is “Quantity of net electricity supplied to the grid as a result of the implementation of the VCS project activity in year y, $EG_{PJ,y}$ (MWh). This parameter is monitored through controlled reading of meters of each WTG and the reading of bulk energy meters installed at substation.

Table No 14: Metering Voltage and Evacuation

S.No.	Plant Site	Metering Voltage at Plant Site	Evacuation at Substation
1.	Guttaseema Wind Energy Company Private Ltd.	33 kV	220 kV (stepped up)
2.	Vaayuputra Energy Private Ltd.	33 kV	220 kV (stepped up)

The below tables describe how the parameter $EG_{PJ,y}$, 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 15: Assessment of Parameter $EG_{PJ,y}$ (net electricity supplied by the project (wind) plant/unit to the grid during the monitoring period)

Parameter	Quantity of net electricity supplied by the project (wind) plant/unit to the grid during the monitoring period, $EG_{PJ,y}$ (MWh)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Continuous monitoring, and at least monthly recording for net electricity generation.

		The net generated electricity supplied to the grid is determined through APTRANSCO (Andhra Pradesh Southern Power Distribution Company) energy meter installed at delivery points (i.e., the connected sub-station). Wind: - Net electricity generated and supplied by the project plant/unit to the grid = Export – Import – Transmission loss. Monthly meter readings are taken from the main and check meter installed at the substation and certified by the representatives of APTRANSCO Officials and the representatives of the project proponent.						
	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 VCS Joint PD & MR /3/ and monitoring methodology /11/. This was verified by assessment team during desk review and by Team Leader during onsite visit /33/ and interviews with site personnel /32/.						
	Monitoring equipment	Tri vector Meters Wind: - Project- Guttaseema Wind Energy Company Private Ltd and Vaayuputra Energy Private Ltd. Meter and Calibration details of 40 MW Wind power project by 20 MW - 220 KV- Guttaseema Wind Energy Company Private Ltd. <table><tr><td>Meter Details</td><td>Main Meter</td><td>Check Meter</td><td>Stand by Meter</td></tr></table>				Meter Details	Main Meter	Check Meter
Meter Details	Main Meter	Check Meter	Stand by Meter					

		<table><tr><td>Meter Serial No.</td><td>18035 458</td><td>18035 460</td><td>18035 461</td></tr></table>	Meter Serial No.	18035 458	18035 460	18035 461			
	Meter Serial No.	18035 458	18035 460	18035 461					
		20 MW - 220 KV- Vaayuputra Energy Private Ltd.							
		<table><tr><td>Meter Details</td><td>Main Meter</td><td>Check Meter</td><td>Stand by Meter</td></tr><tr><td>Meter Serial No.</td><td>17250 994</td><td>18035 463</td><td>18035 464</td></tr></table>	Meter Details	Main Meter	Check Meter	Stand by Meter	Meter Serial No.	17250 994	18035 463
Meter Details	Main Meter	Check Meter	Stand by Meter						
Meter Serial No.	17250 994	18035 463	18035 464						
	Data type: Measured & Calculated Type of meter: Static type meter (Main, Check & Standby). Make- L&T Accuracy Class of meter: 0.2s								
	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 monitoring equipment is 0.2s valid for the entire range which is as per the registered VCS Joint PD & MR /3/ and it is consistent as per the PPA /22/. At the time of desk review, it was observed that the error percentage during calibration is same as that of the accuracy class i.e.- 0.2%. Hence Accepted.							
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment is valid for the entire range (i.e. from 0.007s to 0.2s) which is as per registered VCS Joint PD & MR /3/. This was assessed by checking the calibration certificate of the energy							

		meters /24/. Thus, the assessment team based on the calibration certificates/24/ states that the accuracy is valid for the entire measuring range and is within the measurable limits. The calibration was carried out Yathva Energy Solutions Private Limited which is NABL accredited laboratory (Lab ID- T-2029, Certificate Number- TC-5881-valid from- 09- July- 2023 to 08- July- 2025) and test was witnessed by Andhra Pradesh Southern Power Distribution Company Officials which is a government agency itself. The calibration is carried out as per the PPA norms/22/, moreover it is beyond the control of PP. The government agency itself acts as a third party for the PP. Hence, assessment team accepted the calibration certificates/24/ submitted by the PP which mentioned the accuracy is within the entire measuring range.
	Calibration frequency /interval:	Calibration frequency of the energy meters is once in 5 years as per the <u>CEA guidelines 17- March- 2006</u> mentioned in registered monitoring plan in VCS Joint PD & MR /3/.
	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	Yes. The calibration frequency is once in 5 years as outlined in the registered VCS Joint PD & MR /3/ is in accordance with the national standards /13/ i.e Clause 18 of <u>Central Electricity Authority</u> (Installation and Operation of Meters ⁷). This was also confirmed during interview with onsite personnel /32/, which is in line with VCS Standard version 4.5 and

