WIND POWER PROJECT BY RAJASTHAN GUM PRIVATE LIMITED (EKIESL-CDM.September-12-02)

Document Prepared By Earthood Services Private Limited

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Summary:

The project activity involves the generation of electricity through a greenfield wind power plant with a capacity of 14.7 MW in Maharashtra and Rajasthan that supply the generated electricity to the National power grid.

The project has aimed to reduce the dependence on fossil fuel-powered power plants by substituting carbon-intensive energy with the inexhaustible and clean wind energy. As per the baseline scenario, “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants that are fossil fuel fired power plants”. The baseline scenario is the same as the scenario existing prior to the implementation of the project activity.

During the Current Monitoring Period from 05-January-2015 to 04-January-2021 (First and last date included) the project activity has supplied 125,197 MWh of electricity, and thus contributing to the GHG reductions 119,956 tCO2e.

Rajasthan Gum Private Limited contracted ESPL to conduct the verification of the project. The scope of verification includes confirming the implementation of the monitoring plan in the registered VCS PD (Ver. 01 dated 05-July-2016 and the application of methodology AMS-I.D.- Version 17.0.

The verification consisted of three phases: a. Desk review of the project; b. Follow-up onsite visit; c. Resolution of outstanding issues and issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted following ESPL's internal quality procedures.

A risk-based approach has been followed to perform this verification activity and No uncertainties associated with the verification. A total of 02 CL and 03 CARs have been raised during the verification process of the project activity which were successfully closed.

ESPL confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

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1 INTRODUCTION

1.1 Objective

"Rajasthan Gum Private Limited" has contracted ESPL (Hereinafter referred as Earthood) to conduct the verification of the project activity "Wind Power Project by Rajasthan Gum Private Limited (EKI.CDM.September-12-02)" according to the requirements of the Verified Carbon Standard version 4.1

The objective of this verification is to verify and certify emission reductions reported for the PA" Wind Power Project by Rajasthan Gum Private Limited (EKIESL-CDM.September-12-02)" for the period 05-January-2015 to 04-January-2021.

1.2 Scope and Criteria

The scope of the verification is to establish/verify that:

- the appropriate VCS-MR form (and other templates) was used and correctly filled up;

  (As per https://verra.org/wp-content/uploads/2019/09/VCS-V4-Summary-of-Effective-Dates.pdf the use of updated version of all VCS Program templates and representations is mandatory from 19 March 2020)

- the project activity is in accordance with all relevant host country criteria (India);
- the project activity is in accordance with all relevant VCS rules and requirements;
- the project activity is in accordance with conditions of the latest version of applied methodology AMS I. D (Version 17, EB 61) /7/.

The verification of the project activity is based on the VCS-PD and estimated GHG emission reduction calculations.

1.3 Level of Assurance

☒ Reasonable level of assurance

☐ Limited level of assurance

ESPL's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. ESPL planned and performed the verification by obtaining evidence and other information and explanations that ESPL considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated. All documentary evidences were checked, and remote audit was conducted.

In our opinion, the estimated GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS I. D (Version 17, EB 61) and the VCS standard.

1.4 Summary Description of the Project

Grid-connected wind project in Rajasthan and Maharashtra generates renewable wind electricity and supplies power to the Indian power grid. The current monitoring period 05-January-2015 to 04-January-2021 (First and last date included) involved the generation and supply of 125,197 MWh wind power in Rajasthan and Maharashtra. The power generated by the grid will be replacing an equivalent amount of electricity from the grid system of India which is majorly dependent on fossil-fuel based grid imports for its electricity requirements.

The project is a voluntary action being undertaken by each project owner of the project activity. EKI Energy Services Limited (hereafter referred as "EKIESL") is acting as the other party for this project activity.
The main purpose of this project activity is to generate clean form of electricity through renewable wind energy source and Sale to State Utility. The project activity harness wind energy through installation of WTG project with total installed capacity of 14.7 MW.

Verification team confirmed the capacity by verifying commissioning certificates/10/ and also verified during remote audit through skype that plant are operational in both the locations (Rajasthan and Maharashtra).

