RENEWABLE POWER PROJECT BY AXIS WIND FARMS (MPR DAM) PRIVATE LIMITED

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

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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:

M/s VKU Certification Pvt. Ltd. (here after referred as VKU) was commissioned by M/s Infinite Solutions and has verified the greenhouse gas emission reduction reported for the project activity "Renewable power project by axis wind farms (MPR dam) private limited." (VCS ID 1790[1]), covering fourth monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) under first renewable crediting period from 30-March-2017 to 29-March-2027 (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 4.3/6/, VCS Standard version 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/1790

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, 02 Corrective Action Requests (CARs), 03 Clarification Requests (CLs) and 00 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. No 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 "Renewable power project by axis wind farms (MPR dam) private limited." (VCS ID 1790), 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 18.1/11/. 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 fourth monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) under first renewable crediting period from 30-March-2017 to 29-March-2027(inclusive of both the dates) amounts to 441,973 tCO_2e.

CONTENTS

1 INTRODUCTION

1.1 Objective

M/s Infinite Solutions has commissioned M/s VKU Certification Pvt Ltd. (hereafter as VKU) to carry out the fourth periodic verification of the project "Renewable power project by axis wind farms (MPR dam) private limited" (VCS ID 1790) for the monitoring period from 01-January-2021 to 31-December-2022 (inclusive of both the dates) under first renewable crediting period from 30-March-2017 to 29-March-2027.

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 4.3/6/, VCS standard version 4.4/7/ and GHG program applied, on the basis of the registered project description/3/.

The verification is for the fourth monitoring period **from 01-January-2021 to 31–December-2022 (730 days) (inclusive of both the dates)** that falls under the first renewable crediting period[2] from **30-March-2017 to 29-March-2027 (inclusive of both the dates).**

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

First Crediting Period: 30-March-2017 to 29-March-2027, Including both dates		
Periodic Verification No.	Monitoring Period	Number of years
1st in VCS	(30-March-2017 to 01-August-2018) (Inclusive of both the dates)	01 year 04 months 3 days
2nd in VCS	(02-August-2018 to 01-October-2019 (Inclusive of both the dates).	01 year 02 months 00 days
3rd in VCS	02-October-2019 to 31-December-2020) (Inclusive of both the dates).	01 year 02 months 30 days
4th 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/,

[2] The first renewable crediting period for the project activity is from 30-March-2017 to 29-March-2027. (As per registered VCS Joint PD & MR version 03 dated 28-September-2018).

- to ensure the accuracy, completeness, consistency, transparency, and absence of significant errors or omissions in the reported data,
- 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 VCUs 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 4.4/7/, VCS program guide version 4.3/6/, 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 03 on 28-September-2018/3/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 4.4/7/.

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 4.1.8 of the VCS Standard version 4.4/7/

The verification report is based on the Monitoring report/1/, VCS Joint PD & MR version 03 on 28-September-2018/03/ & supporting documents /23/, /22/, /24/, /25/, /26/, /27/, /28/, /29/, /30/, /31/, /34/, /38/ 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
VCS 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	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.

The project activity involves installations of 50 wind turbines of 2.0 MW capacity each aggregating to 100 MW in the state of Andhra Pradesh. All the 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 30-March-2017 which is the earliest date of interconnection with the grid** 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	Project Capacity	Date of Commissioning	Project location	State
Axis Wind Farms (MPR Dam) Private Limited	Wind	100 MW	30-March-2017	Ipperu, Anantapuram	Andhra Pradesh

Start date of this project activity is 30-March-2017

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 03, dated 28-September-2018/3/ 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 01-January-2021 to 31-December-2022 (inclusive of both the dates) is 441,973 tCO_2e. The net electricity generated by the project activity that was evacuated to the grid during the current monitoring period (fourth monitoring period) of 01-January-2021 to 31-December-2022 (inclusive of both the dates) is 466,462.80 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 4.3/6/, VCS Standard Document version 4.4/7/. As per VCS Joint PD & MR version 03 dated 28-September-2018/3/ 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 18.1/11/

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. Evidence Gathering & Risk Assessment: Based on strategic analysis, the team determines 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 (MR) Version 01 dated 10-May-2023, Version 02 dated 06-July-2023, Version 03 dated 21-August-2023 and the emission reduction calculations spreadsheet Version 01 dated 10-May-2023, Version 02 dated 06-July-2023 and Version 03 dated 21-August-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 3.25 and clause 3.25.3 of the VCS Standard version 4.4/7/ it is an obligation for the project proponent to make available to the assessment team the required supporting documents and data needed to support statements and data as documented in the monitoring report/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 “Renewable power project by axis wind farms (MPR dam) private limited” Version 01 of 10-May-2023 Version 02 of 06-July-2023 Version 03 of 21-August-2023
/2/	Infinite Solutions: Emission Reduction Calculation Spreadsheet Version 01 of 10-May-2023 Version 02 of 06-July-2023 Version 03 of 21-August-2023
/3/	Registered VCS Joint PD & MR- “Renewable Power Project by Axis Wind Farms (MPR Dam) Private Limited” version 03 dated 28-September-2018.
/4/	TUV SUD: Final Verification report “Renewable Power Project by Axis Wind Farms (MPR Dam) Private Limited” version 3.0 dated 17-April-2021 covering monitoring period 02-October-2019 to 31-December-2020

/5/	LGAI Technological Center S.A- VCS Joint Validation Verification Report version 02 dated 08-October-2018
/6/	VCS Program Guide, version 4.3 dated 17-January-2023
/7/	VCS Standard, version 4.4 dated 17-January-2023
/8/	Validation and verification manual version 3.2 dated 19-October-2016
/9/	VCS Program Definitions version 4.3 dated 21-December-2022
/10/	VCS Registration & Issuance Process (Version 4.3) of 17-January-2023
/11/	CDM Executive Board: Baseline and Monitoring Methodology ACM0002 "Grid Connected Renewable Electricity Generation from renewable sources" Version 18.1
/12/	Tool to calculate the emission factor for an electricity system, Version 07.0
/13/	CO_2 Baseline Database for the Indian Power Sector User Guide Version 13.0
/14/	VCS: Monitoring report Template VCS Version 4.2
/15/	VERRA: https://registry.verra.org/app/projectDetail/VCS/1790
/16/	REC website Renewable Energy Certificate Registry of INDIA https://www.recregistryindia.nic.in/index.php/publics/faqs
/17/	I-REC Standard - The International REC Standard Foundation (irecstandard.org)
/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 Metering Regulations Archives - Central Electricity Authority (cea.nic.in)
/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 current monitoring 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 05-June-2023
/33/	Site Visit Photographs and attendance sheet dated 05-June-2023
/34/	Breakdown Details PP has submitted Breakdown Details in an Excel Sheet.
/35/	Training records of Site Personnels