⁷ Regulations Notified on 17-March-2006 No. 502/70/CEA/DP&D Amendments Notified on 26-June-2010 No. 502/6/2009/DP&D/D-I

	local/national standards, or as per the manufacturer's specifications?	4.4 /7/ calibration requirements as well as per the registered monitoring plan.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes. Calibration of the measuring equipment's were carried out by Yathva Energy Solutions Private Limited which is NABL accredited laboratory and test was witnessed by Andhra Pradesh Southern Power Distribution Company Officials which is a government agency itself acting as a third party for the PP and it was also verified during onsite personnel interviews /32/. In accordance with the emergency procedure outlined in the MR /1/and cross verified via personnel interviews /32/, If an error is found in both meters (Main and Check) to be beyond the permissible limits, then standby meter will be used which is calibrated in the same manner as main and check meters.
	Is(are) calibration(s) valid for the whole reporting period?	Yes. Calibration of energy meters /24/ is valid for the current monitoring period for the project activity and it was checked from the calibration certificates provided by the PP and the calibration details are mentioned in Table 18 of this section and is found to be in line with the calibration certificates. Hence Accepted.

	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. As per the calibration certificates, error variation observed is lesser than the error variation specified. The voltage before testing of the meters was from 112 V to 63 V and after testing it was 111 V to 63 V, hence it is within the measurable range. The calibration is carried out appropriately as per the registered monitoring plan and VCS standard version 4.5 and 4.4/7/. The calibration is carried out appropriately by The calibration was carried out by Andhra Pradesh Southern Power Distribution Company which is a government agency.
	How were the values in the monitoring report verified?	Cumulative value of $EG_{PJ,y}$ for entire monitoring period is reported in the monitoring report /1/, and monthly values in the ER calculation sheet /2/. The monthly values were verified from the JMRs /26/ issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 153,767.99 MWh.
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of $EG_{PJ,y}$ is recorded in an ER Sheet /2/ and were further cross checked with the daily generation report /25/ and cross verified from the monthly JMRs /26/ raised by state utility to PP and was found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and	On site personnel interview /32/ with the project stakeholder of the project activity by the assessment team confirms that the necessary QA/QC procedures are in place the meters are tested and sealed and remains under the custody of state

	are necessary QA/QC processes in place?	utility itself and calibration is undertaken at required intervals and hence it is concluded that the data management system is effective and reliable. The export and import are measured continuously using Main and Check meters located at the substation. Readings of meters are taken on monthly basis by authorized officer of SEB in the presence of PP or representative of PP. Based on the Meter Reading Statement/JMRs /26/ issued by the state utility invoices /27/ are raised by PP. These JMRs are further used to collect data for ER calculations and it is crosschecked via invoices. The desk review of O&M agreement /23/ and register monitoring plan and its implementation in the current monitoring period is done to satisfactorily verify that the system is in place.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	CAR#01 was raised and resolved.	
Conclusion	The parameter has been verified 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 WTGs. Since 100% data was	

	verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors and materiality threshold is within the limits of the project scale i.e., 5%
--	--

Table No 16: Parameters fixed ex ante:

Parameter	Unit	Description	Value
EFgrid,OM,y	tCO ₂ /MWh	Operating margin CO ₂ emission factor of INDIAN Grid	0.9610 is consistent with the registered VCS Joint PD & MR version 3.0, dated 16-June-2020 /3/ <u>Calculated from CEA database, Version 14, December 2018 /21/</u>
EFgrid,BM,y;	tCO ₂ /MWh	Build margin CO ₂ emission factor of INDIAN grid	0.8644 is consistent with the registered VCS Joint PD & MR version 3.0, dated 16-June-2020 /3/ <u>Calculated from CEA database, Version 14, December 2018 /21/</u>
EFgrid,CM,y	tCO ₂ /MWh	Combined margin CO ₂ emission factor of INDIAN grid	0.9368 is consistent with the registered VCS Joint PD & MR version 3.0, dated 16-June-2020 /3/ The date has been considered in accordance to the “Tool to calculate emission factor of an electricity system”. 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 07.0).

Calibration of meters /24/: During the verification assessment of the project activity, accuracy of all the metering equipment have been checked and found appropriate. The installation and working conditions of the meters were checked during the site inspection and were found to be satisfactory. Details of meters are provided in below table:

Meter and Calibration details for 100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh are as follows-

Table No 17: Meter details:

Guttaseema Wind Energy Company Private Ltd.