The project is promoted by Rajasthan Gum Private Limited.

The electricity meters are of the make SECURE with a precision of 0.2s. The SCADA system allows the WTGs system to be manually or automatically controlled and monitored. The project is based on sectoral Scope 1: Energy Industries (renewable sources) with AMS I. D (Version 17, EB 61).

During the Current Monitoring Period from 05-January-2015 to 04-January-2021 (First and last date included) the project activity has supplied 125,197 MWh of electricity, and thus contributing to the GHG reductions 119,956 tCO2e.

2 VERIFICATION PROCESS

The registered VCS project is undergoing second verification and the approach adopted to ensure the quality of emission reductions is described in the following sub-sections.

2.1 Method and Criteria

- The validation/verification process consists of the following three phases;
- A document review of the VCS PD and VCS MR (described in Section 2.2)
- Remote audit and follow up interviews with project stakeholders (described in Section 2.3 and 2.4)
- The resolution of outstanding issues and issuance of the final report and opinion. (Described in Section 2.5)

DOE's Sampling Approach: No sampling approach was required for undertaking the current verification since all monitored data was verified by the assessment team.

2.2 Document Review

The verification is performed primarily as a document review of the documents submitted at various stages of assessments. The review is performed by assessment team using dedicated protocols. The assessment team cross checks the information provided in the documents (PD, MR, validation report) and information from sources other than those used, if available, and also conducts independent background investigations. Earthood conducted a desk review as under;

a) A review of the data and information presented to verify their completeness.

b) A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.

c) 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.

2.3 Interviews

The remote audit for the project activity were carried out from 21-July-2021 which covers all the sites (includes all the locations) in the state of Rajasthan and Maharashtra in India. No sampling procedures were adopted either in document verification and all the documents were cross checked to ensure conservative estimation of emission reduction. Kindly find below names of the persons interviewed (during onsite and telephonic interview later) for all the sites.

Name of SPVs	Location	Name of Persons/Designation	Topics discussed	Team Member

Rajasthan Gum Private Limited		Mr. Bheru Jain (CEO)	Project Implementation, Monitoring practices, Calibration requirements, GHG calculations, MR and ER preparation	Pankaj Kumar
EKI Energy	Rajasthan and Maharashtra	Mr. Manish Dabkara MD&CEO Ms. Tapti Saha (Consultant)	Operation and Maintenance of Facility, Monitoring practices, Data collection, data storage, QA/QC	Pankaj Kumar

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 WTGs the generation, recording, and monitoring of the data and the error accountability were discussed. Various documents like the JMR sheets, invoice slips, purchase slips etc. were also verified during remote audit and interviews with project personnel.

2.4 Site Inspections

Duration of remote inspection: 21/07/2021 (through remote audit)				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring.	Rajasthan and Maharashtra (Remote audit)	21/07/2021 (Remote audit)	Pankaj Kumar

A remote audit was undertaken by the assessment team (Pankaj Kumar) during 21-July-2021 to carry out the following;

a. An assessment of the implementation and operation of the registered project activity as per the registered PD or any approved revised PD/1/ and MR/2/;

b. A review of information flow for generating, aggregating and reporting the monitoring parameters;

c. Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PD;

d. A cross-check between information provided in the monitoring report and data from other sources such as JMR sheets, invoice slips, PPA agreement etc.;

e. A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD/1/, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;

f. A review of calculations and assumptions made in determining the GHG data and emission reductions;

g. An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The findings may be of the following types: CAR- Corrective Action Request, CL- Clarification Request and FAR- Forward Action Request.

The list of findings and their resolution are presented in Appendix IV of this verification report. The section also includes the response, if provided, by the project participants and an assessment by the assessment team if it was closed or otherwise. It is to be noted that all the findings have been satisfactorily resolved by the assessment team.

A total of 03 CARs and 02 CLs were raised in the current verification. All the findings that are raised and communicated to project participant during the verification are included under Appendix 2. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise

2.5.1 Forward Action Requests

This is 2nd periodic verification of the project activity and no FAR is raised during current verification and no FAR from previous verification as well.