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 **05-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

S No.	Name	Organization	Topic
1.	M.V Kishave	Axis Wind Farms (MPR Dam) Pvt Ltd.	Responsibility for Maintaining the data records, completeness of data, and reliability of data (calibration of equipment's), QA/QC
2.	S.C.V.B Raju	Axis Wind Farms (MPR Dam) Pvt Ltd.	O&M discussion of WTGs, SCADA System, Management Practices
3.	B. Dhatsi	Axis Wind Farms (MPR Dam) Pvt Ltd.	Site management practices
4.	Jogadeesha. V	Axis Wind Farms (MPR Dam) Pvt Ltd.	Site management practices
5	Govinda Raju	Axis Wind Farms (MPR Dam) Pvt Ltd.	Responsibility for Maintaining the data records, completeness of data, and reliability of data (calibration of equipment's), QA/QC

6	Jagan Mohan	Axis Wind Farms (MPR Dam) Pvt Ltd.	Site management practices
7	M. Dinesh	Axis Wind Farms (MPR Dam) Pvt Ltd.	Responsibility for Maintaining the data records, completeness of data, and reliability of data (calibration of equipment's), QA/QC

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. Surya Narayan (Male)	Office Boy	Local Stakeholder	Implementation of Project activity and its impact on the economic, social and environmental parameters around the located project activity and on the local people of the area. The employment generation due to project activity implementation.
2.	V. Ravi (Male)	Office Boy	Local Stakeholder	
3.	H. Ravi (Male)	Office boy	Local Stakeholder	
4.	R. Narayana	Driver	Local Stakeholder	

	(Male)			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 **05-June-2023** in Andhra Pradesh state India to carry out the following;

a. A review of the operation and implementation of the registered project activity in accordance with the VCS Joint PD & MR/3/ and VCS MR/1/approved documents;
b. An analysis of the information flows used to generate, aggregating and reporting the monitoring parameters;
c. 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/;
d. A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, inventories, purchase records or similar data sources;
e. A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;
f. A review of calculations and assumptions made in determining the GHG data and emission reductions;
g. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this 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 02 CARs** were raised during this verification which were closed successfully and **00 FAR** was raised during this verification. Details are given under Appendix B of this report.

2.5.1 Forward Action Requests

This is fourth periodical VCS verification of the project activity and no FAR is open from previous VCS verifications based on the review of previous Verification Report/4/. No FAR is raised for this verification as well.

2.6 Eligibility for Validation Activities

VKU has not undertaken any validation activities as part of the verification and does not hold accreditation for validation of any relevant sectoral scope. Hence this section is not applicable. It is to further conclude that during current verification there is no validation assessment undertaken either by VKU itself or parallelly by other certification bodies, as the same was confirmed by interview with the PP /32/ during onsite visit. Assessment team assessed the VERRA's website on 22-August-2023: https://verra.org/validation-verification/vku-certification-pvt-ltd/#vcs wherein the scope of services of VKU certification Pvt. Ltd. is mentioned as verification and not validation. Thus, ensuring that the accreditation details mentioned in FVR is consistent and correct.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project has not applied under any other GHG program except VCS for current monitoring period, 01-January-2021 to 31-December-2022 (inclusive of both the dates). The project is

registered under VCS only with project ID VCS 1790[3]. 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 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/

[3] https://registry.verra.org/app/projectDetail/VCS/1790

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

There is no project description deviation identified during the current monitoring period. Also, there were no deviations identified during the previous verification as per Final verification report/4/.

3.4 Grouped Project

As per VCS Joint PD & MR version 03 dated 28-September-2018, the project is not a grouped project. This can further be confirmed as per para 3.5.8 of VCS Standard V 4.4/7/. 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 consist of 50 WTGs of 2 MW capacity of each WTG so the total installed capacity of the project is 100 MW located at Anantapuram district in Andhra Pradesh state, India. The project is promoted by Axis Wind Farms (MPR Dam) Private Limited which is part of Greenko Group and O&M is also done by Greenko[4].

The wind plant has its own dedicated metering arrangement at the Axis MPR Dam substation end. There are three meters main, check and standby meters- ER 300P type installed at 220Kv at the Axis MPR Dam substation. The energy supplied to APTRANSCO Grid from the 100 MW Wind Power Project at Ipperu Village, Kuderu Mandal, Anantapuram District. The metering

[4] During site visit it was observed that the O& M was earlier done by Gamesa from 30-March-2017 to 04-June-2022 and was later transferred in-house to the Greenko Group itself from 04-June-2022. The O & M entity now and earlier was cross verified from the O & M Agreement and O& M change agreement provided by the PP.

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 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 nearest WGT (MRP-49) from PSS is at approx. 4.5 km, and the longest distance of WTG (MRP-36) from PSS is approx. 19.5 km. A total of 05 dedicated Feeders are Present in the substation and the energy generation is measured in respective feeder by use of Tri vector meters. No internal available automatic metering system is installed.

