RENEWABLE WIND POWER PROJECT BY AXIS WIND FARMS (RAYALASEEMA) PVT. LTD.

Document Prepared By

LGAI Technological Center S.A. (Applus+ Certification)

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Summary:

Verification purpose: *LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "Axis Wind Farms (Rayalaseema) Pvt. Ltd" to perform the verification of the "Renewable Wind Power Project by Axis Wind Farms (Rayalaseema) Pvt. Ltd." (VCS ID 2052). The main purpose of this verification activity is to have an independent third party for the assessment of the project design, monitoring report to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements.*

The total capacity of the project activity is 105 MW, located at Anantapur district of Andhra Pradesh state, India. The generated electricity from the project activity is exported to the grid which is under purview of the Indian grid.

Start date of the project activity is the 02-March-2018. The monitoring period for this verification is 01-January-2022 to 31-March-2022 (including both days) and the project activity achieved 29,592 tCO_2e emission reductions during this monitoring period thereon displaced 31,588.53 MWh amount of electricity from the generation-mix of power plants connected to the Indian Grid, which is mainly dominated by thermal/fossil fuel-based power plant.

The scope of the verification is the independent and objective review of the Monitoring Report/6/. The MR/6/is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board

and VCS executive board, including the approved baseline and monitoring methodology. The verification was based on the guidance given in the CDM validation and verification standard for project activities, version 03.0, review against registered PD/4/and final validation report, VCS program guideline version 4.2 and standard version 4.3.

A risk-based approach has been followed to perform this verification activity. In the course of verification, 03 Corrective Action request (CAR) and 00 Clarification Requests (CLs) were raised and successfully closed. No FAR was raised during this verification. The review of the Monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and PP have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

The assessment team has employed a risk-based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the MR/6/. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The verification is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring report combined.

The only purpose of the verification is its usage during the issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the verification opinion, which will go beyond that purpose.

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. The entire documents checked/WTGs verification conducted to arrive at positive verification conclusions.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "Axis Wind Farms (Rayalaseema) Pvt." to perform the 5th periodic verification of the "Renewable Wind Power Project by Axis Wind Farms (Rayalaseema) Pvt. Ltd." under VCS guideline version 4.2 and VCS standard version 4.3. The objective of this verification activity is to have an independent third party for the assessment of the project design, Monitoring Report and Final Verification report and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- the project's baseline is assessed against "ACM0002 - Version 19.0"
- the project's monitoring plan is assessed against "ACM0002 - Version 19.0"
- the projects compliance with the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline version 4.2 and standard version 4.3/10/.
- CDM validation and verification standard for project activities, Version 03.0/16/
- VCS program guideline v.4.2/10/
- VCS standard version v.4.3/10/

Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality.

1.2 Scope and Criteria

The scope is defined as an independent and objective review of the Monitoring report MR/6/prepared as per the registered PD/4/and registered approved methodology ACM0002 – Version 19. The MR is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, VCS guideline version 4.2 standard version 4.3. including the approved baseline and monitoring methodology ACM0002 – Version 19/16/.

The verification was based on the requirements in the CDM validation and verification standard for project activities, Version 03.0, and VCS program guideline version 4.2 and standard version 4.3/10/.

1.3 Level of Assurance

Applus+ Certification has planned and performed the verification by obtaining evidence and other information and explanations that assessment team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated. All documentary evidences were checked, a remote audit was conducted due to pandemic situation and technical details and metering/monitoring arrangement verified through photos/certificate shared by PP to arrive at a verification conclusion by the assessment team.

In our opinion, the estimated GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring methodology "ACM0002 - Version 19" and the VCS standard.

1.4 Summary Description of the Project

The project activity involves installation of 105 MW wind power project in Andhra Pradesh State of India. The project is promoted by Axis Wind Farms (Rayalaseema) Pvt. Ltd and acting as project participant. The commissioning details of the project and their location of installation are mentioned in the table below:

Project Proponent	Capacity (MW)	Date of Commissioning	Usage
Axis Wind Farms (Rayalaseema) Pvt. Ltd	10.5	02-March-2018	State DISCOMs
	25.2	30-March-2018	
	16.8	15-June-2018	
	10.5	19-July-2018	
	21	04-September-2018	
	21	27-September-2018	

The monitoring period this VCS verification covered from 01-January -2022 to 31-March -2022 (inclusive of both dates) and the project activity is achieved 29,592 tCO_2e emission reductions during this monitoring period.

Assessment team checked the Commission of WTG with the commissioning Certificates /1/ and found correct. The project is implemented as per the description in the registered PD/4/. No event observed during the current monitoring period which can alter or deviate from the methodology requirement.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification Process: The project assessment is based on the "CDM validation and verification standard for project activities, Version 03.0, "VCS program guidelines version 4.2 and standard

version 4.3" and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the VCS project activity are appointed.