2.6 Eligibility for Validation Activities

As project is already validated and this is *2nd* verification of the project. Hence, this section is not applicable.

3 VALIDATION FINDINGS

As project is already validated and this is *2nd* verification of the project. Hence, this section not applicable

3.1 Participation under Other GHG Programs

This section is not applicable for present verification.

3.2 Methodology Deviations

No methodology deviation is envisaged for present verification.

3.3 Project Description Deviations

Not applicable as no deviation in project description observed during this monitoring period.

3.4 Grouped Project

This is not a grouped project. Thus, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the verification, remote audit was conducted and was concluded that the project is implemented as per the instruction of the registered PD/1/, final validation report and this is verified from the commissioning certificates/10/. During the current monitoring period it was observed that no unforeseen situation evolved which can impact the operation of the project activity. Breakdown summary is submitted by PP for the wind plants. Scheduled maintenance was carried out as per the instruction of the manufacturer and the same is acceptable to the assessment team/9/.

The total installed capacity of the project is 14.7 MW in Rajasthan and Maharashtra. /10/. The technical parameters/specification have been verified by the assessment team during the remote audit/09/with the nameplates as well as the same is also verified with the details as provided by the manufacturer/18/
The assessment team conducted remote audit of the wind power project in order to verify the status of the project implementation of the monitoring plan. It has also been verified as per the guidelines in AMS I. D (Version 17, EB 61) that the calculations for the GHG emission reductions are done in accordance with the aforesaid methodology/7/.

The assessment team also confirmed that the monitoring system for emission reduction calculation was in place and in accordance with the registered VCS PD/1/. There was no deviation observed by the assessment team in the implementation of the monitoring system form the registered VCS PD during the current monitoring period/1/.
During the current monitoring duration, no events have been found that can change the design of project.

The details of the SPVs for the project and their location of installation are mentioned in the table below:

Project Promoter's Name	WTG No.	Village	Tehsil	District	State	Latitude	Longitude
Rajasthan Gum	JTH- 67	Yeldhari	Jath	Sangli	Maha rastra	N16 59' 28.4"	E75 12' 03.8"

Private Limited	JTH-152	Mendhgiri				N16 58' 26.7"	E75 14' 17.8"
	JTH-158					N16 58' 50.7"	E75 13' 35.5"
	JTH-183	Jath				N17 03' 09.4"	E75 15' 15.0"
	KD- 89	Kanod	Mohan garh-1	Jaisalmer	Rajasthan	N27 09' 38.2"	E71 07' 31.7"
	KD- 86					N27 09' 17.4"	E71 07' 00.1"
	KD- 84					N27 08' 29.2"	E71 05' 54.3"

The project is promoted by Rajasthan Gum Private Limited.

Capacity of the projects and date of commissioning verified with commissioning certificates/10/ and technical specifications provided by technology supplier/18/

Geo coordinates checked on Google earth/17/ and also checked during remote audit and verification team conclude geo coordinates of project locations are consistent with registered PD.

Assessment team checked the technical details of the project activity from the manufactures specification and the detail are as follow:

Wind WTGs Project Technology Details –

The project activity aims to harness wind energy through installation of Wind WTGs project with total installed capacity of 14.7 MW.

Technical Detail of the WTGs

S-88 (2.1 MW)

OPERATING DATA	Rated power	2.1 MW
	Cut-in wind speed	4m/s
	Rated wind speed	14m/s
	Cut-out wind speed	25m/s
	50 years gust wind speed	59.5m/s
	Hub height	80m & 100 m
	Wind Class	IIA
	Rotational Speed	15.1 - 17.7 rpm
ROTOR	Pitch system	Electric drive with electric brake, gearbox, frequency converter & batteries.
	Diameter	88m
	Swept area	6,082m²
	Blade material type	Fiberglass / Epoxy
GENERATOR	Type	Induction generator with slip rings, variable rotor resistance with Suzlon Flexi slip control system
	Rated power	2,100 kW
	Rated voltage	690 / 600V
	Frequency	50 / 60Hz
	Protection	IP54 & IP23 (for slip rings)
	Cooling system	Air cooled (IC6A1A6)
	Insulation	Class H
	Slip control	Flexi-Slip providing slip up to 16.7%
BRAKING SYSTEM	Aerodynamic brake	3 independent systems with blade pitching
	Mechanical brake	Hydraulic disc brake, activated by hydraulic pressure
GEARBOX	Type	3 stages (1 planetary & 2 helical)
	Ratio	1:98.8 (±0.5%)
	Nominal load	2,310 kW
YAW SYSTEM	Type	Electric motors with brake, gearbox & pinion
	Bearings	Friction bearing with gear rim
CERTIFICATIONS	Design standards	GL 2003 with supplement 2004
	Quality	ISO 9001:2008
TOWER	Type	Tubular in 4 sections