Table No. 8- The details of the feeders connected to different WTGs are as follows:

Feeder Number	WTG number
1	MPR-07, MPR-08, MPR-09, MPR-10, MPR-11, MPR-24, MPR-25, MPR-26, MPR-27, MPR-49 (Total 10 WTGs are connected to feeder no. 1)
2	MPR-01, MPR-02, MPR-03, MPR-30, MPR-31, MPR-32, MPR-33, MPR-34, MPR-47, MPR-48 (Total 10 WTGs are connected to feeder no. 2)
3	MPR-20, MPR-22, MPR-28, MPR-29, MPR-41, MPR-46, MPR-05, MPR-06, MPR-12, MPR-13 (Total 10 WTGs are connected to feeder no. 3)
4	MPR-37, MPR-38, MPR-39, MPR-40, MPR-42, MPR-45, MPR-50, MPR-14, MPR-16, MPR-18, MPR-19 (Total 11 WTGs are connected to feeder no. 4)
5	MPR-43, MPR-44, MPR-04, MPR-15, MPR-17, MPR-21, MPR-23, MPR-35, MPR-36 (Total 9 WTGs are connected to feeder no. 5)

Apportioning[5] Procedure for (Wind) Power Project

[5] Since the dates of JMR and invoices are in line with the monitoring period i.e. 01-January-2021 to 31-December-2022, no apportioning is required in the current monitoring period but in case of dates mismatch apportioning would be required.

The net electricity supplied to the grid is reported as the difference between the net export and import from the WTG. The electricity export and import data are monitored via main, check and standby meters connected to feeders at the respective sub-station.

Data Adjustment in case of monitoring period different from billing period:

In case the dates of a particular monitoring period do not match with the dates of the billing period, the net electricity exported to the grid would be calculated as follows:

D = (A/B) *C

A = Difference of number of days which are not matching of billing period and monitoring period.

B = Number of days of the billing period/ month which was not matched with the monitoring period.

C = Net Electricity supplied to the grid for that given billing period/ month

The calculated value after apportioning would be used for calculation of emission reductions during that period.

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- Accelerometer vibration alarm, Low level hydraulic group refrigeration oil, MV Switch trip from Arc detector, stopped on account of Trailing edge damaged in Blade-A, etc. In the current monitoring period it was observed that, all the WTGs are active. The breakdown that occurred was for a **total of 0.44% 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.	Plant Site	Total Hours	Net Operational Hours	Breakdown hours

1.	Axis Wind Farms (MPR Dam) Private Limited	876,000 hours[6]	872,152 hours/ 99.56% of total hours	3848 hours/ 0.44% 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:

WTG no	COD	Latitude (N)	Longitude (E)
MPR 01	30-March-2017	14° 50' 10.7556"	77° 23' 12.1804
MPR 02	30-March-2017	14° 50' 02.0256"	77° 23' 29.2367"
MPR 03	30-March-2017	14° 49' 54.7248"	77° 23' 40.2233"
MPR 04	30-March-2017	14° 44' 46.7376"	77° 21' 28.7729"
MPR 05	30-March-2017	14° 44' 41.3556"	77° 20' 58.3010"
MPR 06	30-March-2017	14° 46' 45.4332"	77° 20' 42.9873"
MPR 07	30-March-2017	14° 49' 12.3204"	77° 24' 38.6315"
MPR 08	30-March-2017	14° 50' 41.5572"	77° 24' 29.9906"
MPR 09	30-March-2017	14° 50' 28.7772"	77° 24' 36.2687"
MPR 10	30-March-2017	14° 50' 04.9128"	77° 25' 03.2868"
MPR 11	30-March-2017	14° 49' 49.7208"	77° 25' 06.6286"
MPR 12	30-March-2017	14° 46' 32.5956"	77° 20' 19.4172"
MPR 13	30-March-2017	14° 46' 16.2048"	77° 20' 22.3838"
MPR 15	30-March-2017	14° 45' 14.2776"	77° 19' 27.8421"
MPR 14	30-March-2017	14° 46' 08.4612"	77° 20' 38.6797"
MPR 16	30-March-2017	14° 45' 45.4680"	77° 19' 27.9395"
MPR 17	30-March-2017	14° 44' 51.4212"	77° 20' 34.3447"
MPR 18	30-March-2017	14° 44' 38.4648"	77° 21' 48.8706"
MPR 19	30-March-2017	14° 45' 54.9468"	77° 19' 23.3941"
MPR 21	30-March-2017	14° 45' 01.7460"	77° 21' 36.9895"
MPR 23	30-March-2017	14° 45' 14.2884"	77° 21' 50.7949"
MPR 24	30-March-2017	14° 51' 06.8940"	77° 22' 02.9782"
MPR 25	30-March-2017	14° 50' 57.6816"	77° 22' 19.6636"
MPR 26	30-March-2017	14° 50' 47.1156"	77° 22' 28.4760"
MPR 27	30-March-2017	14° 50' 34.8792"	77° 22' 29.2786"
MPR 30	30-March-2017	14° 48' 44.0208"	77° 21' 52.7650"

[6] Total Hours = 17520*Number of WTGs (i.e., 50). So, 17520*50=876,000

MPR 31	30-March-2017	14° 48' 36.4716"	77° 22' 02.6457"
MPR 32	30-March-2017	14° 48' 31.5504"	77° 22' 35.3550"
MPR 33	30-March-2017	14° 48' 22.0212"	77° 22' 35.0172"
MPR 34	30-March-2017	14° 48' 12.6108"	77° 22' 36.1515"
MPR_20	30-March-2017	14° 46' 59.0556"	77° 21' 12.2493"
MPR_22	30-March-2017	14° 46' 47.4708"	77° 21' 09.6843"
MPR_28	30-March-2017	14° 46' 53.7924"	77° 21' 40.3386"
MPR_29	30-March-2017	14° 46' 31.4040"	77° 21' 22.3136"
MPR 35	30-March-2017	14° 44' 23.2440"	77° 21' 58.4986"
MPR 36	30-March-2017	14° 44' 09.8052"	77° 21' 43.0135"
MPR_37	30-March-2017	14° 45' 01.5120"	77° 20' 04.7061"
MPR_38	30-March-2017	14° 45' 11.8044"	77° 20' 03.1448"
MPR_39	30-March-2017	14° 45' 20.9268"	77° 19' 55.3874"
MPR_40	30-March-2017	14° 45' 30.2148"	77° 19' 59.9987"
MPR_41	30-March-2017	14° 46' 21.7416"	77° 21' 19.4351"
MPR_42	30-March-2017	14° 45' 03.8016"	77° 20' 54.6314"
MPR_43	30-March-2017	14° 45' 28.9944"	77° 21' 21.8416"
MPR_44	30-March-2017	14° 45' 16.8480"	77° 21' 16.8978"
MPR_45	30-March-2017	14° 45' 37.8216"	77° 21' 07.6310"
MPR_46	30-March-2017	14° 46' 30.3060"	77° 20' 52.9532"
MPR_47	30-March-2017	14° 49' 01.3512"	77° 21' 40.6498"
MPR_48	30-March-2017	14° 49' 12.5040"	77° 21' 41.1050"
MPR_49	30-March-2017	14° 48' 50.7708"	77° 24' 46.6506"
MPR_50	30-March-2017	14° 45' 50.022"	77° 20' 38.7168"