Once the project is received by the assessment team, the members of the assessment team carried out: -

1. A desk review of the Monitoring report against the registered PD/4/and final validation report;
2. Follow-up interviews with project participant;
3. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the VCS executive board.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. Applus+ Certification has developed a specific checklist customized for the project. The checklist demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national bus iness environment, Applus+Certificationhas composed a project assessment team in accordanc e with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+Certificationensuring that the r equired skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be c overed by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial Aspect	Host country Experience
Jitendra Mohan Singh	LA/TE	YES	YES	NA	YES
Mr. Denny Xue	TR	YES	YES	NA	NA

The detail regarding the assessment team is provided below in this report as Appendix 3

Document review

The Monitoring report version 01 submitted by the PP was reviewed against the approved methodology, registered PD/4/, final validation report and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in this report below in Appendix 1.

Follow-up interviews

A remote audit is conducted by Applus+ Certification. Audit team performed interviews, via video/telephone conferences with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ Certification positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the Appendix 2.
The final MR Version 03/6/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality control

As final step of a verification of the final documentation including the verification report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the positive verification opinion and relevant documents are submitted to the VCS board through the VCS web-platform

2.2 Document Review

The details of the document observed during the verification process are listed below in Appendix

1 of this report

2.3 Interviews

A remote audit was conducted for the project activity on 02-August-2022. Remote audit was conducted due to ongoing COVID-19 pandemic situation in the entire country of India. Taking into account the prevalent conditions of COVID-19 pandemic, VVB decided to skip the onsite visit to avoid any potential health risks. Moreover, The VCS Program does not explicitly mandate site visit as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (as per Section 4.1.2 of the VCS Standard, version 4.3).

The VVB has taken alternative measures to reach reasonable level of assurance and conducted remote audit through Skype/Telephone with site personal & consultant (refer section 2.3) with the PP representative. This is also in line with the COVID-19 travel guidance for projects of VERRA.

Technical details & metering/monitoring arrangement verified through onsite photographs/name plates/18/ and calibration certificates/5/ shared by PP. All the documents were cross checked to ensure conservative estimation of emission reduction

During the remote audit, the PP representatives were questioned about the implementation of the project activity. Several topics like the verification of commissioning date of meters, the generation, recording, and monitoring of the data and the error accountability were discussed. To cross check the information provided by PP, various documents like technical specifications, commissioning certificates/1/, Power Purchase Agreement PPA/9/, JMR sheets/11/, invoice/11/, calibration certificates/5/ etc. were also verified. The names of the persons interviewed during remote audit through MS team & telephonic interview is given below;

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Singh	Lalit	Site In-charge	02-August-2022 (MS team)	Project Implementation, JMR & invoicing procedure, calibration, grievance mechanism	Jitendra Mohan Singh
2.	Reddy	Nagaraja	Project In charge		Management practices, data storage, QA/QC	
3.	Anjan	Abhishek	EKI Energy Services Limited		Monitoring Report, Emission Reductions calculation	

2.4 Site Inspections

Duration of remote audit : 02-August-2022			
Activity performed on-site	**Site location**	**Date**	**Team member**
Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring. Assessment team also checked that whether the monitoring plan as described in the VCS JOINT PD & MR /4/ is actually practised onsite. Also assessment team checked any change in host country criteria which may affect the baseline of the project activity.	Remote Audit (MS team)	02-August-2022 (Via Skype)	Jitendra Mohan Singh

2.5 Resolution of Findings

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues from validation which need to be clarified for Applus+ Certification's positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the Appendix 2.

The final MR (Version 03)/6/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	00	00
Description of project activity	00	01	00
Application of selected baseline and monitoring methodology and selected standardized baseline			
Applicability of methodology and standardized baseline	00	00	00
Deviation from methodology	00	00	00
Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
Project boundary	00	00	00
Establishment and description of baseline scenario	00	00	00

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Demonstration of additionality	00	00	00
Emission reductions	00	02	00
Calibration details	00	00	00
Monitoring plan	00	00	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	00	00
Others (REC)	00	00	00
Total	**00**	**03**	**00**

The list findings and the resolution is presented in Appendix 2 of this report

2.5.1 Forward Action Requests

This is 5th periodic verification of the project activity and no FAR was raised from validation or previous verification.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification, as Applus+ holds the necessary accreditation to perform validation activities under this Sectoral Scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Project activity has not participated under other GHG or REC program. Further, PP has submitted undertaking that it will not claim any GHG credits under any GHG program other than that under VERRA during the current monitoring period.

3.2 Methodology Deviations

This section is not applicable for present verification.