Meter Details	Main Meter	Check Meter	Standby Meter
Meter Serial No	18035458	18035460	18035461
Meter Make	L & T	L & T	L & T
Accuracy Class	0.2s	0.2s	0.2s

Vaayuputra Energy Private Ltd.

Meter Details	Main Meter	Check Meter	Standby Meter
Meter Serial No	17250994	18035463	18035464
Meter Make	L & T	L & T	L & T
Accuracy Class	0.2s	0.2s	0.2s

Table No 18: Calibration Details:

Guttaseema Wind Energy Company Private Ltd.: Location: 33 KV							
Main Meter	Check Meter	Stand by Meter	Last Calibration Date	New Calibration Date	Due Date of calibration	Accuracy Class	Make and Model
18035458	18035460	18035461	26- April- 2019	17- November -2021	16- November -2026	0.2S	L&T (ER300P)

Vaayuputra Energy Private Ltd.: Location: 33 KV							
Main Meter	Check Meter	Stand by Meter	Last Calibration Date	New Calibration Date	Due Date of calibration	Accuracy Class	Make
17250994	18035463	18035464	26- April- 2019	17- November -2021	16- November - 2026	0.2S	L&T (ER300P)

The energy meter calibration certificates /24/ 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-January-2021 to 31-December-2022 (inclusive of both the dates).

The verification team has checked all the meters and confirmed that the meters were working satisfactorily. Also, the calibration of meters is completely under purview of state utility and PP has no control over the same as confirmed through interviews of site personnel and PPA signed by the PP with state utility /22/.

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 VCS Validation and Verification manual version 3.2. /8/

The registered VCS Joint PD & MR /3/ & MR /1/ and site audit observations confirm that the metering equipment are sealed and maintained by the state utility.

The assessment team has verified the monthly JMRs issued by the state utility Andhra Pradesh power transmission corporation limited and 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 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:

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

Where:

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

EG_{PJ,y}: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the VCS project activity in year y (MWh/yr)

EF_{grid,CM,y}: Combined margin CO₂emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂e/MWh)

Table No 19: Calculation

Parameter	Unit	Value
EG PJ, y	MWh	153,767.99

EF grid,CM,y	tCO ₂ e/MWh	0.9368
BEy	tCO ₂ e/yr	153,767.99 *0.9368
	=	144,048 (Round down value)

The verification team attests to the correctness of the formulas and methodologies used to compute baseline emissions as per Para 42-page no. 33 of the Baseline and Monitoring Methodology ACM0002 “Grid Connected Renewable Electricity Generation from renewable sources” Version 19.0 /11/. 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 estimated emission reduction for the current monitoring period 01-January-2021 to 31-December-2022 (inclusive of both the dates) was 154,278 tCO₂e but the actual emissions achieved is 144,048 tCO₂e. The actual emission reduction achieved during this current monitoring period is -6.63% lower than the estimated value.

We as VVB accepted this as this is mainly due to the reasons like- Climatic conditions and breakdown hours; - due to grid failure and schedule maintenance (709 hours, 09 minutes/ 0.21% of total operational hours) observed in the current monitoring period.

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

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 4.5 /7/ and that the verification of the GHG statement was conducted in accordance with ISO 14064-3; 2019.

4.6 Non-Permanence Risk Analysis

Since this is a Non-AFOLU projects 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 third verification of the first renewable crediting period (22-March-2018 to 21-March-2028 inclusive of both the dates) reported for the project activity “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh”. VCS Registry Project ID 1985, for the period 01-January-2021 to 31-December-2022 (inclusive of both the dates), with regard to the relevant requirements for VCS activities. As described in the report

from section 1 to 4, VKU has performed the entire verification according to the verification criteria for projects and their GHG emission reductions or removals set out in VCS standard Version 4.5 and 4.4/7/. The project participants of the “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh” are 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 Joint PD & MR /3/ version 3.0 of 16-June-2020.
- 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 4.5 /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:

- The project has been implemented and operated as per the registered VCS Joint PD & MR /3/;
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.5 and 4.4/7/ requirements;
- The monitoring is in place as per the applied baseline and monitoring methodology;
- The monitoring plan in the registered VCS Joint PD & MR /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 level of assurance** that reported GHG emission reductions are fairly stated.

It is VKU’s opinion that the GHG emission reduction stated in the monitoring report version 04 dated 16-October-2023 for the “100 MW Bundled Wind Power Project in Anantapuram, Andhra Pradesh” for the period 01-January-2021 to 31-December-2022 (inclusive of both the dates) are fairly stated.