Starting date of the operation of the project activity is **30-March-2017** which is the date of interconnection with the grid. 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
Axis Wind Farms (MPR Dam) Private Limited	100 MW	50	30-March-2017

Project Title	Renewable Power Project by Axis Wind Farms (MPR Dam) Private Limited

Date of Commissioning	30-March-2017
Project Type	Wind Project
Capacity	100 MW
Location	Village- Ipperu, District-Anantapuram, State- Andhra Pradesh
Host Country	India

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 100 MW (50WTGs* 2 MW) Wind project are provided below.

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

Technical specifications WTG	
WTG Make and Model No.	Gamesa, G114[7]
Generator Type & Rating	Doubly-Fed Induction generator
Generator Rating	2000 kW
WTG configuration	50 X 2000 kW
Rotor Diameter	114 m
Swept Area	10,207.0 m^2
Hub Height	93
Tower Type & Shape	Conical Tubular Steel
Cut-in-wind speed	2.5 m/s
Rated wind speed	10.0 m/s
Cut-out wind speed	25.0 m/s
Voltage generated at hub	690 volts
Survival wind speed	60.0 m/s
Technical specification WTG Transformers	
Make	ABB
Voltage	33KV/690 V
Rated Power	2350 KVA
Technical specifications Power Transformers	
Make	Prime Meiden
Voltage	220/33kV
Rated Power	1 X 80/100/110 MVA

[7] Gamesa G114-2.0MW - 2,00 MW - Wind turbine (wind-turbine-models.com)

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 18.1/11/. 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:

a) There are no material discrepancies between project implementation and the project description provided in the registered VCS Joint PD& MR /3/.
b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
c) There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/11/.
d) The GHG emission reductions or removals generated by the project have not been included in any emissions trading program or any other mechanism that includes GHG allowance trading/28/.
e) 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/
f) 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))/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 4.4/7/, 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, distributers 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 4.4/7/, 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-2025[8], as stated in the Quarter 1 VCS Program Update released on 20-January-2022.

This is project's fourth 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 three SDGs, as indicated below:

- **7.2 i.e. (Renewable energy share in the total final energy consumption)** Since commissioning, about 1,255,938.9 MWh renewable electricity has supplied to Indian National grid till this monitoring period that helps to increase the renewable energy share in the energy mix.
- **13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)** The project activity has prevented the release of 1,189,999 tCO_2e into the atmosphere since its commissioning.
- **8.5 i.e. (Average hourly earnings of employees, by sex, age, occupation and persons with disabilities)** Project has contributed directly to achieve this SDG target, because it has helped to create jobs in the renewable energy sector.

Table No. 13: Audit History Table

Audit Type	Monitoring Period	Program	VVB Name	Number of years	VCUs Issued	Conclusion
Validation+ Verification	30-March-2017 to 01-August-2018 (Inclusive of both the dates)	VCS	LGAI Technological Center S. A	01 Year 04 months 03 days	287,279 tCO_2e	VKU's assessment team has cross verified the emission reductions reported in the monitoring report for MP 1 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

[8] https://verra.org/wp-content/uploads/2022/01/VCS-Summary-of-Effective-Dates-2022-Q1.pdf

						project webpage/15/.
Verification	02-August-2018 to 01-October-2019 (Inclusive of both the dates)	VCS	Earthood Services Private Limited	01 Year 02 months 00 day	257,579 tCO_2e	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	02-October-2019 to 31-Decemeber-2020 (Inclusive of both the dates)	VCS	TÜV SÜD South Asia Pvt Ltd	01 Year 02 months 30 days	203,168 tCO_2e	VKU's assessment team has cross verified the emission reductions reported in the monitoring report for MP 3 with the verification report for MP 3 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 (On going) (Inclusive of both the dates)	VCS	VKU CERTIFICATION PVT. LTD.	02 Year 00 months 00 days	441,973 tCO_2e	VKU assessment team conducted the verification for current monitoring period (4 MP) and verified the emission reductions reported in the ER Sheet and MR via supporting documents.
Total	30-March-2017 to 31-December-2020 (Inclusive of both the dates)	VCS	N/A	05 Years 09 months 02 days	1,189,999 tCO_2e	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

As mentioned in MR/1/ the project activity does not involve any major construction activity. It primarily requires the installation of the WTGs, interfacing the generators with the State Electricity Board by setting up HT transmission lines and installation of other accessories.

The report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013. This report clearly mentioned that wind power project activity operations do not result in direct air pollution, noise pollution. Please refer below web link for the same[9].

Thus, 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 assessed the project activity on site and confirms that there were no negative environment al and socioeconomic impacts observed as this a renewable wind energy project.

4.2.2 Local Stakeholder Consultation

The Project is already registered with VCS and registered VCS Joint PD & MR/3/ section 2.2 describe the Local Stakeholder Consultation Process as in-line with VCS requirement. As Verified from MR and the stakeholders of the project activity were invited to attend the stakeholder meeting on 05-November-2015. Along with displaying the invitation letters in front of the public, personal invitations were also delivered to the significant local residents and this was confirmed via personnel interviews /32/ during site visit by the Assessment team.

A stakeholder meeting was held on 13-November-2015 involving the local stakeholders at the project site. The meeting was attended by local villagers, panchayat members, shopkeepers, suppliers, vendors and representatives of PPs.

The stakeholders were explained about the project activity and the various benefits arising out of the project activity. 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.