3.3 Project Description Deviations

Project Participant had sought Deviation 1 during the 2nd monitoring period 01/12/2019 to 31-Decmber-2020 as described below:
In accordance with the monitoring plan in Joint OD and MR, the monthly electricity supplied/exported by the project activity is to be cross checked with the monthly invoices of sales of electricity.The net electricity supplied to the grid by the project plant in given month is

calculated as Export (MWh)-Import (MWh). However, PP raising two types of invoices as per actual practice at site, one for electricity export and another for electricity import (HT bill). Therefore, PP had sought deviation in calculation approach for the export and import values. The is described below:

The calculation approach for arriving to the Export and the Import values are mentioned below one by one.

For Export (MWh): The values of electricity export are adjusted with line loss percentage (provided in monthly JMRs) in accordance with the formula Electricity Delivered (export) = Meter reading – (meter reading* line loss %). The values of electricity export thus obtain are compared with the values of electricity export as per invoices and for each month, smaller of them is considered for Emissions Reductions calculations as per conservative approach for all the months covered in current monitoring period.

The values of electricity export thus obtained (for months January 2022 to March 2022) are compared with values of export in invoices (Export Invoice) and smaller of the values are considered for Emissions Reductions calculations as per conservative approach. Also, since the values are mentioned in KWh in the JMR and Invoices the final Export values are converted into MWh for calculation of net electricity.

For Import (MWh): In case electricity import, for the months January 2022 to March 2022, the values of electricity import (as in JMR) are adjusted with transmission and distribution losses according to the formula as per project site practice:

Electricity Import = Import (as per JMR) *103%

The values of electricity import thus obtained (for months January 2022 to March 2022) are compared with values of import in invoices (HT bills) and greater of the values are considered for Emissions Reductions calculations as per conservative approach. Also, since the values are mentioned in KWh in the JMR and Invoices the final Import values are converted into MWh for calculation of net electricity.

VVB found that the calculation approach for the Export (MWh) and Import (MWh) are as per actial practice at site and transparently described by the PP. In order to obtain the values of "Quantity of net electricity generation supplied by the project plant/unit to the grid", the monthly values of electricity import (obtained by the method described here) are subtracted from the values of electricity export (obtained by the method described above). This is conservative approach for Emissions Reductions calculations and is being followed in the present verification and future issuances as well. Hence acceptable to VVB.

The deviation is appropriately described in the monitoring report. The deviation doesn't impact the applicability of the methodology, additionality of the project activity and is in accordance with the VCS standard version 4.3.

Deviation 2:

As the applied deviation is valid and do not have impact on the scale, methodology, additionality, monitoring & emission reductions of the project activity and thus accepted by the assessment team.

Deviation 2:

PP has sought Deviation 2 during the current monitoring period. The project participant has updated contact details in the Section 1.3 in the revised monitoring report. The contact details of the other entities as a consultant involved were updated in Section 1.4 in the previous monitoring period and there has been no change with respect to it in the current monitoring period.

VVB confirms that the above-mentioned deviations are of permanent nature and does not have any impact on the project applicability, baseline scenario and additionality.

3.4 Grouped Project

This is not a grouped project activity. Thus, not applicable

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the remote audit interviews with PP & plant in-charge and subsequent document verification; commissioning certificates/1/, PPA/9/, JMR and invoices/11/, it was concluded that the project is implemented as per the requirement of the registered VCS JOINT PD & MR /4/and approved monitoring plan. During the current monitoring period, it was observed that no unforeseen incident/event evolved which can impact the operation of the project activity which was verified from breakdown records. The project undergone continuous operation and only scheduled maintenance is observed as per the manufactures specification which is acceptable to the assessment team and evident from JMRs.

The project activity is a 105 MW wind power project consisting 50 WTGs of 2.1 MW each. The project is promoted by Renewable Wind Power Project by Axis Wind Farms (Rayalaseema) Pvt. Ltd. The same was verified through commissioning certificate/1/. WTG wise latitudes and longitudes are confirmed below:

Sr. No.	Location No.	WTG Co-ordinates (Degree Minutes Seconds)	
1	KDR-032	14°47'43.8" N	77°24'08.3" E
2	KDR-033	14°47'30.1" N	77°24'13.0" E
3	KDR-034	14°47'15.7" N	77°24'14.0"E
4	KDR-035	14°47'12.1" N	77°25'07.3" E
5	KDR-036	14°46'53.4" N	77°24'19.4" E

