Vajrakarur wind power project in Andhra Pradesh

By KBS Certification Services Pvt. Ltd.

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Summary:

KBS Certification Services Pvt. Ltd. has been contracted by, "EKI Energy Services Limited." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Vajrakarur wind power project in Andhra Pradesh' (VCS ID 1214) for the monitoring period 01/04/2020 to 31/05/2021 (Inclusive of both days), under the crediting period 31/03/2012 to 30/03/2022, in the initial monitoring report version 01 dated 04/06/2021, with regard to the relevant requirements of VCS Standard Version 4.1.

The project activity with a total capacity of 63 MW is located in Vajrakarur village, Anantapur district of Andhra Pradesh state, India. The Wind power plant is designed to convert the wind potential energy into kinetic energy using Wind turbines. The electricity generated is exported to the regional grid system (Andhra Pradesh grid) which is under the purview of the Indian grid (earlier known as NEWNE grid).

The project activity has been operational since commissioning (31/03/2012) and the project involves 30 Wind Turbine Generators located at the project site with capacity of 2.1 MW each.

The verification is based on the VCS PD, Monitoring report (MR), Emission reduction calculation spread sheet (ER sheet), proof of title, proof of right, additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the verification team by project proponent.

A risk-based approach has been followed to perform the verification of the project activity. In the course of verification, 04 Corrective Action Requests (CARs) and 01 Clarification Requests (CLs) have been raised. All the CARs and CLs have been closed out successfully.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/04/2020 to 31/05/2021 (Inclusive of both days) based on the reported emission reductions in the final monitoring report version 2 dated 02/08/2021 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

As a result of the verification, the verification team confirms that:

- The project fulfils criteria of VCS Standard Version 4.1.
- The project is in line with all relevant VCS requirements.
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board and VCS Association;
- All information and references relevant to the project activity resulting in emission reductions;

The monitoring is transparent, adequate and in line with applied baseline and monitoring methodology of ACM0002– Consolidated baseline methodology for grid-connected electricity generation from renewable sources - Version 13.0.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 76,566 tCO2 emission reductions during the monitoring period (01/04/2020 to 31/05/2021 (Inclusive of both days)), under the first crediting period (31/03/2012 to 30/03/2022).

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1 INTRODUCTION

1.1 Objective

KBS Certification Services Pvt. Ltd. has been contracted by, "EKI ENERGY SERVICES LIMITED." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Vajrakarur wind power project in Andhra Pradesh' (VCS ID 1214) for the monitoring period 01/04/2020 to 31/05/2021 (Inclusive of both days), under the crediting period 31/03/2012 to 30/03/2022, in the initial monitoring report version 01 dated 04/06/2021, with regard to the relevant requirements of VCS Standard Version 4.1. The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- 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.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of monitoring report, VCS project description (VCS PD), Registered CDM-PDD, including the monitored data, and other relevant documents made available to verifier and information collected through performing interviews during Remote assessment(interviews) of the project activity.

The project is assessed against the requirements of VCS standard version 4.1 and related rules and guidance /5/. KBS has, based on the recommendations in the latest version of Verified Carbon standard, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

The aspects to be covered under the purview of verification are:

- Ensure that the project activity has been implemented and operated as per the registered VCS PD, CDM PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place as per the documents provided by the client and during remote audit;
- Ensure that the monitoring report and other supporting documents provided are complete
- Ensure that the practiced monitoring system and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved CDM methodology /10/;
- Evaluate the data recorded and stored are as per the monitoring methodology.

1.3 Level of Assurance

☑Reasonable level of assurance

The verification is based on the VCS/CDM PDD, MR, additional documents related to baseline and monitoring methodology, the subsequent background investigation, monitoring plan, follow-up interviews and supporting documents made available to the verification team by project proponent. The information in these documents is reviewed against the requirements of VCS Standard Version 4.1. KBS has employed a risk-based approach in the verification, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions.

The items covered in the verification are described below:

- Criteria of VCS Version 4 (VCS Program guide Version 4 & VCS Standard Version 4.1)
- Criteria of CDM approved methodology, ACM0002– Consolidated baseline methodology for grid-connected electricity generation from renewable sources - Version 13.0
- VCS Monitoring Report
- Monitoring Plan
- Background investigation and follow up interviews
- Stakeholder feedback
- Registered VCS-PD and CDM PDD and CDM Validation Report
- project's compliance with other relevant rules, including the project country (India) legislation and assurance to stakeholders of the quality

Furthermore, the verification team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data available on public domain. A desk review is carried out to assess the following:

- Compliance with relevant law and regulations

- Stakeholder comments (If any)
- Single line diagram and site location map
- Technical specifications of turbines, meters etc.
- O & M Agreement
- Power Purchase Agreement
- Commissioning Certificate
- Remote auditing (11/06/2021) for verification
- Invoices
- Export/Import data records
- Calibration Certificates

The Verification team has checked all the above-mentioned details and confirms that all the information provided is accurate.

Through the remote interviews host country rule and regulations related to project activity, Project description, technological measures, Implementation, Operation, Management of project activity and Training of personnel, Baseline and Monitoring plan, Stakeholder consultation etc. has been checked and found appropriate.

KBS applies the risk-based approach aimed at focusing on high-risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the findings were submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions.

Hence the above steps were followed for achieving the level of assurance in verification report. Based on the process and procedures conducted, KBS confirms that the information in the MR:

- is materially correct and is a fair representation of the actual project details, and
- is prepared in accordance with VCS requirements /4//5/ and the applied CDM methodology for information pertaining to GHG qualification, monitoring and reporting.

The verification work is carried out as per this requirement and the verification opinion is assured, provided the credibility of all above. Details are presented in the Verification statement in section 5 below.

1.4 Summary Description of the Project

The project activity with a total capacity of 63 MW is located in Vajrakarur village, Anantapur district of Andhra Pradesh state, India. The wind-based power plant is designed to convert the wind potential energy into kinetic energy which produce electricity by generators this process includes Wind Turbine Generators (WTGs). The electricity generated is sold the regional grid system which is under the purview of the Indian grid (earlier known as NEWNE grid).

The project activity has been operational since commissioning (31/03/2012) and during the monitoring period i.e., from period 01/04/2020 to 31/05/2021 (Inclusive of both days), it has generated 85,349.52 MWh net electricity, thereby resulting in emission reduction of 76,566 tCO2e. The monitoring period subject to this monitoring report is inclusive of first and last day of period

During the remote audit inspection /11/, location (as mentioned in section 1.7 of MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned in the VCS PD & CDM PDD /03/ have been verified. The same was also crosscheck during the desk review of supporting documents like technical specifications/6/, single line diagram/7/, O & M Agreement/7/, Power purchase Agreement/8/ and commissioning certificate/9/.

Project entity information as verified is presented below:

Item	Data
Project Entities	Mytrah Vayu (Pennar) Private Limited (MVPPL) (Project Owner)
	EKI Energy Services Limited (Project consultant)

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process was carried out in line with the requirements of VCS Version 4 /4/. In addition, the verification team followed the guidelines of the CDM Validation and Verification Standard. Standard auditing techniques and KBS's CDM Procedures were also applied during

the verification. A risk-based approach was followed to carry out verification and access all the factors and concerns that relate to the issuance of emission reductions from a project activity. They include:

- Identification of all the sources contributing to the project emissions and emission reductions.
- Authenticity of the provided data is checked.
- A risk-based analysis is carried out to ensure a clear and transparent assessment. The risks involved in this process are mainly with the informational flows and data recording.