[9] http://164.100.94.214/sites/default/files/uploads/report-on-developmental-impacts-of-RE.pdf

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 390,104 tCO_2e for current monitoring period i.e., 01-January-2021 to 31-December-2022 whereas the actual emission reductions achieved were 441,973 tCO_2e which is 13.30% higher than what was anticipated and it is due to the low breakdown hours observed and due to the climatic conditions in the current monitoring period which is favourable for wind energy generation. The actual PLF for the generated energy in this monitoring period is 26.62% whereas as per the VCS Joint PD & MR/3/ the breaching value of 14.74% PLF would be 26.96% which is still higher than actual PLF hence project is additional and there is no effect on the same. Assessment team verified the same via PLF analysis mentioned in ER sheet/2/.

Table No. 14- PLF Analysis: -

Estimated PLF as per registered VCS Joint PD & MR	23.5%
Current monitoring period	Actual Generation (MWh)
Total no. of days	730
01-January-2021 — 31-Dececember-2022	
Total generation	466,463
Capacity	100 MW
Actual PLF	26.62%
With breaching value of 14.74% PLF would be	26.96%
Difference	0.34%

Above result clearly shows that the PLF with breaching value is higher than actual PLF hence project is additional.

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 /11/. The calculation method and formulae used in calculating baseline emission is in compliance to the **Methodology used i.e., ACM0002 Version 18.1** /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 15: Metering Voltage and Evacuation

S.No.	Plant Site	Metering Voltage at Plant Site	Evacuation at Substation

1.	Axis wind farms (MPR dam) private limited	33 kV	220 kV

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 16: Assessment of Parameter $EG_{PJ,y}$ (net electricity supplied by the project (wind) plant/unit to the grid during the monitoring period)

<table>
<tr><td>Parameter</td><td colspan="2">Quantity of net electricity supplied by the project (wind) plant/unit to the grid during the monitoring period, $EG_{PJ,y}$ (MWh)</td></tr>
<tr><td>Means of verification</td><td colspan="2"><table>
<tr><td>Criteria/Requirements</td><td>Assessment/Observation</td></tr>
<tr><td>Measuring /Reading /Recording frequency</td><td>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.</td></tr>
<tr><td>Is measuring and reporting frequency in accordance with the monitoring plan and monitoring</td><td>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</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td>methodology? (Yes / No)</td><td>desk review and by Team Leader during onsite visit /33/ and interviews with site personnel /32/.</td><td></td></tr>
<tr><td></td><td></td><td>Monitoring equipment</td><td>Tri-vector Meter[10]

Wind: -

Project- Axis wind farms (MPR dam) private limited

Meter and Calibration details of 100 MW Wind power project by Axis wind farms (MPR dam) private limited:

100 MW - 220 KV

Meter Details | Main Meter | Check Meter | Standby Meter
Meter Serial No. | 16400232 | 16400234 | 16400235

Data type: Measured & Calculated

Type of meter: Static type meter (Main, Check & Standby).

Make- L&T

Accuracy Class of meter: 0.2s</td><td></td></tr>
<tr><td></td><td></td><td>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</td><td>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</td><td></td></tr>
</table>

[10] During Site visit it was observed that meters were changed in May 2023 but the dates of meter change does not fall under current monitoring period (i.e., from 01-January-2021 to 31-December-2022). Hence, Assessment team cross verified the serial no. of the old meters mentioned in MR via calibration certificates and JMRs and it was found to be correct.

		monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	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's is valid for the entire range (i.e. from 0.031s 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 CEA guidelines 17- March- 2006 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 local/national standards, or as per the manufacturer's specifications?	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 Central Electricity Authority (Installation and Operation of Meters[11]). This was also confirmed during interview with onsite personnel /32/, which is in line with VCS Standard version 4.4/7/ calibrations 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	

[11] 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

			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 107V to 60V and after testing it was 111V to 62V, hence it is within the measurable range. The calibration is carried out appropriately as per the registered monitoring plan and VCS standard version 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 **466,462.80** 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 are necessary QA/QC processes in place?	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 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 17: Parameters fixed ex ante:

Parameter	Unit	Description	Value
EFgrid,OM,y	tCO_2/MWh	Operating margin CO_2 emission factor of INDIAN Grid	0.9726 is consistent with the registered VCS Joint PD & MR version 03 dated 28-September-2018/3/ Calculated from CEA database, Version 13, June 2018/13/
EFgrid,BM,y;	tCO_2/MWh	Build margin CO_2 emission factor of INDIAN grid	0.8723 is consistent with the registered VCS Joint PD & MR version 03 dated 28-September-2018/3/ Calculated from CEA database, Version 13, June 2018/13/
EFgrid,CM,y	tCO_2/MWh	Combined margin CO_2 emission factor of INDIAN grid	0.9475 is consistent with the registered VCS Joint PD & MR version 03 dated 28-September-2018/3/ 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 CO_2 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 Renewable power project by axis wind farms (MPR dam) private limited are as follows-

Table No 18: Meter details:

Meter Details	Main Meter	Check Meter	Standby Meter
Meter Serial No	16400232	16400234	16400235
Meter Make	L & T	L & T	L & T
Accuracy Class	0.2s	0.2s	0.2s

Table No 19: Calibration Details:

Meter Details	Main Meter	Check Meter	Standby Meter
Meter Serial No	16400232	16400234	16400235
Meter Make	L & T		
Type of meter	ABT Meter, ER 300P		
Accuracy Class	0.2s		
Date of Calibration	21-Feburary-2019	21-Feburary-2019	21-Feburary-2019
Due Date of Calibration	21-Feburary -2024	21-Feburary -2024	21-Feburary -2024

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:

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

Where:

BE_y: Baseline emissions in year y (tCO_2e/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 CO_2emission 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" (tCO_2e/MWh)

Table No 20: Calculation

Parameter	Unit	Value
EG PJ, y	MWh	466,462.80
EF grid,CM,y	tCO_2e	0.9475
BEy	=	466,462.80*0.9475
	=	**441,973** (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 18.1/11/. 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 was 390,104 tCO_2e but the actual emissions achieved is 441,973tCO_2e.

The actual emission reduction achieved during this current monitoring period is 13.30% higher than the estimated value the effect on IRR and additionality due to the higher ERs is mentioned in Section 4.4 of this MR.