6	KDR-037	14°46'17.0" N	77°24'02.0" E
7	KDR-038	14°46'18.1"N	77°25'35.4" E
8	KDR-039	14°45'15.5" N	77°24'27.4" E
9	KDR-040	14°45'01.1" N	77°24'38.9" E
10	KDR-041	14°44'36.2"N	77°24'43.2" E
11	KDR-042	14°43'03.6"N	77°25'50.5" E
12	KDR-043	14°42'46.1" N	77°26'01.3" E
13	KDR-044	14°43'33.2"N	77°26'42.0" E
14	KDR-045	14°44'14.6" N	77°26'40.2" E
15	KDR-046	14°44'25.1" N	77°26'34.8" E
16	KDR-047	14°44'36.2" N	77°26'56.4" E
17	KDR-048	14°44'46.7"N	77°26'40.6" E
18	KDR-049	14°44'57.5" N	77°26'39.5" E
19	KDR-050	14°45'04.3" N	77°28'02.3" E
20	KDR-051	14°45'15.1"N	77°27'57.6" E
21	KDR-052	14°45'26.84" N	77°27'57.4" E
22	KDRN-001	14°46'12.5" N	77°29'12.1" E
23	KDRN-002	14°43'40.2" N	77°23'17.8" E
24	KDRN-003	14°45'52.9" N	77°29'15.5" E
25	PT -020	14°39'08.3 " N	77°23'43.7" E
35	PT-025	14°38'12.6" N	77°24'13.3" E
34	PT-024	14°38'23.6" N	77°24'06.8" E
28	PT -023	14°38'36.1" N	77°24'01.7" E
29	PT-015	14°41'09.2" N	77°23'33.3" E
30	PT-016	14°40'21.4" N	77°22'48.0" E
31	PT-017	14°40'01.3" N	77°23'08.1" E
32	PT-018	14°39'38.8" N	77°23'18.4" E
33	PT-019	14°39'18.0" N	77°23'37.0" E
27	PT -022	14°38'46.8" N	77°23'56.5" E
45	PT-039	14°38'53.5" N	77°24'59.0" E
36	PT-026	14°37'53.6" N	77°23'52.8" E

37	PT-027	14°43'40.2" N	77°23'17.8" E
38	PT-028	14°43'20.9" N	77°23'28.3" E
39	PT-029	14°40'57.1" N	77°23'32.3" E
40	PT-030	14°40'43.4" N	77°23'57.2" E
41	PT-031	14°40'28.2" N	77°23'55.0" E
42	PT-032	14°40'03.7" N	77°24'10.3" E
43	PT-033	14°39'45.6" N	77°24'10.9" E
44	PT-034	14°39'04.5" N	77°24'48.0" E
26	PT -021	14°38'56.6" N	77°23'48.7" E
46	PTN-003	14°40'01.4" N	77°21'57.2" E
47	PTN-004	14°44'18.6" N	77°23'18.4" E
48	PTN-005	14°44'37.7" N	77°23'10.9" E
49	PTN-009	14°44'52.5" N	77°23'08.8" E
50	PTN-010	14°45'03.5" N	77°23'04.2" E

Verification team confirmed from the registered PD/4/and previous verification reports that the location of the project activity including the coordinates is same as mentioned in the registered VCS JOINT PD & MR /4/.

Assessment team checked the commissioning certificate/1/ and confirmed that the dates of Commission for the WTGs are correct. Assessment team also conform during interview with the PPs representatives that there is no change in project design and the project is implemented as per the description provided in the VCS JOINT PD & MR/4/. The details of project and commissioning dates of WTGs are provided below:

Location (Village)	Capacity (MW)	Commissioning Date	State
Kalagalla and Ipperu	10.5	02-March-2018	Andhra Pradesh
Ipperu, Padmati Yaleru & Atmakur	25.2	30-March-2018	
Ipperu, Kuderu & Atmakur	16.8	15-June-2018	
Ipperu & Kuderu	10.5	19-July-2018	
Kalagalla, Kuredu, Padamati Yaleru & Atmakur	21	04-September-2018	
Kammuru, Kuredu & Thimmapurumu	21	27-September-2018	

The project boundary includes the electricity generation equipment at the project site, sub-station and the regional grid (now Indian grid).

Assessment team also checked the Technical details/14/ of the WTGs installed onsite from documents submitted by PP and previous verification reports. The same is cross checked from the photographs of the number plates, module capacity etc. submitted by PP & also cross checked from the technical details from Manufacturer.

Technical details of WTG

The project activity comprises of WTG's of Suzlon Energy Limited Model No. S-88 -WTG with capacity of 2.1 MW as follows:

Operating Data	
Rated power	2.1 MW
Cut-out speed	25 m/s
Cut-in speed	4 m/s
Rated speed	14 m/s
Hub height	80m
Rotor diameter	11.8 m
Rotor speed	15.47 rpm
Rotor	
Pitch system	Electric drive with electric brake, gearbox, frequency converter & batteries.
Diameter	88 m
Swept area	6082 m^2
Blade material	The rotor blades are made of high-grade GRP and manufactured by using Resin Infusing Moldings (RIM) technology
Generator Type	Single fed Induction Generator with slip-rings, variable rotor resistance with SUZLON-FLEXI-SLIP control system.
Yaw System	
Type	Electric motors with brake, gearbox & pinion
Bearings	High tensile double-row ball-bearing
Braking System	3 independent Aero Brakes with power back up supply.