KBS follows a risk-based verification approach, wherein a desk review of the project documentation is undertaken, which is followed by a remote discussion/video inspection by the members of verification team. The verification protocol is filled by the verification team that is based on standard auditing practices and VCS requirements. The verification protocol provides transparent means to record the observations by the verification team members and the non-conformities, if any. The verification protocol is an internal document, and available on request.

Duration of Verification:

Verification Contract	15/05/2021
Remote audit	11/06/2021 (Justification section 2.4 below)
Draft Verification Report	05/08/2021
Final Verification Report	12/08/2021

2.2 Document Review

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'References'.

2.3 Interviews

Please refer section 2.4, where complete list of interviewed personnel and key points discussed is provided.

2.4 Site Inspections

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects https://verra.org/covid-19-travel-guidance/ and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. Further Email from VERRA dated 24/03/2020 from "Andrew Beauchamp" has been referred as per which, "The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.1). Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from VERRA is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the validation/verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit".

Hence, the VVB has used other standard auditing techniques for validation or verification as referred to in VCS Rules/requirements, VCS Validation and Verification Manual version 3.2.

Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification. Along with desk review, audit team has conducted remote audit interview as follows:

- A complete desk review of the MR, as well as all applicable country legal requirement and supportive evidences have been checked by the verification team.
- Verification team has performed Zoom Application interview with PP in order to check implementation, project boundary, current situation, monitoring and metering equipment, monitoring procedures, calibration etc.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in MR and supporting documents.
- A check of the monitoring equipment including performance and observations of monitoring practices against the requirements of the registered VCS PD and CDM PDD and the selected methodology.

Details of interviewees, topics covered and additional information are presented below:

Dates:	11/06/2021 (Zoom Application)	
Key points discussed:	**Name of person, interviewed**	**Designation, Organization**

Operational data, Calibration, Data collection, QA/QC procedures, Calculation of ERs,	Ms. Anjali Rao	Assistant Manager, Climate Change Operations EKI Energy Services Limited
	Mr. Usman Ali	Plant Personnel, Mytrah Vayu (Pennar) Private Limited (MVPPL)

2.5 Resolution of Findings

KBS applies the risk-based approach aimed at focusing on high-risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the verification report was submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective action request (CAR):

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions
- the Voluntary Carbon Standard's requirements have not been met, or
- there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CL):

- Information is insufficient or not sufficiently clear to determine whether the applicable VCS requirements have been met.

FAR (Forward Action Request):

FARs is to be raised to highlight issues related to project implementation that require review during the first verification of the project activity. FARs does not relate to VCS requirements for registration.

CARs and CLs are to be resolved or closed out if the PP modifies the project description, rectifies the MR or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for issuance under VCS registry.

The monitoring report was revised addressing the CARs & CLs issued by KBS. After reviewing the revised and resubmitted MR/1.2/; resolving the CARs & CLs raised and outstanding concerns, KBS issues this final verification report and opinion.

01 CLs and 04 CARs were found during verification and closed satisfactorily. The list of CARs/CLs raised, and the response provided, the means of verification, reasons for their closure and references to correction in the MR are provided in appendix 2 of this report. The revised MR/1.2/ with changes incorporated as per the issues raised were rechecked with the documentary evidence and found to be inline.

2.5.1 Forward Action Requests

No FAR has been raised during this Verification and previous verification/validation.

2.6 Eligibility for Validation Activities

KBS conducted the verification activity; the validation was performed by the other VVB. KBS has a valid UNFCCC accreditation in the sectoral scope from UNFCCC.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project was registered at UNFCCC (Ref. No. 9650) on 11-June-2013 and the details of the same can be viewed on https://cdm.unfccc.int/Projects/DB/SGS-UKL1369989385.4/view. As verified from the website, the project has completed one CDM verification.

3.2 Methodology Deviations

The verification team confirms that the registered PDD complies with the requirements in the applied monitoring methodology ACM0002 version 13.0/10/. Therefore, no methodology deviations are applied during the monitoring period.

3.3 Project Description Deviations

No project description deviation applied during the monitoring period.

3.4 Grouped Project

The project is not a grouped project. Therefore, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is in operation stage as evidenced by the remote inspection /11/ of the site. All the physical components and project boundary are in conformity with the description in registered VCS PD and CDM PDD/03/. The capacity of project equipment's have been confirmed during the remote inspection, also through the technical specifications /06/ and found in-

compliance with the registered VCS PD and CDM PDD/03/. The project activity was commissioned on 31/03/2012 as per commissioning certificate/09/.

On the basis of the remote inspection and the reviewed project documentation like the technical specification, photographs of meters, wind turbines/6/, single line diagram/7/, power purchase agreement/8/, commissioning certificates/9/, calibration certificates of energy meters/13/, and invoices/14/ etc. the verification team confirms that the project was implemented and operated as described in the registered VCS PD and CDM PDD/3/. Further, the verification team confirms that-

-There is no any material discrepancy between project implementation and the project description in the registered VCS PD and CDM PDD.

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

- The project has not participated or been rejected under any other GHG programs and further has not received or sought any other form of environmental credit since validation or previous verification.

- There is no methodology deviation applied to this project.

The total generation capacity of the power plant due to 30 WTGs (each turbine is of 2.1 MW) is 63 MW which was verified during the remote audit.

Further it was noticed that during the monitoring period the project activity operated under normal conditions and no significant event that may have impact on monitoring of GHG emission reductions was observed. Same has been checked from the operational data during remote auditing.

Ownership and other programs:

PP has declared that the project is registered in other GHG programs like CDM; PP confirmed that the project will only be going forward with VCS registry, as declared in VCS-PD /03/. Thus, emission reductions generated by project will be solely claimed by PP and PP has the right of use, which is acceptable. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions as the host country i.e., India is not a participant in any emission trading programs or nor does it have any binding limits.

PP will not claim any other the environmental/carbon credits under any other GHG emission reduction scheme for the crediting period under VCS and PP has provided declaration /16/ on the same during the validation. Hence, there is no possibility of double counting.

Sustainable Development Contributions:

As confirmed during the remote audit, the project displaces electricity produced in fossil fuel-based power plants, by using clean renewable source to generate electricity and thereby contributes to sustainable development through reduction in greenhouse gas (GHG) emissions.

It has also been confirmed that the project implementation has led in significant environmental and socio-economic benefits (as stated in section 1.11 of the submitted MR) and contributes to the social, economic, technological and environmental well-being. The project supplies clean, affordable and renewable energy (85,349.52 MWh net electricity under the monitoring period) without reliance on fossil fuels for generation of electricity to meet the growing demands in the region. Also, the implementation of project is providing employment to locals with a decent and secure work environment by reducing emissions otherwise generated by the operation of fossil fuel-based power plants and would lead to promotion of wind-based power generation and to encourage other entrepreneurs to participate in similar projects as well.

Management and operational system:

Verification team was able to verify that authorities and responsibilities /15/ for monitoring and reporting of all data related to the emission reductions were clearly defined for the monitoring period from 01/04/2020 to 31/05/2021 (Inclusive of both days).