We as VVB accepted this as this is mainly due to the reasons like- Climatic conditions that was favourable for the wind power generation and low breakdown hours (total 3848 hours or 0.44% 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 4.4/7/ and that the verification of the GHG statement was conducted is 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

M/s VKU Certification Pvt. Ltd. has performed the fourth verification of the first renewable crediting period (30-March-2017 to 29-March-2027 inclusive of both the dates) reported for the project activity "Renewable power project by axis wind farms (MPR dam) private limited". VCS Registry Project ID 1790, 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 4.4/7/. The project participants of the "Renewable power project by axis wind farms (MPR dam) private limited" 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 version 03 of 28-September-2018/3/.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

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

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

- 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 4.4/7/ 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 03 dated 21-August-2023 for the "Renewable power project by axis wind farms (MPR dam) private limited" 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 18.1/11/ and the monitoring plan included in the registered VCS Joint PD & MR version 03 of 28-September-2018/3/.

- 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 441,973 tCO_2e.

VKU is an approved ISO 14064-3:2019 accredited Validation/Verification Body [12] .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. 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.

[12] 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)

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01-January-2021 to 31-December-2021	217,782	0	0	217,782
01-January-2022 to 31-December-2022	224,191	0	0	224,191
Total	441,973	0	0	441,973

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

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
01-January-2021 to 31-December-2021	195,052 tCO_2e	217,782 tCO_2e	10.43%	During assessment it was observed that estimated emission reduction to be achieved from the project activity for the current monitoring period is 390,104 tCO_2e, whereas actual emission reductions achieved are 441,973 tCO_2e, which is approximately 13.30 % higher than the estimated emission reductions. The higher generation during the current verification period is due to low breakdown hours observed and certain natural conditions which are most favorable in
01-January-2022 to 31-December-2022	195,052 tCO_2e	224,191 tCO_2e	13.90%	

Total	390,104 tCO_2e	441,973 tCO_2e	13.30%	terms of wind energy. The actual PLF for the generated energy in this monitoring period is 26.62% whereas as per the VCS Joint PD & MR/3/ the breaching value of 14.74% PLF would be 26.96% which is still higher than actual PLF hence project is additional and there is no effect on the same. Assessment team verified the same via PLF analysis mentioned in ER sheet/2/. Hence Accepted.

APPENDIX A: <ABBREVIATIONS>

Abbreviations	Full texts
APTRANSCO	Andhra Pradesh Power Transmission Corporation Limited
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_2e	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
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
VVB	Validation and verification body

APPENDIX B: <AUDIT FINDINGS>

Type			Date	18-June-2023
CAR#01			Reference	Section 1.1, 1.10, 1.11, 2.2, 4.3 and 5.1 of Val/Ver Protocol
Description of the Non-Conformance				
1. **Section 1.11 of MR:** PP is requested to remove the instructions as per VCS MR template Version 4.2 2. **Section 2.2 of MR:** PP is requested to keep constant formatting of dates either DD/MM/YYYY or DD-Month-YYYY. 3. **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 update the single line diagram as the one given in the MR is not consistent with actual project scenario (Name of grid, substations, No. and type of meters to be added). 4. **Section 5.1 of MR:** PP is requested to provide the breakdown details and also mention the same in MR as per VCS MR Template version 4.2. 5. **Editorial corrections throughout the MR:** PP is requested to update the font size as per VCS MR Template Version 4.2.				
1st Response from PP			**Date**	06-July-2023
1. **In section 1.11** of revised MR version 2.0, the row mentioning the instructions is deleted. 2. **In section 2.2,** the date format has been revised throughout the revised MR version 2.0. 3. **For section 4.3** of MR following changes are done • The QA/QC procedure is included in the revised MR Version 2.0 as follows- **QA/QC Procedure-** The electricity meter with accuracy class 0.2s at substation end (i.e., one main, one check meter and one standby meter) are installed. Data Storage and Archiving All the data items monitored under the monitoring plan will be kept for 2 years after the end of crediting period or till the last issuance of VCUs for this project activity, whichever occurs later. The data will be archived both electronically and manually, and kept in safe storage by PP. • Single line diagram has been updated as per registered VCS Joint PD & MR and actual scenario and the name of grid, substation, number and type of meters has been added in the given section of the revised MR version 2.0 4. Breakdown details has been added in annexure 2 of the revised MR. 5. The font size has been updated throughout the MR as per VCS MP Template Version 4.2.				
1st Assessment by Audit Team	**Status**	Closed	**Date**	19-July-2023
1. **Section 1.11 of MR:** During Assessment it was verified that PP has now removed the instructions. Hence Accepted. #Closed. 2. **Section 2.2 of MR:** During assessment it was verified that PP has now kept constant formatting of dates. Hence Accepted Closed.				

3. **Section 4.3 of MR:**
    - During assessment it was verified that QA/QC Procedures are now added. Hence Accepted. #Closed.
    - During assessment it was verified that line diagram has now been updated. Hence Accepted. #Closed
4. **Section 5.1 of MR:** During assessment it was verified that breakdown details have now been added. Hence Accepted. #Closed.
5. **Editorial Corrections throughout the MR:** PP is requested to update the font size and font colour throughout the MR as per VCS MR template Version 4.2.

CAR01 CLOSED

Type	**Date**	**17-August-2023**
CAR#02	**Reference**	Section 1.1, 1.2, 1.8, 3.1 & 5.4 of Val/ Ver Protocol

Description of the Non-Conformance

1. **Cover Page of MR:** Update date and the version number at the time of submission. #Open
2. **Section 1.1 of MR:** Computation error. #Open
3. **Section 1.2 of MR:** The link in the footnote shows the ACM0002 version 21. #Open
4. **Section 1.8 of MR:** Please state the guidance under which the scale of the project is defined. #Open
5. **Section 3.1 of MR:** PP to provide the following technical details: 1) The voltage generated at the hub is not mentioned; 2) 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; 3) Specification of the transformers; 4) Any internal available automatic metering system installed; 5) Meters installed at PSS if any and its relevance in the overall measurement of energy generation; 6) Distance (nearest and longest) distance from the WTGs to the substation connected; 7) How many feeders are present in substation? Are they dedicated feeders? If not, how is the measurement of energy generation done; 8) Any other suitable information. #Open
6. **Section 5.4 of MR:** Not consistent with the ER sheet and calculations presented earlier in the report. #Open

1st Response from PP	**Date**	21-August-2023

1. **In the cover page of MR,** the date and version has been revised.
2. **In section 1.1 of MR:** It has been corrected.
3. **In section 1.2 of MR:** The link in the footnote has been revised.
4. **In section 1.8 of MR:** As per the CDM project standard for project activities para 119 clearly explains about the project scale for type I projects.
5. **In section 3.1 of MR:** All the details have been incorporated in the revised MR version 3.0
6. **In section 5.4 of MR:** The values have been made consistent with the ER sheet.