The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period. The project design as mentioned in the registered PD/4/ is implemented and thus the same is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the registered PD/4/are available and implemented in an appropriate manner.

The organisational role and responsibility as mentioned in the registered PD/4/ is followed onsite. All the emergency preparedness as mentioned in the registered PD/4/is followed onsite and no discrepancies were found regarding the same. Meters are calibrated as per calibration frequency in registered VCS JOINT PD & MR/4/. All the emergency preparedness as mentioned in the registered VCS JOINT PD & MR/4/ is followed onsite and no discrepancies were found regarding the same. Thus, completeness of the monitoring plan confirmed and there are no any material discrepancies between the actual monitoring system and the plan provided in the registered PD/4/.

Assessment team confirms following during the verification remote audit:

1. Start date of the project activity is 02-March-2018 as mentioned in the registered VCS JOINT PD & MR /4/.

2. An undertaking letter dated 09-February-2022 has been submitted by PP for no double counting with any other GHG program. PP also has given a written declaration that project has not claimed other form of GHG credit for the concerned monitoring period. Assessment team also checked that the projects are not registered under the REC mechanism of India and the same can be cross-checked at *https://www.recregistryindia.nic.in/* Also, VVB confirms that project activity not included in ET program and not used for compliance with an emission trading program or to meet binding limits on GHG emissions. PP has given a written declaration that the credit claimed under VCS for the current monitoring period is not claimed under any other GHG mechanism.

3. Assessment team confirms that this is the 5th monitoring under VCS and covers the activity from 01-January-2022 to 31-March-2022 (inclusive of both dates). The project activity adopts renewable crediting period of 10 years period and can be renewed for maximum 2 times. 02-March-2018 is the start date and 01-March-2028 will be end date of the crediting period.

   The GHG credits from 01-Janaury-2022 to 31-June-2022 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the "No Double Counting".

4. Assessment team checked and found that the Project proponent of the project activity is as below for the current monitoring period:

Organization name	Axis Wind Farms (Rayalaseema) Pvt. Ltd.
Contact person	Mr. Santhosa Kumar
Title	Project Representative
Address	H.No.6-3 680/3, Plot No.3, 2nd Floor, PMR Plaza, Thakur Mansion lane, Somajiguda, Hyderabad -500082
Telephone	+91-73973 26444
Email	Skumar@brookfieldrenewable.in

5. Assessment team also checked the details of other entity and found correct. The details are as below:

Organization name	EKI Energy Services Limited
Role in the Project	Project Consultant
Contact person	Mr. Manish Dabkara
Title	MD & CEO
Address	NRK Business Park, 903, B-1 9th Floor, Mangal City Service Rd, Scheme 54 PU4, Indore, Madhya Pradesh 452010
Telephone	+91 99 07 53 4900
Email	manish@enkingint.org, registry@enkingint.org

6. The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VER with the estimated VER and found that the actual VER is 29,592 tCO_2e which is 40.7% lower than the estimated emission reductions 49,929 tCO_2e (202,492 tCO_2e/365 days x 90 days) during this monitoring period

which is due to lower wind flow pattern and low PLF attained by the wind power plant during the current monitoring period.

SUSTAINABLE DEVELEOPMENT:

Ministry of Environment & Forests, Government of India has stipulated following indicators for sustainable development in the interim approval guidelines for GHG projects.

Social well-being: The project activity has resulted in creating job opportunities for the local population on temporary and permanent basis. Manpower is required both during erection and operation of the renewable energy projects. This results in the improvement in living standards of the local community. The installation of the renewable energy projects also led to development of basic infrastructure like roads, communication with the nearby cities etc. which also improved in living standards of the local population.

Economic well-being: The project activity has created direct and indirect job opportunities to the local community during installation and operation of the renewable energy projects. The investment for the project activity has led to the improvement in the economic activity in the local area.

Technological well-being: The successful operation of project activity has led to promotion of wind power generation and would encourage other entrepreneurs to participate in similar projects.

Environmental well-being:

The project activity utilizes renewable energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions. As renewable energy projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power. Being a renewable resource, to generate electricity contributes to resource conservation. Thus, the project causes no negative impact on the surrounding environment.

In view of the above, the PP has considered that the project activity profoundly contributes to the sustainable development.

4.2 Safeguards

4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the documents review of VCS JOINT PD & MR /4/and grievance register/15/ etc. The project is renewable energy project and thus no negative impact observed due to project activity. The project activity promotes environmental and socio-economic well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation. The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy

Projects" prepared by MNRE dated September 2013[1]. This report clearly mentioned that solar/Wind power project activity operations do not result in direct air pollution, noise pollution. Moreover, also as per the Central Pollution Control Board of India notification[2] solar/wind project falls under White Category and are practically non-polluting

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration and the same has been described in Section 2.2 of revised monitoring report . For on-going stakeholder's communication, the PP has kept grievance register in plant site office seeking complaints/grievances from local community as a part of ongoing communication with stakeholders in line with clause 3.17.3 of VCS Standard, ver.4.3..