The allocation of the responsibilities is documented in a written form and is followed as described in the registered VCS PD and CDM PDD/03/. Routines for the archiving of data are defined and documented.

The monitoring plan described in section 4.3 of the MR/1.2/ is confirmed to be correct. All the parameters of the monitoring plan are monitored using appropriate metering system.

The verification team has interviewed the plant personnel /11/ who is involved in the monitoring of the parameters that are used to determine the emission reductions of the VER project. It is confirmed based on the interviews /11/ that the plant's team is competent enough to monitor the parameters as described in the monitoring plan.

As discussed above, the verification team concludes that management and operational system of the project is implemented and operated well. Thus, it ensures the quality of data which is required in calculating the emission reductions.

Implementation status of the monitoring plan:

Verification team confirms through remote inspection /11/ and from the document review like power purchase agreement/08/, Commissioning certificate/09/, Calibration certificates/13/ and Invoices/14/ the actual monitoring system complies with the monitoring plan mentioned in the registered VCS PD and CDM PDD /3/ and there is no deviation in monitoring plan and procedures, equipment.

During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method; the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. All monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements. It is confirmed that the monitoring mechanism is effective and reliable.

Therefore, from the document review and remote inspection, it is confirmed that all the parameters were monitored in accordance with the registered monitoring plan during the monitoring period. Following are the details of monitoring in accordance with the monitoring plan of the registered VCS PD and CDM PDD/03/:

Data - Parameter	$EG_{PJ,y}$
Data unit	MWh
Description	Net Electricity Supplied to the grid by the project activity.
Source of data	Verification team confirms that the data has been calculated. The value for net electricity supplied to the grid is cross verified from the monthly invoices raised by the project participant as well.
Description of measurement methods and procedures to be applied	During the remote inspection and through document review, it has been confirmed that the value of net electricity generation supplied to the grid as per Joint Meter Reading Reports forms the basis for calculation of the emission reductions; which has been cross checked from the invoices. Net electricity supplied to grid was calculated as the difference of the measured values of "export" and "import" of electricity through the dedicated energy meter installed at the delivery point (i.e., the connected substation). $EG_{PJ,y} = EG_{Export,\ y} - EG_{Imp}$
Frequency of monitoring-recording	Monthly recording, as verified by the verification team through remote assessment.
Value monitored	85,349.52 MWh During the current monitoring period, data apportioning has been done for export data of 01/04/2020 to 03/04/2020 and 03/05/2021 to 31/05/2021 wherein the value for the number of days for credit (first 3 days of the month April 2020 and 29 days of the month May 2021) was considered using daily generation data as a conservative approach which was found to be reasonable and acceptable by the verification team. The complete import data was taken into consideration as a conservative approach as well.
Monitoring equipment	During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by two-way tri vector meters of accuracy class 0.2s. Monthly joint meter readings of the main meters and check meters is taken by the designated officials as confirmed from the remote inspection. The Calibration dates of the meters at substation (billing meters) and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until

XC559940 (Main meter)	0.2s	18-February-2020, 18-February-2021	18-February-2022
XC559941 (Check meter)	0.2s	18-February-2020, 18-February-2021	18-February-2022

The calibration details of meters at transmission line and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until
12091060 (Main meter Phase 1)	0.2s	18-February-2020	17-February-2021
12091061 (Check meter Phase 1)	0.2s	18-February-2020	17-February 2021
The above main meter and check meter was replaced by new meters with serial number 0019002777 and 0019002780 on 26-November-2020			
0019002777 (Main meter Phase 1)	0.2s	26-November-2020	25-November-2021
0019002780 (Check meter Phase 1)	0.2s	26-November-2020	25-November-2021
12091057 (Main meter Phase 2)	0.2s	18-February-2020	17-February-2021
12091058 (Check meter Phase 2)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019009485 and 0019002785 on 21-November-2020			

	0019009485 (Main meter Phase 2)	0.2s	21-November-2020	20-November-2021
	0019002785 (Check meter Phase 2)	0.2s	21-November-2020	20-November-2021
	12091064 (Main meter Phase 3)	0.2s	18-February-2020	17-February-2021
	12091065 (Check meter Phase 3)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001690 and 0019001701 on 21-November-2020.			
	0019001690 (Main meter Phase 3)	0.2s	21-November-2020	20-November-2021
	0019001701 (Check meter Phase 3)	0.2s	21-November-2020	20-November-2021
	12091069 (Main meter Phase 4)	0.2s	18-February-2020	17-February-2021
	12091070 (Check meter Phase 4)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001702 and 0020003301 on 21-November-2020.			
	0019001702 (Main meter Phase 4)	0.2s	21-November-2020	20-November-2021

0020003301 (Check meter Phase 4)	0.2s	21-November-2020	20-November-2021
12091085 (Main meter Phase 5)	0.2s	18-February-2020	17-February-2021
12091086 (Check meter Phase 5)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019001657 and 0019001666 on 21-November-2020.			
0019001657 (Main meter Phase 5)	0.2s	21-November-2020	20-November-2021
0019001666 (Check meter Phase 5)	0.2s	21-November-2020	20-November-2021
12091075 (Main meter Phase 6)	0.2s	18-February-2020	17-February-2021
12091076 (Check meter Phase 6)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019001677 and 0019001682 on 26-November-2020.			
0019001677 (Main meter Phase 6)	0.2s	26-November-2020	25-November-2021
0019001682 (Check meter Phase 6)	0.2s	26-November-2020	25-November-2021
12091066	0.2s	18-February-2020	17-February-2021

	(Main meter Phase 7)			
	12091072 (Check meter Phase 7)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019006559 and 0019006560 on 26-November-2020.			
	0019006559 (Main meter Phase 7)	0.2s	26-November-2020	25-November-2021
	0019006560 (Check meter Phase 7)	0.2s	26-November-2020	25-November-2021
	12091080 (Main meter Phase 8)	0.2s	18-February-2020	17-February-2021
	12091081 (Check meter Phase 8)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 001900279 and 0019002799 on 25-November-2020.			
	0019002798 (Main meter Phase 8)	0.2s	25-November-2020	24-November-2021
	0019002799 (Check meter Phase 8)	0.2s	25-November-2020	24-November-2021
	As per the registered VCS PD and CDM PDD/03/, the calibration frequency of meters is stated as once in a year. Therefore, no delay in calibration was observed during the current monitoring period.			
QA-QC procedures to be applied	The generation values has been also cross-checked with the JMR and invoices/14/ and was found to be consistent.			

	The meters are calibrated once in a year. It is found to be in line with the registered VCS PD and CDM PDD/03/.
Purpose of the data	Calculation of Baseline emissions
Calculation method	-
Comments	As confirmed during the remote inspection /11/, the collected data will be kept by Project party during the crediting period. The data would be archived electronically and maintained for the entire crediting period plus two years.