1st Assessment by Audit Team	**Status**	Closed	**Date**	21-August-2023

1. **Cover page of MR:** During Assessment it was verified that the date and version has been revised. #Closed.

2. **Section 1.1 of MR:** During assessment it was verified that computation error has now been corrected. #Closed.
3. **Section 1.2 of MR:** During Assessment it was verified that the link in the footnote has now been revised. #Closed.
4. **Section 1.8 of MR:** During Assessment it was verified that guidance under which project scale is mentioned has now been added. #Closed.
5. **Section 3.1 of MR:** During Assessment it was verified that all the details have been incorporated now. #Closed.
6. **Section 5.4 of MR:** During Assessment it was verified that the values have been made consistent with the ER sheet. #Closed.

CAR02 CLOSED

Type	**Date**	**18-June-2023**
CL#01	**Reference**	Section 1.1, 1.5, 1.7, 1.9, 1.10 of Val/Ver Protocol

Description of the Non-Conformance

1. **Section 1.1 of MR:**
   - PP is requested to provide the power purchase agreement to the assessment team.
   - PP is requested to clarify the full name and full form of the relevant DISCOM.
   - PP is requested to clarify whether the dates are inclusive of both start and end dates.
   - PP is requested to calculate the no. of days again.
2. **Section 1.5 of MR:** PP is requested to provide the commissioning certificate to verify the same.
3. **Section 1.7 of MR:** PP is requested to clarify why this latitude and longitude are repeated twice
4. **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.
5. **Section 2.2 of MR:** PP is requested to provide grievance register to verify the same

1stResponse from PP	**Date**	06-July-2023

1. **For section 1.1** of MR following changes has been done:
   - The power purchase agreement has been submitted.
   - Full name and full form of DISCOM has been added.
   - Both the dates are included and the same has been incorporated in the revised MR.
2. The commissioning certificate is submitted with responses.
3. **In section 1.7** of MR the latitude and longitude has been corrected and the supporting document for the same has been provided.
4. **For section 1.9 and 1.10** of MR the self-declaration has been provided.
5. Grievance register copy is submitted with response.

1stAssessment by Audit Team	**Status**	Closed	**Date**	19-July-2023

1. **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 name of the DISCOM is now mentioned. Hence Accepted. #Closed.
    - During assessment it was verified that PP has included both first and last dates. Hence Accepted. #Closed.
    - During assessment it was verified that no. of days is now updated. Hence Accepted. #Closed.

2. **Section 1.5 of MR:** During assessment it was verified that PP has now provided commissioning certificates. Hence Accepted #Closed.
3. **Section 1.7 of MR:** During assessment it was verified that the repetition of latitude and longitude has now been updated. Hence Accepted. #Closed.
4. **Section 1.9 and 1.10 of MR:** During assessment it was verified that PP has provided self-declaration for the same. Hence Accepted. #Closed.
5. **Section 2.2 of MR**: During assessment it was verified that PP has now provided Grievance register to verify the same. Hence Accepted. #Closed

CL01 CLOSED

Type	**Date**	**18-June-2023**
CL#02	**Reference**	Section of 3.1, 4.2, 4.3 and 5.1 of Val/Ver Protocol
Description of the Non-Conformance		

6. **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 technical specifications of WTGs to verify the same.
7. **Section 4.2 of MR:**
    - PP is requested to provide the JMRs again as ones given are not accessible
    - PP is requested to update the abbreviation.
8. **Section 4.3 of MR:**
    - PP is requested to clarify why they have used CDM procedures here.
    - PP is requested to provide the invoices again as ones given are not accessible
    - PP is requested to update the futuristic sentences throughout the MR.
    - PP is requested to clarify what happens in case both meters stop working
    - PP is requested to provide Training records to verify the personnel training conducted.
    - PP requested to clarify whether apportioning procedure is applicable for current monitoring or not.
9. **Section 5.1 of MR:**

- PP is requested to write the unit for Ex-ante and achieved emission reductions.
- PP is requested to clarify on the higher emission reductions.

10. **Appendix Section of MR:** PP is requested to update the calibration details and provide the calibration certificates for the same

1st Response from PP	Date	06-July-2023

1. **In section 3.1 of revised MR:**
   - The O&M agreement has been updated throughout the MR and the supporting documents has been provided.
   - The technical specifications have been submitted.
2. **In section 4.2 of revised MR 2.0:**
   - The JMRs has been provided.
   - It has been updated.
   - The respective section has been updated.
3. **In section 4.3 of revised MR 2.0:**
   - The invoices have been submitted.
   - The language has been updated throughout the revised MR.
   - In case of both the meters stop working a standby meter is used to ensure the continues monitoring of energy meters.
   - The training records has been provided.
   - Since the dates of JMR and invoices are in line with the monitoring period i.e. 01-Jan-2021 to 31-Dec-2022. Therefore, no apportioning is required in the current monitoring period but in case of dates mismatch apportioning would be required.
4. **In section 5.4 of MR:**
   - The units of ex-ante and achieved emission reductions has been added.
   - The increase in actual emission reduction is justified, as this monitoring period includes winter and summer season only which are most favorable time in terms of wind energy.
5. **Appendix Section of MR:** The calibration dates covering the current monitoring period are added and the supporting documents for the same as been provided.