The GHG emission reductions are calculated on the basis of approved methodology ACM0002 version 19.0 /11/ and the monitoring plan included in the registered VCS Joint PD & MR version 3.0, dated 16-June-2020 /3/. Hence VKU is able to certify that the emission reduction from the project during the current monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) amounts to 144,048 tCO₂e.

VKU is an approved ISO 14064-3:2019 accredited Validation/Verification Body⁸. The assessment team meticulously followed the prescribed steps outlined in the standard, starting with Strategic Analysis, followed by Risk Assessment and the development of an Evidence Gathering plan.

⁸ VKU is not accredited to validation at the time of submission of this project activity. (<https://verra.org/validation-verification/vku-certification-pvt-ltd/#vcs>)

Subsequently, the team diligently executed the planned activities to collect the necessary evidence. To ensure comprehensive evaluation, an Audit plan was prepared, and an Onsite visit was conducted accordingly. Onsite activities were carried out in accordance with the pre-established Evidence Gathering plan. Following the completion of the onsite activities, VKU proceeded with the post-site evaluation, which involved scrutinizing supporting documents, Monitoring Reports (MR), and Emission Reports (ER). The project then underwent Independent Technical review. Adhering to the stipulated requirements, the assessment team formed a positive opinion based on their findings.

The verification opinion is stated in the **Table No: 20** below;

Opinion	Final Documents	Monitoring period	Emission reduction achieved	Remarks
Positive Opinion ☒ Negative Opinion ☐ Adverse Opinion ☐ Unmodified Opinion ☒ Modified Opinion ☐	Monitoring Report Version 04 dated 16-October-2023 Emission Reduction Sheet Version 02 dated 10-July-2023	01-January-2021 to 31-December-2022 (Inclusive of both the dates)	144,048 tCO ₂ e	The GHG emission reductions are calculated on the basis of approved methodology ACM0002: Grid-connected electricity generation from renewable sources -- version 19.0 /11/ and the monitoring plan included in the registered VCS Joint PD & MR /3/.
Hence VKU is able to certify that the emission reduction from the project during the current monitoring period 01-January-2021 to 31-December-2022 (inclusive of both the dates) amounts to 144,048 tCO₂e assessed in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5 /7/. The VVB hereby issues a resolutely positive and unmodified opinion meticulously drafted in strict accordance with ISO 14064-3:2019 /36/ Section 09, and the precise provisions of Clause 9.7.1.6 & 9.7.2 of ISO 14065:2020 /37/. This opinion stands in full alignment with the exacting requirements delineated in ISO/IEC 17029:2019, Section 9.7 /38/. Our verification process provides a robust and reasonable level of assurance regarding the veracity of the reported GHG emission reduction data. This data is devoid of any material misstatements and is steadfastly supported by the evidence furnished by the Project Proponent (PP), comprehensively presented in <u>Table 05</u> of this report.				

Table No 21: Verification period: From 01-January-2021 to 31-December-2022 (inclusive of both the dates)

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)
01-January -2021 to 31-December-2021	67,230	0	0	67,230
01-January -2022 to 31-December-2022	76,818	0	0	76,818
Total	144,048	0	0	144,048

Table No 22: Difference in Ex-ante and achieved emissions

<u>Year</u>	<u>Ex-ante emissions reductions/ removals</u>	<u>Achieved emissions reductions/ removals</u>	<u>Percent difference</u>	<u>Justification for the difference</u>
01-January-2021 to 31-December-2021	77,139 tCO ₂ e	67,230	-12.84%	During assessment it was verified that the estimated emission reduction to be achieved from the project activity for the current monitoring period is 154,278 tCO ₂ e, whereas actual emission reductions achieved are 144,048 tCO ₂ e, which is approximately 6.63% lower than the estimated emission reductions. The lower generation achieved during current verification period is due to certain natural conditions and due to breakdown observed which is out of the control of PP. Hence Accepted.
01-January-2022 to 31-December-2022	77,139 tCO ₂ e	76,818	-0.42%	
Total	154,278 tCO ₂ e	144,048 tCO ₂ e	-6.63%	

APPENDIX A: <ABBREVIATIONS>

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER(s)	Certified Emission Reduction(s)
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DISCOM	Distribution Company
EB	Executive Board
EF	Emission Factor
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
APTRANSCO	Andhra Pradesh Power Transmission Corporation Limited
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PD	Project Description
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit
VKU	VKU Certification Ltd.
VCS	Verified Carbon Standard
VVS	Validation and Verification Standard
VB	Validation and verification body