Data - Parameter	$EG_{Export, y}$
Data unit	MWh
Description	Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (cluster meter) and 220kV metering point (Bulk metering point)
Source of data	Verification team confirms that the data has been calculated.
Description of measurement methods and procedures to be applied	Electricity exported by project activity to grid was calculated as per below formula: $EG_{Export, y} = EG_{pe} * (1- L_{ep}(\%))$ Where, EG_{pe} = Electricity Export recorded at 33 kv (JMR at 33kV metering point) cluster points connecting total 30 machines of the project activity. L_{ep} =Total percentage of transmission loss for export between the metering point at 33 kV (sum of all the WEGs connected to Bulk metering point including non-project activity as well as project activity WTG's) metering points and the metering point at 220kV at Suzlon pooling substation.
Frequency of monitoring-recording	Continuous measurement and at least monthly recording, as verified by the verification team through remote assessment.
Value monitored	87,339.50 MWh
Monitoring equipment	Not Applicable
QA-QC procedures to be applied	The values has been also cross-checked with the certified statement given by state utility showing cost of export and import /14/ and was found to be consistent.
Purpose of the data	Calculation of Baseline emissions
Calculation method	-

Comments	As confirmed during the remote inspection /11/, the collected data will be kept by Project party during the crediting period. The data would be archived electronically and maintained for the entire crediting period plus two years.

Data - Parameter	EG_{Imp}
Data unit	MWh
Description	Electricity imported recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting a total of 30 machines of the project activity
Source of data	Verification team confirms that the data has been measured directly from meters at cluster metering points and recorded on monthly Joint Meter Reading (JMR) certificate certified by DISCOM/State utility /12/. The value for electricity imported from the grid is cross verified from the monthly invoices raised by the project participant as well.
Description of measurement methods and procedures to be applied	Verification team confirms that the data has been measured directly from meters at cluster metering points and recorded on monthly Joint Meter Reading (JMR) certificate certified by DISCOM/State utility /12/. The value for electricity imported from the grid is cross verified from the monthly invoices raised by the project participant as well.
Frequency of monitoring-recording	Continuous measurement and at least monthly recording, as verified by the verification team through remote assessment.
Value monitored	875 MWh
Monitoring equipment	During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by two-way tri vector meters of accuracy class 0.2s. Monthly joint meter readings of the main meters and check meters is taken by the designated officials as confirmed from the remote inspection. The Calibration dates of the meters at substation (billing meters) and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until
XC559940 (Main meter)	0.2s	18-February-2020, 18-February-2021	18-February-2022

XC559941 (Check meter)	0.2s	18-February-2020, 18-February-2021	18-February-2022

The calibration details of meters at transmission line and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until
12091060 (Main meter Phase 1)	0.2s	18-February-2020	17-February-2021
12091061 (Check meter Phase 1)	0.2s	18-February-2020	17-February 2021
The above main meter and check meter was replaced by new meters with serial number 0019002777 and 0019002780 on 26-November-2020			
0019002777 (Main meter Phase 1)	0.2s	26-November-2020	25-November-2021
0019002780 (Check meter Phase 1)	0.2s	26-November-2020	25-November-2021
12091057 (Main meter Phase 2)	0.2s	18-February-2020	17-February-2021
12091058 (Check meter Phase 2)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019009485 and 0019002785 on 21-November-2020			
0019009485 (Main meter Phase 2)	0.2s	21-November-2020	20-November-2021

0019002785 (Check meter Phase 2)	0.2s	21-November-2020	20-November-2021
12091064 (Main meter Phase 3)	0.2s	18-February-2020	17-February-2021
12091065 (Check meter Phase 3)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019001690 and 0019001701 on 21-November-2020.			
0019001690 (Main meter Phase 3)	0.2s	21-November-2020	20-November-2021
0019001701 (Check meter Phase 3)	0.2s	21-November-2020	20-November-2021
12091069 (Main meter Phase 4)	0.2s	18-February-2020	17-February-2021
12091070 (Check meter Phase 4)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019001702 and 0020003301 on 21-November-2020.			
0019001702 (Main meter Phase 4)	0.2s	21-November-2020	20-November-2021
0020003301 (Check meter Phase 4)	0.2s	21-November-2020	20-November-2021
12091085	0.2s	18-February-2020	17-February-2021

	(Main meter Phase 5)			
	12091086 (Check meter Phase 5)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001657 and 0019001666 on 21-November-2020.			
	0019001657 (Main meter Phase 5)	0.2s	21-November-2020	20-November-2021
	0019001666 (Check meter Phase 5)	0.2s	21-November-2020	20-November-2021
	12091075 (Main meter Phase 6)	0.2s	18-February-2020	17-February-2021
	12091076 (Check meter Phase 6)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001677 and 0019001682 on 26-November-2020.			
	0019001677 (Main meter Phase 6)	0.2s	26-November-2020	25-November-2021
	0019001682 (Check meter Phase 6)	0.2s	26-November-2020	25-November-2021
	12091066 (Main meter Phase 7)	0.2s	18-February-2020	17-February-2021
	12091072 (Check meter Phase 7)	0.2s	18-February-2020	17-February-2021

<table>
<tr><td></td><td>
<table>
<tr><td colspan="4">The above main meter and check meter was replaced by new meters with serial number 0019006559 and 0019006560 on 26-November-2020.</td></tr>
<tr><td>0019006559 (Main meter Phase 7)</td><td>0.2s</td><td>26-November-2020</td><td>25-November-2021</td></tr>
<tr><td>0019006560 (Check meter Phase 7)</td><td>0.2s</td><td>26-November-2020</td><td>25-November-2021</td></tr>
<tr><td>12091080 (Main meter Phase 8)</td><td>0.2s</td><td>18-February-2020</td><td>17-February-2021</td></tr>
<tr><td>12091081 (Check meter Phase 8)</td><td>0.2s</td><td>18-February-2020</td><td>17-February-2021</td></tr>
<tr><td colspan="4">The above main meter and check meter was replaced by new meters with serial number 001900279 and 0019002799 on 25-November-2020.</td></tr>
<tr><td>0019002798 (Main meter Phase 8)</td><td>0.2s</td><td>25-November-2020</td><td>24-November-2021</td></tr>
<tr><td>0019002799 (Check meter Phase 8)</td><td>0.2s</td><td>25-November-2020</td><td>24-November-2021</td></tr>
</table>
As per the registered VCS PD and CDM PDD/03/, the calibration frequency of meters is stated as once in a year. Therefore, no delay in calibration was observed during the current monitoring period.
</td></tr>
<tr><td>QA-QC procedures to be applied</td><td>The import values has been also cross-checked with the JMR and invoices/14/ and was found to be consistent.

The meters are calibrated once in a year. It is found to be in line with the registered VCS PD and CDM PDD/03/.</td></tr>
<tr><td>Purpose of the data</td><td>Calculation of Baseline emissions</td></tr>
<tr><td>Calculation method</td><td>-</td></tr>
<tr><td>Comments</td><td>As confirmed during the remote inspection /11/, the collected data will be kept by Project party during the crediting period. The data</td></tr>
</table>

	would be archived electronically and maintained for the entire crediting period plus two years.