1st Assessment by Audit Team	Status	Closed	Date	19-July-2023

1. **Section 3.1 of MR:**
   - During assessment it was verified that PP has now provided O&M transfer agreement and O & M Agreements to verify the same. Hence Accepted. #Closed.
   - During assessment it was verified that PP has now provided technical specifications. Hence Accepted. #Closed.
2. **Section 4.2 of MR:**
   - During assessment it was verified that PP has now provided the JMRs. Hence Accepted. #Closed.
   - During assessment it was verified that Abbreviation is now updated. Hence Accepted. #Closed.
3. **Section 4.3 of MR:**
   - During assessment it was verified that word CDM is now updated to VCS. Hence Accepted. #Closed.
   - During assessment it was verified that PP has now provided the invoices. Hence Accepted. #Closed.

- During assessment it was verified that futuristic sentences has now been updated. Hence Accepted. #Closed.
- During assessment it was verified that PP has now mentioned the case if both the meters stop working. Hence Accepted. #Closed.
- During assessment it was verified that PP has now provided training records to verify the same. Hence Accepted. #Closed.
- During assessment it was verified that apportioning procedure is not applicable for current monitoring. Hence Accepted. #Closed.

4. **Section 5.1 of MR:**
   During assessment it was verified that PP has incorporated the unit now. Hence Accepted. #Closed.
   During assessment it was verified that the higher achieved emission reductions are due to the climatic conditions and was beyond the control of PP. Hence Accepted. #Closed.
5. **Appendix Section of MR:** During assessment it was verified that calibration details are now updated and calibration certificates have been provided. Hence Accepted. #Closed.

CL02 CLOSED

Type	**Date**	**17-August-2023**
CL#03	**Reference**	Section 1.11, 3.1, 4.2, 4.3 & 5.4 of Val/ Ver Protocol

Description of the Non-Conformance

1. **Section 1.11 of MR:**
   - PP to substantiate on the regulatory surplus stated here or voluntary nature of the project activity.
   - PP to justify why only 2 SDG contributions are listed that are derived from the project activity. #Open
2. **Section 3.1 of MR:** PP is requested to elaborate on the baseline scenario with respect to the emission sources. #Open
3. **Section 4.2 of MR:** HESCOM is electricity supply company based in Karnataka while the plant is located in AP. Clarify. #Open
4. **Section 4.3 of MR:**
   - The project is already implemented however the sentence implies that the project is under implementation. Clarify.
   - The meters used for measuring the energy supply to grid is under the custody of electricity board authorities. PP to clarify the same ie., measurement.
   - PP to clarify whether non-VCS projects are also connected to the same metering arrangement as shown in the line diagram. If yes, how is measurement of the energy generated by the project activity is measured. How many feeders are present at the SS and dedicated meters to measure the energy generated by the 100 WTGs. #Open
5. **Section 5.4 of MR:** The equivalent PLF for the generated energy in this monitoring period is 26.62% which is higher than the assumed PLF of 26.62% at the time of validation. PP to clarify considering that higher generation results in breaching the IRR thus failing additionality test. #Open

1st Response from PP	**Date**	21-August-2023

1. **In section 1.11 of MR:**

- As per the template guidelines, PP needs to report if this project is contributing towards achieving any nationally stated sustainable development priorities. However, there is no such regulatory surplus from the project hence it is not mentioned. In addition to this, India's NDC do not bind it to any sector specific mitigation obligation or action.
- One more SDG is added in Table 1 and the same has been updated in the above section 1.11 of the MR.

2. **In section 3.1 of MR:** The baseline scenario has been elaborated with respect to emission sources.
3. **In section 4.2 of MR:** It has been revised.
4. **In section 4.3 of MR:**
   - The project is already commissioned and now the sentence has been revised.
   - This is just a general statement refers to measurement of data whereas the custody of energy meters is with state utility & same is mentioned in QA/QC procedures in this section 4.3 of the MR.
   - Non-VCS projects are not connected to the same metering arrangement & it is clearly mentioned in line diagram "PP WTGs" which is further connected to 33 KV / 220 KV Axis MPR Dam substation end and there we have three meters (Main, check and standby) of ABT Meter, ER 300P type for measurement of electricity generated from WTGs.
5. **In section 5.4 of MR:** The actual PLF for the generated energy in this monitoring period is 26.62% whereas as per the PDMR with breaching value of 14.07% PLF would be 26.81% which is still higher than actual PLF hence project is additional. Refer tab PLF analysis in ER sheet.

1st Assessment by Audit Team	Status	Closed	Date	21-August-2023

1. **Section 1.11 of MR:**
   - During Assessment it was verified that PP has now updated the section. #Closed.
   - During Assessment it was verified that one more SDG is added in Table 1 and the same has been updated in the section 1.11 of the MR. #Closed.
2. **Section 3.1 of MR:** During Assessment it was verified that baseline scenario has been elaborated with respect to emission sources. #Closed.
3. **Section 4.2 of MR:** During Assessment it was verified that name of state utility has now been revised. #Closed.
4. **Section 4.3 of MR:**
   - During Assessment it was verified that the sentence has now been revised. #Closed.
   - During Assessment it was verified that this is just a general statement the custody of energy meters is with state utility & same is mentioned in QA/QC procedures in section 4.3 of the MR. #Closed.
   - During Assessment it was verified that Non-VCS projects are not connected to the same metering arrangement. #Closed.
5. **Section 5.4 of MR:** During Assessment it was verified that the actual PLF for the generated energy in this monitoring period is 26.62% whereas as per the VCS Joint PD & MR with breaching value of 14.07% PLF would be 26.81% which is still higher than actual PLF hence project is additional and the PLF calculation is provided in the MR. #Closed.

CL03 CLOSED

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, Indonesia, Bangladesh, Nepal, Ghana, Uganda, Kenya etc
Education Qualification	B.E. (Mechanical Engineering) M. Tech (Energy Management)
Year of Experience	12 Years +
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	TA 1.1 - Thermal energy generation TA 1.2 - Renewables TA 2.1 - Energy Distribution TA 3.1 - Energy Demand

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

Reviewed by	Vandana Gupta (Quality Manager)	Date	28/02/2023
Approved by	Dr. Vikas Kumar Aharwal (Director)	Date	04/03/2023

Technical Reviewer:

Certification Pvt. Ltd. VKU.F50/V. 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

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

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 *UA Consultants as Environmental Consultant.*
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