S97

Parameter		S97	S111
Operating Data	Wind Class	IEC IIIA	IEC IIIA
	Rated Power	2,100 kW	2,100 kW
	Cut-in Wind Speed	3.5 m/s	3 m/s
	Rated Wind Speed	11 m/s	10 m/s
	Cut-out Wind Speed	20 m/s	21 m/s
Rotor	Rotor Diameter	97 m	111.8 m
	Swept Area	7,386 m^2	9,817 m^2
Generator	Frequency	50 / 60 Hz	50 / 60 Hz
	Type	Asynchronous 3 phase induction generator with slip rings operated with rotor circuit inverter system (DFIG)	
Tower	Hub Heights	90 m / 120 m*	
	Type	Tubular Steel Tower / Hybrid Lattice - Tubular Tower*	
Blade	Suzlon Make	SB47	SB54

S95

Description	Information
Rated power	2.1 MW
Rotor speed	12.1 to 17.6 rpm
Power regulation	Active pitch regulated
Rated wind speed	11.0 m/s (without turbulence intensity according to GL guideline)
Cut in wind speed (30-second average)	3.5 m/s
Cut out wind speed (3-second average)	34.0 m/s
Cut out wind speed (10-minute average)	25.0 m/s
Restart wind speed (10-minute average)	23.0 m/s

Assessment team concludes the following:

a) The implementation status of project activity was found to be in compliance with registered PD/1/.

b) DOE has conducted the remote audit to confirm the implementation status of the project/9/.

c) The commissioning date of the project activity was found to be accurately and consistently recorded/10/.

d) The actual operation of project activity was found to be in compliance with the flow diagram provided in registered PD/1/.

e) The emission reductions achieved during the current monitoring period are 119,968 tCO2e.

The project activity contributes to the sustainable development by utilising wind energy for generating electricity which otherwise would have been generated through fossil fuels. Thereby reduction in usage of non-renewable sources used to generate energy.

Further the GHG emission reductions generated by the project activity has not been included by any other an emissions trading program or any other mechanism that includes GHG allowance trading. Also, the project has not received any other form of environmental credit and has not been participated/rejected under any other GHG programs.

Sustainable Development- The project will contribute to the sustainable development in the following ways

1. Environmental: Since the project activity leads to cleaner production of energy, it is leading to displacement of fossil fuel based energy.
2. Social: Setting up of the project activity has created new job openings hence is supporting employment of the local people around.
3. Cleaner Air: Since the project activity leads to lesser GHG emission it results in better air quality.

Further the project has been implemented as described in the Project Description/1/. No CAR was raised on the editorial issue of description and same were resolved by revision in the MR.

The total emission reductions achieved in this monitoring period i.e. from 05-January-2015 to 04-January-2021 are 119,956 tCO2e..

1.2 Safeguards

4.2.1 No Net Harm

As PP does not see and identify any potential negative environmental and socio-economic impacts, hence this section is not required.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration hence not applicable in the current monitoring period. However, PP have mechanism for ongoing communication with the stakeholders in place at project site. A grievance register mechanism at project site which is under control of project site manager. Project site manager is responsible for resolution of any grievance received. During remote audit PP confirmed that couple of comments received during current MP which resolved successfully and also recorded in sec. 2.2 of MR.

4.3 AFOLU-Specific Safeguards

This is non AFOLU projects, hence this section not applicable.