Data - Parameter	EG_{pe}
Data unit	MWh
Description	Electricity Export recorded at 33 kv (JMR at 33kV metering point) cluster points connecting total 30 machines of the project activity
Source of data	Verification team confirms that the data has been measured directly from meters at cluster metering points and recorded on monthly Joint Meter Reading (JMR) certificate certified by DISCOM/State utility /12/. The value for electricity exported to the grid is cross verified from the monthly invoices raised by the project participant as well.
Description of measurement methods and procedures to be applied	Verification team confirms that the data has been measured directly from meters at cluster metering points and recorded on monthly Joint Meter Reading (JMR) certificate certified by DISCOM/State utility /12/. The value for electricity exported to the grid is cross verified from the monthly invoices raised by the project participant as well.
Frequency of monitoring-recording	Continuous monitoring and Monthly recording, as verified by the verification team through remote assessment.
Value monitored	88,670.85 MWh
Monitoring equipment	During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by two-way tri vector meters of accuracy class 0.2s. Monthly joint meter readings of the main meters and check meters is taken by the designated officials as confirmed from the remote inspection. The Calibration dates of the meters at substation (billing meters) and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until
XC559940 (Main meter)	0.2s	18-February-2020, 18-February-2021	18-February-2022
XC559941 (Check meter)	0.2s	18-February-2020, 18-February-2021	18-February-2022

The calibration details of meters at transmission line and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until
12091060 (Main meter Phase 1)	0.2s	18-February-2020	17-February-2021
12091061 (Check meter Phase 1)	0.2s	18-February-2020	17-February 2021
The above main meter and check meter was replaced by new meters with serial number 0019002777 and 0019002780 on 26-November-2020			
0019002777 (Main meter Phase 1)	0.2s	26-November-2020	25-November-2021
0019002780 (Check meter Phase 1)	0.2s	26-November-2020	25-November-2021
12091057 (Main meter Phase 2)	0.2s	18-February-2020	17-February-2021
12091058 (Check meter Phase 2)	0.2s	18-February-2020	17-February-2021
The above main meter and check meter was replaced by new meters with serial number 0019009485 and 0019002785 on 21-November-2020			
0019009485 (Main meter Phase 2)	0.2s	21-November-2020	20-November-2021
0019002785 (Check meter Phase 2)	0.2s	21-November-2020	20-November-2021

	12091064 (Main meter Phase 3)	0.2s	18-February-2020	17-February-2021
	12091065 (Check meter Phase 3)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001690 and 0019001701 on 21-November-2020.			
	0019001690 (Main meter Phase 3)	0.2s	21-November-2020	20-November-2021
	0019001701 (Check meter Phase 3)	0.2s	21-November-2020	20-November-2021
	12091069 (Main meter Phase 4)	0.2s	18-February-2020	17-February-2021
	12091070 (Check meter Phase 4)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001702 and 0020003301 on 21-November-2020.			
	0019001702 (Main meter Phase 4)	0.2s	21-November-2020	20-November-2021
	0020003301 (Check meter Phase 4)	0.2s	21-November-2020	20-November-2021
	12091085 (Main meter Phase 5)	0.2s	18-February-2020	17-February-2021
	12091086	0.2s	18-February-2020	17-February-2021

	(Check meter Phase 5)			
	The above main meter and check meter was replaced by new meters with serial number 0019001657 and 0019001666 on 21-November-2020.			
	0019001657 (Main meter Phase 5)	0.2s	21-November-2020	20-November-2021
	0019001666 (Check meter Phase 5)	0.2s	21-November-2020	20-November-2021
	12091075 (Main meter Phase 6)	0.2s	18-February-2020	17-February-2021
	12091076 (Check meter Phase 6)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001677 and 0019001682 on 26-November-2020.			
	0019001677 (Main meter Phase 6)	0.2s	26-November-2020	25-November-2021
	0019001682 (Check meter Phase 6)	0.2s	26-November-2020	25-November-2021
	12091066 (Main meter Phase 7)	0.2s	18-February-2020	17-February-2021
	12091072 (Check meter Phase 7)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019006559 and 0019006560 on 26-November-2020.			

<table>
<tr><td></td><td>
<table>
<tr><td>0019006559 (Main meter Phase 7)</td><td>0.2s</td><td>26-November-2020</td><td>25-November-2021</td></tr>
<tr><td>0019006560 (Check meter Phase 7)</td><td>0.2s</td><td>26-November-2020</td><td>25-November-2021</td></tr>
<tr><td>12091080 (Main meter Phase 8)</td><td>0.2s</td><td>18-February-2020</td><td>17-February-2021</td></tr>
<tr><td>12091081 (Check meter Phase 8)</td><td>0.2s</td><td>18-February-2020</td><td>17-February-2021</td></tr>
<tr><td colspan="4">The above main meter and check meter was replaced by new meters with serial number 001900279 and 0019002799 on 25-November-2020.</td></tr>
<tr><td>0019002798 (Main meter Phase 8)</td><td>0.2s</td><td>25-November-2020</td><td>24-November-2021</td></tr>
<tr><td>0019002799 (Check meter Phase 8)</td><td>0.2s</td><td>25-November-2020</td><td>24-November-2021</td></tr>
</table>
As per the registered VCS PD and CDM PDD/03/, the calibration frequency of meters is stated as once in a year. Therefore, no delay in calibration was observed during the current monitoring period.
</td></tr>
<tr><td>QA-QC procedures to be applied</td><td>The generation values has been also cross-checked with the JMR and invoices/14/ and was found to be consistent.
The meters are calibrated once in a year. It is found to be in line with the registered VCS PD and CDM PDD/03/.</td></tr>
<tr><td>Purpose of the data</td><td>Calculation of Baseline emissions</td></tr>
<tr><td>Calculation method</td><td>-</td></tr>
<tr><td>Comments</td><td>As confirmed during the remote inspection /11/, the collected data will be kept by Project party during the crediting period. The data would be archived electronically and maintained for the entire crediting period plus two years.</td></tr>
</table>

Data - Parameter	EG_e

<table>
<tr><td>Data unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Electricity export recorded at 220 kV meters (main and check) at Suzlon pooling station connecting machines of the project activity and the machines commissioned by other project developers</td></tr>
<tr><td>Source of data</td><td>Verification team confirms that the data has been measured directly from meters at 220 KV substation and recorded on monthly Joint Meter Reading (JMR) certificate certified by DISCOM/State utility /12/.</td></tr>
<tr><td>Description of measurement methods and procedures to be applied</td><td>Verification team confirms that the data has been measured directly from meters at 220 KV substation and recorded on monthly Joint Meter Reading (JMR) certificate certified by DISCOM/State utility /12/.</td></tr>
<tr><td>Frequency of monitoring-recording</td><td>Continuous monitoring and Monthly recording, as verified by the verification team through remote assessment.</td></tr>
<tr><td>Value monitored</td><td>164,492.00 MWh</td></tr>
<tr><td>Monitoring equipment</td><td>During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by two-way tri vector meters of accuracy class 0.2s. Monthly joint meter readings of the main meters and check meters is taken by the designated officials as confirmed from the remote inspection.
The Calibration dates of the meters at substation (billing meters) and their validity is as follows:
<table>
<tr><th>Meter Serial number</th><th>Accuracy class</th><th>Calibration done on</th><th>Valid Until</th></tr>
<tr><td>XC559940 (Main meter)</td><td>0.2s</td><td>18-February-2020, 18-February-2021</td><td>18-February-2022</td></tr>
<tr><td>XC559941
(Check meter)</td><td>0.2s</td><td>18-February-2020, 18-February-2021</td><td>18-February-2022</td></tr>
</table>
The calibration details of meters at transmission line and their validity is as follows:
<table>
<tr><th>Meter Serial number</th><th>Accuracy class</th><th>Calibration done on</th><th>Valid Until</th></tr>
</table></td></tr>
</table>