APPENDIX B: <AUDIT FINDINGS>

Type	Date	19-June-2023
CL#01	Reference	Cover Page, Section 1.1, 1.5, 1.7, 1.9, 1.10, and 2.2 of verification Protocol
Description of the Non-Conformance		
Section 1.1 of MR: - PP is requested to provide the power purchase agreement to the assessment team. - PP is requested to calculate the no. of days again - PP is requested to clarify whether first and last dates are included or not Section 1.5 of MR: PP is requested to provide the commissioning certificate to verify the same. Section 1.7 of MR: PP is requested to Clarify why 30 WTGs have not been commissioned? Section 1.9 and 1.10 of MR: PP is requested to provide self-declaration regarding not availing any other form of Environmental Credit, no double counting of Emission reduction occurred, non-participation in other emission trading schemes and other binding limits. Section 2.2 of MR: PP is requested to provide grievance register to verify the same.		
1 st Response from PP	Date	24-August-2023
Section 1.1 of MR: - Power purchase agreement is submitted with the responses. - No. of days is updated in respective section. - The period is included first and last dates. Section 1.5 of MR: Commissioning certificate is submitted with the responses. - The process is going on there is some issue in land acquisition so that's why 30 WTGs have not been commissioned. - Self-declaration of PP is submitted with the responses. - Grievance register copy is submitted with the responses.		
1 st Assessment by Audit Team	Status	Open
Date	05-September-2023	
Section 1.1 of MR: - During Assessment it was verified that PP has now submitted PPA. Hence Accepted #Closed. - During Assessment it was verified that no. of days is now updated. Hence Accepted #Closed. - During Assessment it was verified that first and last dates are included. Hence Accepted #Closed. Section 1.5 of MR: During Assessment it was verified that commissioning certificates are now being provided. Hence Accepted #Closed. Section 1.7 of MR: During Assessment it was verified that PP has clarified the reason why 30 WTGs are not yet commissioned but supporting docs are required to verify the		

same and PP need to clarify when or if the remaining project capacity will be commissioned. #Open.				
4. Section 1.9 and 1.10 of MR: During Assessment it was verified that PP has now submitted the self-declaration. Hence Accepted #Closed.				
5. Section 2.2 of MR: During Assessment it was verified that PP has now submitted the grievance register photos. Hence Accepted #Closed.				
2 nd Response from PP			Date	12-September-2023
1. Section 1.7 of MR: The project activity was registered under VCS with a total capacity of 100 MWAC located at Anantapuram District, Andhra Pradesh in India. There are 2 SPVs involved in the project activity Guttaseema Wind Energy Company Private Ltd. having capacity 80 MWAC and Vayuputra Energy Private Ltd. having 20 MWAC capacity. Out of 100 MWAC only 40 MWAC has commissioned the remaining capacity of project is not commissioned due to land acquisition problem. therefore, in this monitoring period out of 100 MW, only 40 MW has considered the generation for calculation of emission reduction.				
2. The same thing is mentioned under the section 3.2.2 Project Description Deviations. And the deviation is in line with the guidelines provided in VCS Standard Version 4.4 Section 3.20; however, it doesn't impact existing applicability conditions, methodology, baseline, and additionality.				
2 nd Assessment by Audit Team		Status	Closed	Date
				12-September-2023
1. Section 1.7 of MR: During Assessment it was verified that PP has clarified the reason why 30 WTGs are not yet commissioned and requested a project deviation for the same.				
CL01 #Closed				

Type	Date	19-June-2023
CL#02	Reference	Section of 3.1, 4.2, 4.3 and 5.1 of verification Protocol
Description of the Non-Conformance		
1. Section 3.1 of MR: - During Site visit it was observed that O & M Entity changed in 2022 and was transferred to the Greenko officials only and before that Gamesa was the O&M entity. Hence PP is requested to write the name of O&M entities in MR for entire monitoring period and also provide the O&M agreements and O & M transfer agreement to verify the same. - PP is requested to provide evidences to verify technical specifications 2. Section 4.2 of MR: - PP is requested to update the abbreviation. - PP is requested to provide JMRs as the ones given are not accessible - PP is requested to provide sales receipt as ones given are not accessible. 3. Section 4.3 of MR: PP is requested to update the futuristic sentences throughout the MR. 4. Section 5.1 of MR: PP is requested to write the unit for Ex-ante and achieved emission reductions.		