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 MR. 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 MR.
Findings	CL 01 and CAR 03 was raised during the verification process and closed successfully.
	Ex-ante Parameter: **$EF_{grid,OM,y}$ =** Parameter is fixed ex-ante for the entire crediting period and as per the validated VCS PD same is fixed 0.9723 tCO_2/MWh. Verification team found same was used in the ER calculations. Ex ante value of emission factor is taken from CEA database, Ver. 12, May, 2017. Verification team checked the EF value and found in consistent with registered PD **$EF_{grid,BM,y}$ =** Parameter is fixed ex-ante for the entire crediting period and as per the validated VCS PD same is fixed 0.9164 tCO_2/MWh. Verification team found the value to be correct in line with registered PD and the same was used in the ER calculations. Ex ante value of emission factor is taken from CEA database, Ver. 12, May, 2017. Verification team checked the EF value and found in consistent with registered PD **$EF_{grid,CM,y}$** = Parameter is fixed ex-ante for the entire crediting period and as per the validated VCS PD same is fixed 0.9582 tCO_2/MWh. Verification team found same was used in the ER calculations. Ex ante value of emission factor is taken from CEA database, Ver. 12, May, 2017. Verification team checked the EF value and found in consistent with registered PD. 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' BEy = EGBL,y x EFgrid,y Where:

	BEy = Baseline emissions in year y (tCO2/yr) EGBL,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 y (MWh/yr) EFgrid,y = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO2/MWh). The emission factor is also abbreviated as EFgrid,CM,y as per tool. Monitored Parameter: EGBl,y,RJ = 52,094.84 MWh The verification team has checked the entire monthly JMR reports/06/ for net electricity generated & supplied to the grid and crosschecked same with the invoices/05/ raised by PP towards RRVPNL for the monitoring period. All values are found correct. All the parameters are monitored and recorded as per the monitoring plan in the MR. The verification team has crosschecked the revised emission reduction sheet and monitoring report data with the JMR sheet and invoice and found all the values are matching. EGBl,y,MH = 73,103.01 MWh The verification team has checked the entire monthly JMR reports/06/ for net electricity generated & supplied to the grid and crosschecked same with the invoices/05/ raised by PP towards MSEDCL for the monitoring period. All values are found correct. All the parameters are monitored and recorded as per the monitoring plan in the MR. The verification team has crosschecked the revised emission reduction sheet and monitoring report data with the JMR sheet and invoice and found all the values are matching. EGBL,y = EGBl,y,RJ + EGBl,y,MH The baseline emissions are to be calculated as follows: BEy = EGBL,y x EFgrid,y Where: BEy = Baseline emissions in year y (tCO2/yr) EGBL,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 y (MWh/yr)

	EFgrid,y = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO2/MWh). The emission factor is also abbreviated as EFgrid,CM,y as per tool. BEy = 125,197 MWh * 0.9582 tCO2/MWh = 119,956 tCO2 PE_y = AMS I. D (Version 17, EB 61), all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. As the project activity involved wind power project emissions (PE_y) are taken as zero. Leakage: As per AMS I. D (Version 17, EB 61), Leakage emissions are not considered for the project activity.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the break down log for the monitoring period. During the verification remote audit and the feeder wise location of the solar plants is also checked. The metering arrangement is tri-vector bi-directional energy meters (main and check and also one standby meter) at the State Electricity Board (SEB) substation. These meters record parameters including electricity exported & imported. Moreover, the meters are located at the HT side of the transformer and are of accuracy class of 0.2S for project activity applied for verification. These electricity meters are being used by state electricity board for JMR (Joint Meter Reading) electricity generation statements. The Net electricity supplied to the grid is then calculated from export and import values. The net electricity exported to the grid is also cross checked from the invoices raised to respective state electricity board which is in line with Methodology requirement for large scale project activity. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of state utility and O&M personnel. In the event of failure of main meter, the check meter is used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other solar farm projects. Verification team confirms the metering process by interviewing the O&M personnel and PP representatives during remote audit and found the monitoring process is in line with approved PD. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration is done once in a year/19/ The detail of calibration of the meters as confirmed during remote audit and