	12091060 (Main meter Phase 1)	0.2s	18-February-2020	17-February-2021
	12091061 (Check meter Phase 1)	0.2s	18-February-2020	17-February 2021
	The above main meter and check meter was replaced by new meters with serial number 0019002777 and 0019002780 on 26-November-2020			
	0019002777 (Main meter Phase 1)	0.2s	26-November-2020	25-November-2021
	0019002780 (Check meter Phase 1)	0.2s	26-November-2020	25-November-2021
	12091057 (Main meter Phase 2)	0.2s	18-February-2020	17-February-2021
	12091058 (Check meter Phase 2)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019009485 and 0019002785 on 21-November-2020			
	0019009485 (Main meter Phase 2)	0.2s	21-November-2020	20-November-2021
	0019002785 (Check meter Phase 2)	0.2s	21-November-2020	20-November-2021
	12091064 (Main meter Phase 3)	0.2s	18-February-2020	17-February-2021
	12091065	0.2s	18-February-2020	17-February-2021

	(Check meter Phase 3)			
	The above main meter and check meter was replaced by new meters with serial number 0019001690 and 0019001701 on 21-November-2020.			
	0019001690 (Main meter Phase 3)	0.2s	21-November-2020	20-November-2021
	0019001701 (Check meter Phase 3)	0.2s	21-November-2020	20-November-2021
	12091069 (Main meter Phase 4)	0.2s	18-February-2020	17-February-2021
	12091070 (Check meter Phase 4)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001702 and 0020003301 on 21-November-2020.			
	0019001702 (Main meter Phase 4)	0.2s	21-November-2020	20-November-2021
	0020003301 (Check meter Phase 4)	0.2s	21-November-2020	20-November-2021
	12091085 (Main meter Phase 5)	0.2s	18-February-2020	17-February-2021
	12091086 (Check meter Phase 5)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001657 and 0019001666 on 21-November-2020.			

	0019001657 (Main meter Phase 5)	0.2s	21-November-2020	20-November-2021
	0019001666 (Check meter Phase 5)	0.2s	21-November-2020	20-November-2021
	12091075 (Main meter Phase 6)	0.2s	18-February-2020	17-February-2021
	12091076 (Check meter Phase 6)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019001677 and 0019001682 on 26-November-2020.			
	0019001677 (Main meter Phase 6)	0.2s	26-November-2020	25-November-2021
	0019001682 (Check meter Phase 6)	0.2s	26-November-2020	25-November-2021
	12091066 (Main meter Phase 7)	0.2s	18-February-2020	17-February-2021
	12091072 (Check meter Phase 7)	0.2s	18-February-2020	17-February-2021
	The above main meter and check meter was replaced by new meters with serial number 0019006559 and 0019006560 on 26-November-2020.			
	0019006559 (Main meter Phase 7)	0.2s	26-November-2020	25-November-2021

<table>
<tr><td></td><td>
<table>
<tr><td>0019006560 (Check meter Phase 7)</td><td>0.2s</td><td>26-November-2020</td><td>25-November-2021</td></tr>
<tr><td>12091080 (Main meter Phase 8)</td><td>0.2s</td><td>18-February-2020</td><td>17-February-2021</td></tr>
<tr><td>12091081 (Check meter Phase 8)</td><td>0.2s</td><td>18-February-2020</td><td>17-February-2021</td></tr>
<tr><td colspan="4">The above main meter and check meter was replaced by new meters with serial number 001900279 and 0019002799 on 25-November-2020.</td></tr>
<tr><td>0019002798 (Main meter Phase 8)</td><td>0.2s</td><td>25-November-2020</td><td>24-November-2021</td></tr>
<tr><td>0019002799 (Check meter Phase 8)</td><td>0.2s</td><td>25-November-2020</td><td>24-November-2021</td></tr>
</table>
As per the registered VCS PD and CDM PDD/03/, the calibration frequency of meters is stated as once in a year. Therefore, no delay in calibration was observed during the current monitoring period.
</td></tr>
<tr><td>QA-QC procedures to be applied</td><td>The generation values has been also cross-checked with the JMR and transmission loss calculation sheet/14/ and was found to be consistent.
The meters are calibrated once in a year. It is found to be in line with the registered VCS PD and CDM PDD/03/.</td></tr>
<tr><td>Purpose of the data</td><td>Calculation of Baseline emissions</td></tr>
<tr><td>Calculation method</td><td>-</td></tr>
<tr><td>Comments</td><td>As confirmed during the remote inspection /11/, the collected data will be kept by Project party during the crediting period. The data would be archived electronically and maintained for the entire crediting period plus two years.</td></tr>
</table>

Data - Parameter	L_{ep}
Data unit	MWh
Description	Total percentage of transmission loss for export between the metering point at 33 kV (sum of all the WEGs connected to Bulk

	metering point including non-project activity as well as project activity WTG's) metering points and the metering point at 220kV at Suzlon pooling substation.
Source of data	Transmission Loss is directly applied from the monthly generation report for the project activity.
Description of measurement methods and procedures to be applied	Verification team confirms that the Transmission loss between metering point at 33kV and at metering point of 220kV at Suzlon Sub-station is applied to meter reading taken at meters connected at 33kV for the project activity as reflected in the JMR taken at 33kV level. The JMR is signed by the representatives of Suzlon and the state utility.
Frequency of monitoring-recording	Monthly recording, as verified by the verification team through remote assessment.
Value monitored	1,331.34 MWh
Monitoring equipment	Not applicable
QA-QC procedures to be applied	The values has been also cross-checked with the JMR and transmission loss calculation sheet/14/ and was found to be consistent.
Purpose of the data	Calculation of Baseline emissions
Calculation method	As confirmed during the remote inspection, transmission loss calculation is done by state electricity board and is not in control of Project participant.
Comments	As confirmed during the remote inspection /11/, the collected data will be kept by Project party during the crediting period. The data would be archived electronically and maintained for the entire crediting period plus two years.

Remaining Issues from Validation or Previous Verification:

This verification of the registered project activity and from the review of validation report and the previous verification reports, verification team confirms that no FAR was to be addressed during this verification.

Finding: CL 01, CAR 01, CAR 02 was raised and successfully closed. Refer to appendix 2 for further details.

Opinion:

The verification team confirms that

- The project activity has been implemented and operated as per the registered VCS PD and CDM PDD/3/ and that all physical features (technology, project equipment,

and monitoring and metering equipment) of the project are in place, as per the documents provided by the PP and remote audit /11/;

- The monitoring complies with the requirement of the applied methodology /10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PDD/3/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheets /2.2/ are verified and included under each monitoring parameter.

4.2 Safeguards

4.2.1 No Net Harm

The project activity is grid connected wind power plant and does not involve any negative impact. Assessment team confirms it based on its local and sectoral expertise.

4.2.2 Local Stakeholder Consultation

The local stakeholder consultation meeting for the project activity was conducted on project site on 12/04/2012 and the process was validated during the registration of project activity in CDM. CDM validation report /3/ was verified to confirm the same. The PP had invited identified stakeholders well in advance in by invitation letters and newspaper advertisements to local villagers, panchayat members with details of venue and time of meeting. Also, PP has grievance register maintained at site for complaints (if any).

During the monitoring period there were no complaints about or demands from the project. The same was confirmed through the remote audit conducted during the monitoring period.