1stResponse from PP			Date	24-August-2023
Section 3.1 of MR: - All O & M related documents are submitted with the responses and O&M entities name is incorporated in the MR. - Technical specifications are submitted with the responses. Section 4.2 of MR: - Abbreviation VERs is updated with VCU. - JMRs are submitted with the responses. - Invoices/ sales receipt are submitted with the responses. Section 4.3 of MR: Futuristic sentences are updated throughout the MR. Section 5.1 of MR: unit for Ex-ante and achieved emission reductions is incorporated.				
1stAssessment by Audit Team	Status	Open	Date	05-September-2023
Section 3.1 of MR: - During Assessment it was verified that PP has now submitted the O& M agreement and O & M change documents. Hence Accepted #Closed. - During Assessment it was verified that PP has now submitted technical specification to verify the same. Hence Accepted #Closed. Section 4.2 of MR: - PP is requested to update the abbreviation. Hence Accepted #Closed. - During Assessment it was verified that PP has now submitted all the JMRs. Hence Accepted #Closed. - During Assessment it was verified that PP has now submitted the sales receipt. Hence Accepted #Closed. Section 4.3 of MR: During assessment it was verified that PP has now updated the abbreviation. Hence Accepted #Closed. Section 5.1 of MR: - During assessment it was verified that unit is now incorporated. Hence Accepted #Closed. - PP is requested to clarify whether the difference observed is lower than 6.63% or 5.91%. #Open				
2nd Response from PP			Date	12-September-2023
Section 5.1 of MR: Actual emission reductions achieved are 6.63 % lower than the estimated emission reductions and the same thing is updated in section 5.1.				
2nd Assessment by Audit Team	Status	Closed	Date	12-September-2023
Section 5.1 of MR: During assessment it was verified that PP has now clarified that the actual emission reduction is lower than 6.63%. Hence Accepted #Closed. CL02 #Closed				

Type	Date	04- October-2023
CL#03	Reference	Section 1.11 and 4.3 of Verification Protocol

Description of the Non-Conformance					
1. Section 1.11 of MR: This is not stated as part of the SD contributions. Since the records are maintained, PP is requested to clarify. #OPEN. 2. Section 4.3 of MR: In the line diagram it is shown that all the meters are connected at sub-station which includes no VCS project WTGs also. Please state how the measurement made at the meters at sub-station measures the energy generated from the specific WTGs of the project activity. The diagram also mentions the grid as southern grid, please clarify on the same. #OPEN.					
1 st Response from PP			Date	16-October-2023	
1. This is a voluntary project activity doesn't contribute to achieving any nationally stated sustainable development priorities. 2. The details have been updated and the SLD diagram has been revised.					
1 st Assessment by Audit Team		Status	Closed	Date	16-October-2023
1. Section 1.11 of MR: During Assessment it was verified that PP has now added SD contributions are now stated clearly. Hence Accepted #Closed. 2. Section 4.3 of MR: During Assessment it was verified that PP has now updated and the SLD diagram has been revised. Hence Accepted #Closed.					
CL03 #Closed					

Type	Date	19-June-2023
CAR#01	Reference	Section 1.1, 1.7, 1.11, 2.2, 4.2 of verification Protocol
Description of the Non-Conformance		
Contents Table of MR: PP is requested to update the contents table according to the MR. Section 1.11 of MR: PP is requested to remove the instructions as per VCS MR template Version 4.2. Section 1.7 of MR: - PP is requested to update the latitude and longitude of all the WTGs as assessment team is not able to verify it. - During Site Visit it was observed that the commissioning of WTG-V05, WTG-V06 is 07-February-2019. Hence PP is requested to update the commissioning dates for the same. Section 4.2 of MR: PP is requested to add the calculation method for the project activity as during site visit it was observed that bill is based on gross generation and net electricity supplied is calculated based on net meter reading following apportioning procedure and same is verified from the JMR sheets as well. Hence PP is requested to add the method of calculation in MR and update the same in ER Sheet.		
1stResponse from PP	Date	24-August-2023
- Contents Table of MR is updated. - Instructions is removed from table 1: Sustainable Development Contributions.		

3. Section 1.7 of MR: - Latitude and longitude of all WTGs is updated. - The Commissioning date of WTG-V05, WTG-V06 is updated.					
4. Method of calculation is incorporated and according MR and ER sheet is updated.					
1 st Assessment by Audit Team		Status	Open	Date	05-September-2023
1. Contents Table of MR: During Assessment it was verified that PP has now updated the contents table according to the MR. Hence Accepted #Closed.					
2. Section 1.11 of MR: - During Assessment it was verified that PP has removed the instructions as per VCS MR template Version 4.2. Hence Accepted #Closed. - PP is requested to mention the process of LSC as well in the MR as per VCS MR Template version 4.2. #Open					
3. Section 1.7 of MR: - During Assessment it was verified that PP has now updated the latitude and longitude of all the WTGs. Hence Accepted #Closed. - During Assessment it was verified that PP has now updated the commissioning dates. Hence Accepted #Closed.					
4. Section 4.2 of MR: During Assessment it was verified that has now updated the calculation method. Hence Accepted #Closed.					
2 nd Response from PP				Date	12-September-2023
Section 1.11 of MR: Section 1.11 is Sustainable Development Contributions the process of LSC is incorporated in section 2.2 of MR.					
2 nd Assessment by Audit Team		Status	Closed	Date	12-September-2023
1. Section 1.11 of MR: During Assessment it was verified that PP has now incorporated relevant information in the section 2.2 of MR. Hence accepted. # Closed					
CAR 01 #Closed					