	calibration certificates are mentioned in Appendix 5 of this report. The assessment team checked the same and found correct. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly, O&M contractor is responsible for monitoring of the generation data at CMS. PP representatives confirmed that the CMS data as well as JMR sheets and invoices will be kept for 2 years following the end of the crediting period. During remote audit and discussion with PP, assessment team confirm that the data will be kept for 2 years following the end of the crediting period. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the remote audit by interviewing O&M personnel and checking of records/ log books maintained at site.
Findings	CAR 05 raised during the verification process which was closed successfully.
Conclusion	The assessment team confirms that the value of net electricity exported to the grid as used in emission reduction calculation is correct. The verification team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity. Remote audit and interview with O&M personnel also confirms that the operational and organizational chart as mentioned in MR is as per the site practice and thus assessment team confirms that the details are correct. The break down log is checked and found that the WTGs undergone scheduled maintenance as per the guideline provided by the manufacturer which is acceptable to the assessment team. No unforeseen incident observed during the monitoring period which could alter the applicability of the methodology or change in project specification as mentioned in the registered PDD. The project undergone Continuous operation from the inception/commissioning and the same is confirmed from the JMR reports and invoices raised for the said period of verification. Comparison of actual and estimate emission reductions achieved: Assessment team checked the calculation of estimated VER vs. Actual VER. As per the registered VCS PD the amount of VERs annually is 24,923 tCO2e. The days involved in present monitoring period are 2,192. Therefore, on pro-rata basis, the estimated VERs for the monitoring period is 149,675 tCO2e. Actual VERs obtained for the monitoring period is 119,956 tCO2e and thus the actual VER is 19.9% lower than the estimated VER. This variation is majorly due to

	the variations in availability of windy days, climatic conditions, grid availability and other parameters which are not in the control of PP.

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

Earthood Services Private Limited (Earthood), contracted by Rajasthan Gum Private Limited has performed the independent verification of the emission reductions for the VCS project activity reference number 1551 "Wind Power Project by Rajasthan Gum Private Limited (EKIESL-CDM.September-12-02)" in India for the monitoring 05-January-2015 to 04-January-2021 (First and last date included) reported in the Monitoring Report Version 03 dated 17-Dec-2021.

It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

Earthood commenced the verification on the basis of the baseline and monitoring methodology " AMS-I.D.- Version 17.0 the monitoring plan contained in the PD version 02 and VCS guidelines version 4.0, Monitoring Report Version 03 dated 17-Dec-2021 as per the process described under Section 2 of this report.

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 05-January-2015 to 04-January-2021 (First and last date included) are fairly stated in the Monitoring Report Version 03 dated 17-Dec-2021. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology" AMS-I.D.- Version 17.0" and the VCS standard.

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

Year	Baseline emissions or removals (tCO2e)	Project emissions or removals (tCO2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO2e)
2015 (From 05-January-2015)	20,445	0	0	20,445
2016	19,714	0	0	19,714
2017	19,677	0	0	19,677
2018	20,743	0	0	20,743
2019	21,357	0	0	21,357
2020	17,951	0	0	17,951
2021 (Till 04-January-2021)	69	0	0	69
Total	**119,956**	**0**	**0**	**119,956**

Approved by

Ashok Kumar Gautam

Director-Environmental Services **Date:**

Earthood Services Privated Limited **Place: Gurgaon, Haryana**

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

S.No	Title of Document	Version	Date
1.	Registered VCS PD	version 03	01-August-2014
2.	VCS Monitoring Report	3	17-Dect-2021
3.	ER spreadsheet (corresponding to the final monitoring report)	1	28-July-2021
4	Certificates of Calibration for all the meters belongs to project activity	-	-
5.	Invoice issued by PP for the duration of monitoring period (05-Jan-2015 to 31-May-2021) Break up: 05-Jan-2015 to 31-Dec. -2015 01-Jan-2016 to 31-Dec-2016 01-Jan-2017 to 31-Dec-2017 01-Jan-2018 to 31-Dec-2018 01-Jan-2019 to 31-Dec-2019 01-Jan -2020 to 31- Dec-2020 01-Jan-2021 to 31-May-2021	-	-
6.	Joint Meter Readings for the duration of monitoring period (23-Dec-2019 to 01-April-2021) Break up: 05-Jan-2015 to 31-Dec. -2015 01-Jan-2016 to 31-Dec-2016 01-Jan-2017 to 31-Dec-2017 01-Jan-2018 to 31-Dec-2018 01-Jan-2019 to 31-Dec-2019 01-Jan -2020 to 31- Dec-2020 01-Jan-2021 to 31-May-2021	-	-
7.	"Consolidated baseline methodology for grid-connected electricity generation from renewable sources", AMS I. D (Version 17, EB 61),	"AMS I. D (Version 17, EB 61)"	-