Assessment team checked the grievance register provided by PP and found that no grievance/feedback was received during the current monitoring period. . Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.

4.3 AFOLU-Specific Safeguards

This section is not applicable as this project activity is a non-AFOLU project activity

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the VCS JOINT PD & MR /4/. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS JOINT PD & MR /4/.
Findings	CAR 02 and CAR 03 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR
Conclusion	**Baseline Emissions:** The baseline Emissions for a given year is calculated by multiplying the energy baseline with the grid emission factor. The grid in this case would be the 'Indian Grid' Formula Used: - $BE_y = EG_{PJ,y} \times EF_{grid,y}$ Where BE_y= Baseline Emissions (tCO_2/year) $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year

[1] https://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf

[2] http://envfor.nic.in/sites/default/files/Latest_118_Final_Directions.pdf

y (MWh/year)

$EF_{grid,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

Ex-ante parameters:

The baseline emission factors are taken ex-ante in line with the registered VCS JOINT PD & MR /4/as well as cross checked with section validation report and found correct. Combined margin CO_2 emission factor ($EF_{grid,y}$) is equal to 0.9368 tCO_2/MWh. The calculation approach was in line with the VCS JOINT PD & MR.

Values are as follows:

$EF_{grid,OM,y}$ = 0.9610 tCO_2/MWh

$EF_{grid,BM,y}$ = 0.8644 tCO_2/MWh

$EF_{grid,y}$ = 0. 9368 tCO_2/MWh

Ex-post parameter:

As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored:

$EG_{PJ,y}$ (Quantity of net electricity supplied by the project plant/unit to the grid in year y in MWh.

The value of the net electricity generation supplied to the grid is directly sourced from the monthly JMR issued by state Utility. The electricity generation supplied by the project activity is measured by dedicated SEB bidirectional tri vector main and check meter installed at substation (metering point). The details of electricity meters are follows:

Meter Type	Main Meter	Check Meter	Standby Meter
Make	L&T	L&T	L&T
Serial No	20006260	20008138	20006261
Accuracy class	0.2s	0.2s	0.2s

Monthly meter readings are taken by representatives of SEB official and representatives of PP. The net electricity supplied to grid is calculated as the difference of the measured values of export and Import of electricity.

PP has applied one deviation during previous periodic verification related to monitoring of net electricity export calculation of net electricity exported to grid and import from grid considering Line Loss and Transmission & Distribution loss in line with the JMR for conservativeness. The detailed of deviation is described in Section 3.3. of this report.
As the applied deviation is valid and do not have impact on the scale, methodology, additionality and monitoring of the project activity and thus accepted by the assessment team.

The net electricity supplied the grid by the project activity during the monitoring period is **31,588.53** MWh.

	The verification team has checked the entire monthly "JMRs/11/" the net electricity generation supplied to the grid and cross checked the invoices/11/ raised by the PP to the state Utilities. PP has used the conservative values i.e., minimum of JMRs and Invoice for export and maximum of Electricity Import adjusted with T&D loss and invoice value for calculation of emission reductions. All relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. BEy baseline emissions, tCO_2e BEy = 31,588.53 MWh x 0.9368 tCO_2e/MWh = 29,592 tCO_2e (round down values) As per applied methodology ACM0002, version 19.0 and the VCS JOINT PD & MR, project emission is considered zero as the project activity involved wind power generation. Leakage: As per applied methodology ACM0002, version 19.0 and VCS JOINT PD & MR Leakage emissions are not considered for the project activity. Hence, $ERy = BE_y - PE_y$ ERy = 29,592– 0 = 29,592 tCO_2e (rundown values) Verification team confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS JOINT PD & MR. Assessment team confirmed that the GHG emission reductions and removals have been quantified correctly in line with the registered VCS JOINT PD & MR.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the Calibration details of the monitoring meters with the calibration certificates.
Findings	No finding in this section
Conclusion	The metering arrangement is dedicated SEBI Energy Meters tri-vector bi-directional energy meters of accuracy class 0.2s (main and check) at the State Electricity Board (SEB) substation. These meters record several parameters including electricity exported & imported. These electricity meters are being used by state electricity board for monthly generation reports. The details of meter are as follow:

Meter Type	Main Meter	Check Meter	Standby Meter
Make	L&T	L&T	L&T
Serial No.	0020006260	0020008138	0020006261
Accuracy class	0.2s	0.2s	0.2s
Calibration Frequency	Once in 5 years	Once in 5 years	Once in 5 years
Date of calibration	19-January-2021	22-February-2021	19-January-2021
Validity of calibration	18-January-2026	21-February-2026	18-January-2026
Date of calibration	29-March-2022	29-March-2022	29-March-2022
Validity of calibration	28-March-2027	28-March-2027	28-March-2027

Meter is calibrated once in 5 years by the meter testing division of the state utility in the presence of O&M Contractor / investor's representatives and State Utilities officials to ensure the working of meter within permissible limits.