Type	Date	19-June-2023
CAR#02	Reference	Section 4.3, 5.1, Appendix and cover page of verification Protocol
Description of the Non-Conformance		
1. Section 4.3 of MR: - PP is requested to mention the QA/QC procedures as per VCS MR Template Version 4.2. - PP is requested to mention emergency preparedness as per VCS MR Template Version 4.2. - PP is requested to update the line diagram as the one given here is not consistent as per the actual implementation of project activity. 2. Section 5.1 of MR: PP is requested to provide the breakdown details in MR also as per VCS MR Template version 4.2.		

3. Appendix Section of MR: - During Site Visit it was verified that PP has installed new meters in 2023 and those meters were pre- calibrated. Hence PP is requested to mention new meter details as well in the MR and provide calibration certificates for the same. - During Site Visit it was observed that net meter details are not provided in the MR. PP is requested to provide information about the same as net meter values are used in calculation for deriving final values of exported electricity as confirmed through interviews of concerned personnel. This parameter needs to be mentioned in monitoring parameter also and therefore deviation in the monitoring plan is sought to be taken by PP. - PP is requested to mention the make and model of meters.					
4. Editorial corrections throughout the MR: PP is requested to update the font size throughout the MR as per VCS MR template Version 4.2.					
1 st Response from PP			Date	24-August-2023	
1. Section 4.3 of MR: - QA/QC procedures is incorporated in MR as per VCS MR Template Version 4.2. - Emergency preparedness is incorporated in MR as per VCS MR Template Version 4.2. - The single line diagram is updated as per project scenario.					
2. Breakdown details are incorporated in the appendix 2 of the MR and as per VCS MR Template Version 4.2.					
3. Appendix Section of MR: - The monitoring period is 01-January -2021 to 31–December-2022 so meter replacement done in 2023 so new meter details is not relevant to this monitoring period. - The information given in APPENDIX 1 of MR is information of the net meter, and the net meter is used for billing, and bulk meter is installed at 220 KV, and it is used to calculate transmission loss only. The net electricity is calculated by the state electricity board and provided in the monthly generation statement (JMR). Hence, the net electricity reading will be directly sourced from the monthly generation statement (JMR). A calibration certificate for the bulk meter is also submitted with the responses. - make and model of meters are incorporated.					
4. The MR is updated as per as per VCS MR template Version 4.2.					
1 st Assessment by Audit Team		Status	Open	Date	05-September-2023

1. Section 4.3 of MR: - During assessment it was verified that PP has now added QA/QC procedures. Hence Accepted #Closed. - During assessment it was verified that PP has now added Emergency Preparedness. Hence Accepted #Closed. - During assessment it was verified that PP has now updated the line diagram. Hence Accepted #Closed. 2. Section 5.1 of MR: During Assessment it was verified that PP has now submitted the breakdown details and provided the same in MR as well. Hence Accepted #Closed. 3. Appendix Section of MR: - During assessment it was verified that PP has now added the bulk meter details. Hence Accepted #Closed. - During assessment it was verified that PP has now added the make and model of meters. Hence Accepted #Closed. 4. Editorial corrections throughout the MR: During assessment it was verified that font size and style is not yet constant throughout the MR. #Open				
2nd Response from PP		Date	12-September-2023	
Editorial corrections throughout the MR: Font size and style constant are updated as per VCS MR Template version 4.2.				
2nd Assessment by Audit Team	Status	Closed	Date	12-September-2023
1. Editorial corrections throughout the MR: During assessment it was verified that font size and style is now constant throughout the MR. Hence Accepted. #Closed CAR 02 #Closed				

Type	Date	04-October-2023
CAR#03	Reference	Section 1.2, 1.11, 3.1 and 3.2.2 of Verification Protocol
Description of the Non-Conformance		
1. Section 1.2 of MR: As per template the status of the project activity wrt AFOLU needs to be stated. #OPEN. 2. Section 1.11 of MR: PP is requested to identify, "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" as per the template requirements. #OPEN. 3. Section 3.1 of MR: Please provide the following information: 1) 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? 2) Specification of the transformers 3) Distance (nearest and longest) distance from the WTGs to the sub-		