8.	CO_2 Baseline Database for the Indian Power Sector published by the Central Electricity Authority (CEA), Ministry of Power, Govt.	version 12	-
9.	Remote audit, interviews of plant staff	-	21-July-2021
10.	Commissioning certificate for all the Solar plants of the project activity JTH-67 JTH-152 JTH-158 JTH-183 KD-84 KD-86	-	 11-01-2013 30-10-2012 28-09-2012 21-03-2013 24-01-2013 24-12-2021
11.	Power Purchase Agreements : Rajasthan Gum Private Limited	-	 17-Oct-2013
12.	VCS webpage for the project, VCS ID 1770; https://registry.verra.org/app/projectDetail/VCS/1551	-	Last accessed on 22-July-2021
13.	O&M contract for all project sites	-	-
14.	VCS Standard	Version 4.0	Last accessed on 22-July-2021
15.	VCS Program Guide	Version 4.0	Last accessed on 22-July-2021
16	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the same period and double counting	-	08-July-2021
17	Google Earth desktop/Mobile application	-	Last accessed on 22-July-2021
18	Technical specifications by technology supplier		
19	Meter calibration guidelines: http://cea.nic.in/reports/regulation/CEA_metering_regulation_amendment_2019.pdf		

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

Table 1. Remaining FAR from previous verification

FAR ID	NA	**Section no.**		**Date : 23/07/2021**
Description of FAR				
Project participant response				**Date :**DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				**Date:** DD/MM/YYYY
NA				

Table 2. CL from this verification

CL ID	01	**Section no.**	1.1	**Date :23/07/2021**
Description of CL				
During Desk review following discrepancies has been found, *1. In sec. 1.1, NEWNE Grid is mentioned which is not correct. Corrective action require.* *2. In sec 1.1, the total capacity of the project activity is given as 14.7 MW whereas in sec 3.1, it is mentioned as 10.8 MWh. PP shall clarify the inconsistency throughout the MR.* *3. In sec. 1.1, the value of net electricity generation is given as 26,008 MWh, which is inconsistent with the ER sheet. Corrective action sought.*				
Project participant response				**Date :26/07/2021**
1. NEWNE Grid is mentioned in sec. 1.1 in the registered CDM PDD. There is a footnote in revised MR sec 1.1 that mentions NEWNE Grid in now INDIAN Grid. *2. Capacity of this project activity is 14.7 MW. Section 3.1 has been revised as 14.7 MW capacity.* *3. 26,008 MWh is estimated generation as per PDD and the generation for this monitoring period in the revised MR is now consistent with ER Sheet.*				
Documentation provided by project participant				
Revised MR. *Revised ER Sheet.*				
DOE assessment				**Date:** 02/08/2021

1. PP has now provided a foot note in sec. 1.1 of revised MR, Ver. 02 dated 28/07/2021 regarding nomenclature of grid and confirmed that now NEWNE grid is integrated in national grid. Hence, **CL closed**. 2. PP has now corrected the capacity of the project activity which is 14.7 MW in the section 3.1 of revised MR, ver. 02 dated 28/07/2021. Correction made checked by the VVB and found correct. Hence, **CL closed**. **3.** PP has now corrected the value of estimated electricity generation in the revised MR, ver. 02 dated 28/07/2021 which is now consistent with ER sheet. Hence, **CL closed.**

CL ID	02	**Section no.**	1.10	**Date :23/07/2021**
Description of CL				
PP shall provide undertaking for regarding no double counting, as this project is also registered under CDM.				
Project participant response				**Date : 26/07/2021**
Double Counting Declaration has been submitted to DOE.				
Documentation provided by project participant				
Double Counting Declaration				
DOE assessment				**Date:** 02/08/2021
PP has now submitted an undertaking regarding no double counting of emission reduction for current monitoring period in any other GHG mechanism other than VERRA. Hence, **comment closed**.				