No delayed calibrations were observed in the project activity for this monitoring period. All the meters are of same accuracy class i.e., 0.2s as per the requirement of the registered PD/4/. On-site photographs and interview during remote audit with O&M personnel also confirms the same.

The calculation of net electricity supplied to grid is under purview of state electricity board and PP does not have control on it. Calibration details of the monitoring meters checked with calibration certificates submitted by PP and found that calibration frequency of 5 years is complied. Thus, no delayed calibration is observed and thus the same is found appropriate.
Project activity is in continuous operation no major breakdown was found during the current monitoring period. No unforced error was observed. No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. The monitoring meters were calibrated in line with the registered monitoring plan and there was no delay in calibration observed. Thus, assessment team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals.

4.6 Non-Permanence Risk Analysis

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
NA	NA	NA	NA	NA

5 VERIFICATION CONCLUSION

Applus+ Certification has been engaged by Axis Wind Farms (Rayalaseema) Pvt. Ltd to perform the 5th verification of the "Renewable Wind Power Project by Axis Wind Farms (Rayalaseema) Pvt. Ltd.".

The project participants are responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's monitoring plan in the registered VCS JOINT PD & MR /4/and the applied methodology ACM0002 - Version 19.0

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Further, the verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. The entire documents checked/Power plant verification conducted to arrive at positive verification conclusions. The verification team can confirm that:

- the project is operated as planned and described in the project document;
- the monitoring plan is as per the applied methodology/16/;
- the monitoring process in Monitoring Report is as per the VCS joint PD & MR/4/
- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.
- A Reasonable Level of assurance was achieved as planned, during verification process.
- Verification period: 01-January -2022 to 31-March-2022 (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-January - 2022 to 31-March-202	29,592	0	0	29,592
Total	**29,592**	**0**	**0**	**29,592**

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1.	NA	Commissioning certificates of the WTGs:		PP
2.	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	PP
3.	NA	The operational lifetime of the project activity from the manufacturer = (Technical specifications)	Manufacturer technical specifications	PP
4.	NA	VCS joint PD & MR https://registry.verra.org/app/projectDetail/VCS/2052	NA	PP
5.	NA	Calibration Certificates of energy meters applicable to this MP	Calibration Certificates	PP
6.	NA	MR version 01 MR version 02 MR version 03 (revised as per VERRA findings)	15-July-2022 (initial) 16-August-2022(Final) 17-October-2022	PP
7.	NA	Emission reduction sheet version 01 Emission reduction sheet version 02	15-July-2022 16-August-2022	PP
8.	NA	O & M Agreement (Amended) with Suzlon	18-July-2018	PP
9.	NA	Power Purchase Agreement (PPA) Between PP and Southern Power Distribution Company of AP Limited (DISCOM)	23-February-2017	PP
10.	NA	Tools/ guidelines used in the project activity • VCS standard Version 4.3 • VCS Program Guide 4.2 • VCS verification report template version 4.1	VCS web site	VERRA
11.	NA	Monthly statement- JMR & invoices/HT bills for the complete monitoring period	-	PP
12.	NA	Declaration regarding no participation in other GHG program for the concerned monitoring period	09-February-2022	PP
13.	NA	Breakdown details for the monitoring period	-	PP
14.	NA	Employment records for plant persons	-	PP
15.	NA	Grievance Register maintained at site	-	PP
16.	NA	CDM validation and verification standard for project activities, Version 03.0	-	UNFCCC
17.	NA	Verification report for previous VCS verification	Version :02 16-February-2022	
18.	NA	Onsite photographs/Videos and Risk Analysis for conduction of remote inspection	-	PP

APPENDIX 2: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS (CAR/CL/FAR)

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

FAR ID		Section no.		Date :
Description of FAR				
NA.				
Project participant response				Date : DD-Month-YYYY
-				
Documentation provided by project participant				
-				
DOE assessment				Date: DD-Month-YYYY
-				

Table 2. CL from this verification

CL ID		Section no.		Date: DD-Month-YYYY
Description of CL				
NA				
Project participant response				Date: DD-Month-YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date DD-Month-YYYY
NA				

Table 3. CAR from this verification

CAR ID	01	Section no.	4.1	Date: 03-August-2022
Description of CAR				
Reference link of REC mechanism of India under Section 1.10 of monitoring report is not correct. Further, refer VCS standard in Section 1.11 of MR is not correct.				
Project participant response				Date: 16-August-2022
The link of REC mechanism of India under section 1.10 has been rechecked and it is found to be working. Further the version of the VCS standard in section 1.10 has been corrected.				