station connected? 4) How many feeders are present in sub-station? Are they dedicated feeders? If not, how is the measurement of energy generation done? 5) Any other suitable information. #OPEN.					
4. Section 3.2.2 of MR: Please state the impact of the new formula in the estimation of the ER between the present MP and the previous MPs. This is required as per para 3.20.2 of the VCS PS v4.4. #OPEN.					
1 st Response from PP			Date	16-October-2023	
1. In section 1.2 of MR: As per template guidelines the status of the project activity wrt AFLOU has been added. 2. In section 1.11 of MR: This is a voluntary project activity doesn't contribute to achieving any nationally stated sustainable development priorities. 3. In section 3.1 of MR: Details are now added. 4. In section 3.2.2 of MR: There is no impact of the new formula in the estimation of the ER between the present monitoring period and previous monitoring period and also there is no impact on existing applicability conditions, methodology, baseline and additionality and the same has been mentioned in the revised MR version 4.0.					
1 st Assessment	by	Audit	Status	Closed	Date
Team					18-October-2023
1. Section 1.2 of MR: During Assessment it was verified that PP has now updated the template of the project activity wrt AFOLU. Hence Accepted #Closed. 2. Section 1.11 of MR: During Assessment it was verified that PP has now updated the section as per requirements. Hence Accepted #Closed. 3. Section 3.1 of MR: During Assessment it was verified that PP has now provided the required information. Hence Accepted #Closed. 4. Section 3.2.2 of MR: During Assessment it was verified that PP has now stated the impact of the new formula in the estimation of the ER between the present MP and the previous MPs. Hence Accepted #Closed.					
CAR03 #Closed					

Type	Date	05-September-2023
FAR#01	Reference	Section of verification protocol
Description of the Non-Conformance		
1. During the verification it was observed that out of the proposed 50 WTGs only 20 WTGs have been commissioned and further 30 WTGs referring to the project are still under the implementation stage. FAR is raised.		
1stResponse from PP	Date	12-September-2023
1. The project activity was registered under total capacity of 100 MW _{AC} located at Anantapuram District, Andhra Pradesh in India. There are 2 SPVs involved in the project activity Guttaseema Wind Energy Company Private Ltd. having capacity 80 MW _{AC} and Vayuputra Energy Private Ltd. having 20 MW _{AC} capacity. Out of 100 MW _{AC} only 40 MW _{AC} has commissioned the remaining capacity of project is not commissioned due to land acquisition problem. therefore, in this monitoring period		

out of 100 MW, only 40 MW has considered the generation for calculation of emission reduction.				
1st Assessment by Audit Team	Status	Open	Date	12-September-2023
1. During the verification it was observed that out of the proposed 50 WTGs only 20 WTGs have been commissioned and further 30 WTGs referring to the project are still under the implementation stage. Based on PP's clarification it is estimated that remaining 30 WTGs will be commissioned till next monitoring period. Hence FAR is raised. FAR 01 #Open				
2nd Response from PP			Date	16-October-2023
1. The FAR is noted.				
2nd Assessment by Audit Team	Status	Open	Date	21-October-2023
This FAR has been raised during the current monitoring period and the verifying VVB to confirm if the proposed capacity of the project activity have been installed and is in line with the registered PD. FAR#01 Open				

APPENDIX C: <COMPETENCE STATEMENT>

Team Leader



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Vivek Kumar Ahirwar
Nationality	Indian
Countries of Experience	India, Madagascar, Thailand, Nepal, South Africa, Vietnam, Mozambique, Kenya, Ethiopia, Spain, Singapore, Zimbabwe, Columbia, Zambia, Libya, Indonesia, Myanmar
Education Qualification	B.E.(Mechanical) M.Tech.(Energy Management)
Year of Experience	15 Years +
Area of Expertise	Climate Change & Environment & Industry
Eligible Sectoral Scope	TA 1.1 Thermal Energy & Biomass TA 1.2 Renewables/Non-renewables TA 2.1 Energy Distribution TA 3.1 Energy Demand TA 13.1 Solid waste and Wastewater

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 (TA 1.1, 1.2, 2.1, 3.1, 13.1)	YES
Financial Expert	YES

Reviewed by	Apoorva Gupta (Quality Manager)	Date	11/10/2023
Approved by	Barun Kumar (Technical Manager)	Date	11/10/2023

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

Validator/Verifier



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Deepali Sharma
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (Environmental Science) M.Sc. (Environmental Science)
Year of Experience	2 years as Intern 9 months as Employee
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 (Country)	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	29.03.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	29.03.2023

Project Trainee



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Monika Jha
Nationality	Indian
Countries of Experience	India
Education Qualification	M.Sc. (Environmental Science) B.Sc. (Medical Science) PG Diploma (Environmental Science and sustainable development)
Year of Experience	1.9 years in <i>UA Consultants as Environmental Consultant.</i>
Area of Expertise	NA
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