4.3 AFOLU-Specific Safeguards

This is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The verification team has reviewed the emission reduction (ER) spread sheet /2.2/ and checked all the formulae and verified them to be correct and in line with the monitoring plan of the registered VCS PD and CDM PDD and the applied monitoring methodology /10/.

All the monitored parameters are described above in section 4.1. All the ex-ante parameters which are used in the calculation of emission reduction are presented in section 4.1 of the MR /1.2/

transparently. It is confirmed that all the ex-ante parameters have been correctly used in the emission reduction calculation.

Baseline emissions:

The baseline emissions (BEy) are calculated based on the following formula:

$BE_y = EG_{PJ,\,y} * EF_{CO2,grid,y}$

Where:

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

$EG_{PJ,\,y}$: Net electricity supplied to the regional grid (MWh) after the implementation of the VCS project activity in year y (MWh/yr)

$EF_{CO2,grid,y}$: Baseline emission factor (tCO2e/MWh) in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO2e/MWh)

It is fixed ex-ante for the duration of the crediting period and is 0.8971 tCO_{2e}-MWh.

Therefore,

$BE_y = EG_{PJ,\,y} * EF_{CO2,grid,y}$
BE_y= (85,349.52) X 0.8971
BE_y= 76,566 tCO_2e

It is noted that the formula and calculation used for baseline emission calculation in the monitoring report and ER sheet /2.2/ is in compliance with the registered VCS PD and CDM PDD/3/. The default values and data used in the monitoring report /1.2/ is in-line with the registered VCS PD and CDM PDD/3/. Hence, acceptable to the verification team.

Project Emissions:

As per the methodology /10/ the PEy in case of a wind power project is considered zero.

Hence, PEy= 0 is acceptable to the verification team.

Leakage:

As per the methodology ACM0002 , version 13.0 /10/ and as defined in the registered VCS PD and CDM PDD/3/ no leakage is considered in the project activity and the same is followed in this monitoring period also. Thus, it is in compliance with the registered VCS PD & CDM PDD/3/.

The following are the ex-ante parameters used in the ER calculation which are in compliance with registered VCS PD & CDM PDD/3/:

Parameter	Description	Source/Justification
$EF_{grid,OMsimple,y}$ tCO2/MWh	Operating margin CO_2 emission factor of Southern Grid	The data are obtained from "CO2 Baseline Database for Indian Power Sector" Version- 7.0, published by the Central Electricity Authority, Ministry of Power, Government of India. The value 0.9515 is used for calculation of baseline Emission and is found to be consistent with the registered CDM & VCS PDD/03/.
$EF_{grid,BM,y}$ tCO2/MWh	Build margin CO_2 emission factor of Southern Grid	The data is obtained from "CO2 Baseline Database for Indian Power Sector" Version- 7.0, published by the Central Electricity Authority, Ministry of Power, Government of India. The value 0.7339 is used for calculation of baseline Emission and is found to be consistent with the registered CDM & VCS PDD/03/.
$EF_{grid,CM,y}$ tCO2/MWh	Combined margin CO_2 emission factor of Southern Grid.	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$= Build margin CO2 emission factor in year y (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO2 emission factor in year y (tCO2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25% The value 0.8971 is used for calculation of baseline Emission and is found to be consistent with the registered CDM & VCS PDD/03/.

According to the applied methodology /10/, the conservativeness of the achieved emission reduction was checked and the detailed emission reduction calculation has been transparently provided in the ER sheet /2.2/. All the formulae and the calculation procedure were checked by the verification team. In the opinion of verification team, the assumptions, emission factors and default values that were applied in the calculations have been justified. Also, the verification team confirms that there were no manual transposition errors between the data sets in the ER Sheet/2.2/ during the current monitoring period. It is confirmed that the data has been measured directly from meters and it was cross checked from the JMR and the invoices raised and was able to verify the same.

Finding: CAR 02, CAR 03 and CAR 04 was raised and successfully closed. Refer to appendix 2 for further details.

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered CDM PDD /3/;
- The monitoring complies with the requirement of the applied methodology/10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PDD /3/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheet /2.2/ are verified and included under each monitoring parameter, wherever appropriate.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

All relevant documents were checked to assess the correctness and quality of data submitted by the project participants, which are used to determine emission reductions.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan /3/. No significant lack of evidence and missing data were detected during remote audit discussion and video inspection /11/. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures. The monitoring parameters have been measured / determined without material misstatements and is in line with all applicable standards and relevant requirements. The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included in section 4.1 under each parameter and confirms to the requirement of the CDM PDD /3/. The export and import data is measured by the electricity meters, recorded continuously on the registered VCS PD & CDM PDD and the invoices are generated monthly/14/. The data is then reported annually on the VCS Monitoring Report as verified by the verification team through remote assessment.

It was also verified through remote audit inspection/11/ that the plant's team involved in the monitoring of project activity is well experienced. Hence, the verification team concludes that competent staff is employed by the project proponent to carry out the relevant tasks with sufficient accuracy. Furthermore, it was confirmed during remote audit discussion that internal training program for the monitoring staff is conducted on regular basis.

4.6 Non-Permanence Risk Analysis

Not applicable to the project activity.

5 VERIFICATION CONCLUSION

KBS Certification Services Pvt. Ltd. has been commissioned by 'EKI ENERGY SERVICES LIMITED.' to perform verification of its registered VCS project 'Vajrakarur wind power project in Andhra Pradesh' (VCS ID 1214) for the monitoring period 01/04/2020 to 31/05/2021 (Inclusive of both days), under the crediting period 31/03/2012 to 30/03/2022, with regard to the relevant requirements of VCS Standard Version 4.1.

The management of the 'EKI ENERGY SERVICES LIMITED.' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final Monitoring Report Version 2 dated 02/08/2021. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'EKI ENERGY SERVICES LIMITED'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 2 dated 02/08/2021.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/04/2020 to 31/05/2021 (Inclusive of both days) based on the reported emission reductions in the final Monitoring Report Version 2 dated 02/08/2021 for the same period.

As a result of the verification, the verification team confirms that:

- All operations of the project are implemented and installed as planned and described in the project description.
- The monitoring system is in place and functional.
- The installed equipment essential for generating emission reductions runs reliably.
- The GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

- Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

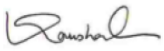
Verification period: From 01/04/2020 to 31/05/2021 (Inclusive of both days)

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
01/04/2020 to 31/12/2020	**55,463**	**0**	**0**	**55,463**
01/01/2021 to 31/05/2021	**21,103**	**0**	**0**	**21,103**
Total	**76,566**	**0**	**0**	**76,566**

Location: Faridabad

Date: 12/08/2021



Authorized Signatory: Kaushal Goyal

Designation: Managing Director

KBS Certification Services Pvt. Ltd.