Documentation provided by project participant	
Revised VCS MR Version 02	
DOE assessment	**Date:** 26-August-2022
PP has revised the reference link of REC mechanism of India under Section 1.10 of the revised monitoring report VVB team found link is working and correct. And version no of VCS standard has been corrected of section 1.10 of revised MR. **Thus, CAR is closed.**	

CAR ID	02	**Section no.**	4.4	**Date:** 03-August-2022
Description of CAR				
Baseline emission formula used under section 5.1 of monitoring report is not inline with the VCS joint PD MR.				
Project participant response				**Date:** 16-August-2022
The Formula is inline with the "VCS Joint PD MR_V02_Axis_Wind" registration document page 39 that can be clearly accessed from the project webpage - https://registry.verra.org/app/projectDetail/VCS/2052				
Documentation provided by project participant				
Revised VCS MR Version 02				
DOE assessment				**Date:** 26-August-2022
The VVB team found that the Baseline emission formula used under section 5.1 of the revised monitoring report is now in line with the VCS joint PD & MR. **Thus, CAR is closed.**				

CAR ID	03	**Section no.**	4.4	**Date:** 03-August-2022
Description of CAR				
Verification team is checked the monitored data in ER sheet with JMRs and invoices submitted to VVB and observed that export value for the period Feb 2022 and March 2022 is not consistent with the JMR. Also, import value is not consistent with invoice for month of February 2022. Further, Baseline emission is not calculated using formula .in Section 5.1 of MR.				
Project participant response				**Date:** 16-August-2022
All the JMR values have been rechecked and the ER-Sheet as well as the MR has been revised. Also, Baseline emission is calculated using formula, in Section 5.1 of MR.				
Documentation provided by project participant				
Revised VCS MR Version 02				
DOE assessment				**Date:** 26-August-2022
PP has revised emission reduction sheet export value for the period Feb 2022 and March 2022 , import value for month of February 2022 now consistent with JMR .Also PP has calculated baseline emission used formula derived in section 5.1 of revised MR .**Thus, CAR is closed.**				

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor/ Technical Expert	OR	Singh	Jitendra Mohan	TQC-Outsourced entity	Yes	No	Yes	Yes

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer (TR) / Technical Expert (TE)	EI	Denny	Xue	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

Short CVs of the Team:

1. **Jitendra Mohan Singh**, has done Advanced MSc in Sustainable Energy Systems and Management from International Institute of Management, University of Flensburg, Germany and B.Tech. in Agricultural Engineering from Allahabad University, India. He has more than (18) years of working experience in different organizations like IARI, IIT Delhi, ICAR, IRADe, CAPART, SMEC and Perenia Carbon and M B Power (Madhya Pradesh) Ltd. in the area of Agriculture, Energy & Environment and Climate Change. He also worked on contract basis (adhoc) as a RIT expert in UNFCCC from 2010 to 2013. Currently, he is associated with True Quality Certifications Private Limited and is Applus+ Certification to carry out validation and verification related to GHG reductions projects.

2. **Mr.Denny Xue** , has a Bachelor's Degree on Thermal Energy Engineering and Master´s Degree on Environmental Engineering. He has more than 10 years of experience on CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. He is working with Applus+ since 2011 carrying out Validation and verification for CDM/GS/VCS project under scope 1 and 13 as auditor, lead auditor, technical expert and technical reviewer

APPENDIX 4: ABBREVIATIONS

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
PP	Project Participant

APPENDIX 5: DECLARATION

axis energy

Date: 09/02/2022

TO WHOMSOEVER IT MAY CONCERN

We **Axis Wind Farms (Rayalaseema) Pvt. Ltd,** Project Proponent of the VCS Project titled **"Renewable Wind Power Project by Axis Wind Farms (Rayalaseema) Pvt. Ltd."** (VCS Project Reference no:**2052**(the project) hereby confirm that:

- **Axis Wind Farms (Rayalaseema) Pvt. Ltd** has the sole right of use of emission reduction generated from this project activity.
- Has no binding limits of GHG emission and project activity has not been applied for any compliance market.
- The project activity has not rejected by any other GHG programme.
- The project neither has nor intended to generate any other form of GHG related environment credit for GHG emission reductions claimed under the VCS program.
- The Project activity does not result in creation of another form of environmental credit.
- The electricity generated from this project is not availing Environmental or electrical credits from India.
- Double counting would be avoided at any cost for the VCS verification.

For **Axis Wind Farms (Rayalaseema) Pvt. Ltd**

Authorized Seal & Signature

Mr. Rengarajan Sadagopan

Authorized Signatory Sign

(For & On behalf of Axis Wind Farms (Rayalaseema) Pvt. Ltd.)