APPENDIX 1: REFERENCES

/1/	/1.1/ Monitoring Report, Version 01, dated 04/06/2021 (Initial Version) /1.2/ Monitoring Report, Version 02 dated 02/08/2021 (Final Version)
/2/	/2.1/ Emission Reduction calculation sheet, Version 01 dated 04/06/2021 (corresponding to initial Version of VCS MR) /2.2/ Emissions Reduction calculation Sheet, Version 02 dated 02/08/2021 (corresponding to final Version of VCS MR)
/3/	• Registered VCS-PD version 4 dated 20/04/2014 • Registered CDM PDD Version 2.8 dated 23/05/2013 • CDM Validation report version 1.4 dated 30/05/2013
/4/	VCS Standard Version 4.1
/5/	VCS Programme guide Version 4
/6/	Technical specifications/photographs of turbines, electricity meters etc.
/7/	Single line diagram and meter location / Layout
/8/	Power purchase agreement for the 30 WTGs installed Operation and maintenance contract
/9/	Commissioning Certificates for the 30 WTGs installed
/10/	ACM0002– Consolidated baseline methodology for grid-connected electricity generation from renewable sources - Version 13.0
/11/	Remote auditing (11/06/2021) for verification of measuring and monitoring procedure, • Video recordings & snapshots of the project site/equipment's • Interviews and data/log review
/12/	Joint meter readings for the entire monitoring period 01/04/2020 to 31/05/2021 Transmission loss calculation sheet Certified statements of staste utility
/13/	Calibration Certificates for main meters and check meters
/14/	Invoices raised during the monitoring period 01/04/2020 to 31/05/2021
/15/	Copy of grievance register
/16/	VCS declaration for avoidance for double counting dated 07/06/2021

APPENDIX 2: FINDINGS

Summary of findings	CL	CAR	FAR
	01	04	00

Table 1. Remaining FAR from validation and/or previous verifications

No FAR from validation and/or previous verifications

~~FAR ID~~		~~Section no.~~		~~Date:~~
~~Description of FAR~~				
~~Project participant response~~				~~Date: DD/MM/YYYY~~
~~Documentation provided by project participant~~				
~~VVB assessment~~				~~Date: DD/MM/YYYY~~

Table 2. CL from this verification

CL ID	01	Section no.	4.1	Date: 05/06/2021
Description of CL				
PP shall clarify how apportioning the export data using JMR value is conservative. PP shall provide comparison of apportioning data using JMR and DGR (Daily generation data) and consider the most conservative approach for ER calculation for the period "01/04/2020-03/04/2020" and "03/05/2021-31/05/2021".				
Project participant response				Date: 02/08/2021
Data for the period of "01/04/2020-03/04/2020" and "03/05/2021-31/05/2021" is now being apportioned based on DGR values.				
Documentation provided by project participant				
ER calculation sheet				

VVB assessment	Date: 03/08/2021
During the current monitoring period, data apportioning has been done for export data of 01/04/2020 to 03/04/2020 and 03/05/2021 to 31/05/2021 wherein the value for the number of days for credit (first 3 days of the month April 2020 and 29 days of the month May 2021) was considered using daily generation data as a conservative approach which was found to be reasonable and acceptable by the verification team. The complete import data was taken into consideration as a conservative approach as well. Hence, the finding is closed.	

Table 3.CAR from this verification

CAR ID	01	Section no.	4.1	Date: 05/06/2021
Description of CAR				
1. Under section 3.1 of the VCS MR, no reference has been added under footnote no.3 as mentioned. 2. Under section 3.1 of the VCS MR, the type of rotor and the type of yaw system is incomplete as per the registered CDM PDD. 3. Under section 3.1 of the VCS MR, the value mentioned for electricity supplied to the grid is inconsistent with the ER sheet.				
Project participant response				**Date:** 30/07/2021
1. Reference is now being added in section 3.1 of the VCS MR. 2. Rotor and Yaw system details are now being completed in this submission. 3. Observed inconsistency is now being revised and it is consistent.				
Documentation provided by project participant				
VCS MR v02				
VVB assessment				**Date:** 03/08/2021
1. The reference has been added now under footnote 3 in the revised MR and was found to be functional. Hence, the finding is closed. 2. The sentences are now complete and consistent with the registered PDD. Hence, the finding is closed. 3. The value mentioned for electricity supplied to the grid is now consistent with the ER sheet. Hence, the finding is closed.				

CAR ID	02	Section no.	4.1, 4.4	Date: 05/06/2021
Description of CAR				

1. Under section 4.1 of the VCS MR, the link for CO2 database version 07 is not functional. 2. Under section 4.2 of the VCS MR, for all the monitoring parameters, PP has stated that "The details of energy meters used have been included on Appendix 1", however no appendix was found in the MR submitted. PP shall include the calibration details of energy meters as well for both 33KV meters and pooling substation meters. 3. Under section 4.2 of the VCS MR, for the monitoring parameter "EG_e", PP has stated that "The energy meters (main & check) is calibrated by state utility once in a five year", however as per the registered CDM PDD, the calibration frequency is mentioned as annual. PP shall correct the same.
Project participant response **Date:** 30/06/2021
1. Link for CO_2 database version 07 is now being revised. 2. Appendix 1 has now been included in VCS MR v02 containing calibration details of all energy meters as well as for both 33 KV meters and pooling substation. 3. The calibration frequency mentioned earlier was a typo-error which is being regretted. And the error is now being revised in this submission.
Documentation provided by project participant
VCS MR v02
VVB assessment **Date:** 03/08/2021
1. The link for CO2 database version 07 is now functional in the revised MR. Hence, the finding is closed. 2. The calibration details of meters in Appendix 1 has been added in the revised MR. Hence, the finding is closed. 3. The calibration frequency has been corrected to once in a year in the revised MR which was found to be consistent with the registered PDD. Hence, the finding is closed.

CAR ID	03	**Section no.**	4.4	**Date:** 05/06/2021
Description of CAR				
Under section 5.4 of the VCS MR, the total achieved ERs mentioned is inconsistent with the ER sheet.				
Project participant response				**Date:** 30/07/2021
The observed inconsistency is now being rectified in this submission.				
Documentation provided by project participant				
ER calculation sheet & VCS MR v02				
VVB assessment				**Date:** 03/08/2021

The total achieved ERs was now found to be consistent with the ER sheet. Hence, the finding is closed.

CAR ID	04	**Section no.**	4.4	**Date:** 05/06/2021
Description of CAR				
In ER sheet, the data for 03/05/2021 to 31/05/2021 is missing. Also, the import value of phase 1 (16.8 MW) for the date 03/03/2021 to 03/04/2021 is incorrect. It shall be 14.5 MW.				
Project participant response				**Date:**
Data for the period of 03/05/2021 to 31/05/2021is now being added in ER calculation sheet and supporting for the same has also been provided. Also, data for 16.8 MW-Phase 1 has now been rectified in this submission.				
Documentation provided by project participant				
ER calculation sheet				
VVB assessment				**Date:** 03/08/2021
The missing data has been added in the revised ER sheet and was found to be acceptable. The import value for 03/03/2021 to 03/04/2021 is now found to be consistent with the JMR. Hence, the finding is closed.				

Table 4.FAR from this verification

No FAR raised during current verification.

~~**FAR ID**~~		~~**Section No.**~~		~~**Date:**~~
~~**Description of FAR**~~				
~~**Project participant response**~~				~~**Date:** DD/MM/YYYY~~
~~**Documentation provided by project participant**~~				
~~**VVB assessment**~~				~~**Date:** DD/MM/YYYY~~

APPENDIX 3: COMPETENCE OF TEAM MEMBERS

Personnel Name:	Ms. Deboshmita Dey		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Sanjay Kandari		
Approval date:	14/01/2021		

Personnel Name:	**Sanjay Kandari**		
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒

Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Akhilesh Joshi		
Approval date:	11/12/2015		