Table 3. CAR from this verification

CAR ID	**03**	**Section no.**	**1.1**	**Date: 23/07/2021**
In sec. 1.1, the value of Net electricity generation is given as 26,008 MWh, whereas later in the same section it is mentioned as 122,729.19 MWh. Hence, PP is requested to maintain consistency throughout the MR.				
Project participant response				**Date: 26/07/2021**
Net electricity generation in section 1.1 is now revised.				
Documentation provided by project participant				
Revised MR *Revised ER Sheet*				
DOE assessment				**Date:** 02/07/2021
PP has now corrected the value of the net generation in section 1.1 of revised MR, ver. 02 dated 28/07/2021 and made consistent throughout the MR. Hence, **CAR closed**.				

CAR ID	**04**	**Section no.**	**1.11/2.1**	**Date: 23/07/2021**
In section 1.11 and 2.2, the name of the host country's DNA is incorrect. Corrective action required.				

Project participant response	Date:26/07/2021
The name of the host country's DNA is revised in both sections.	
Documentation provided by project participant	
Revised MR	
DOE assessment	**Date: 02/07/2021**
PP has now corrected the name of the host country's DNA in section 1.11 and 2.2 of the revised MR, ver. 02 dated 28/07/2021. Correction made by PP found to be correct by Verification team. Hence, **comment closed**.	

CAR ID	05	Section no.	2.1/4.2	Date: 23/07/2021
1. *PP is requested to provide technical specification of the project activity along with the documents to verify the same.* 2. *PP is requested to provide grievance certificate to verify the details of the stakeholder's comments mentioned in section 2.2 of the MR.* 3. *PP is requested to provide breakdown detail in the monitoring report.*				
Project participant response				**Date:26/07/2021**
1. *WTG's technical specifications have been provided to DOE.* 2. *Grievance register has been submitted to DOE* 3. *Breakdown detail has been incorporated in revised MR.*				
Documentation provided by project participant				
1. Revised MR 2. WTG Technical Specification 3. Breakdown Detail				
DOE assessment				**Date:** 02/08/2021
1. PP has now provided technical specification of the project activity along with the documents which are consistent with the details in MR. Hence, **CAR closed**. 2. PP has now submitted scanned copy of grievance register to the verification team to verify the details of the stakeholders. Hence **CAR closed**. 3. PP has now mentioned break down details in the revised MR. Verification team confirmed the scheduled maintenance and routine maintenance does not have any impact on baseline, project design and additionality. Hence, **CAR closed.**				

Table 4. FAR from this verification

FAR ID	Nill	Section no.		Date: 23/07/2021
Description of FAR				
Project participant response				**Date:DD/MM/YYYY**
Documentation provided by project participant				

DOE assessment	**Date:DD/MM/YYYY**

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Competence Statement			
Name	Pankaj Kumar		
Education	M.Sc. in Environment Management Post Graduate Diploma in Environment Law B.Sc. (Hons.) Environment and Water Management		
Experience	15 Years		
Field	Climate Change/Waste Management/EIA		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	YES (AMS I.D, ACM0002)		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (1.2)	YES		
Reviewed by	Shreya Garg	**Date**	01/11/2019
Approved by	Anshika Gupta	**Date**	01/11/2019

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	7 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	**Date**	01/03/2018
Approved by	Ashok Gautam	**Date**	01/03/2018

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

RBI	Reserve Bank of India
PP	Project Participant
JMR	Joint Metering Report

APPENDIX 5: METER CALIBRATION DETAILS

Maharashtra

WTG ID	Main Meter	Check Meter	Accuracy Class	Date of Calibration	Due Date of Calibration	Frequency
JTH-152	13813605	13813606	0.2	11-June-2014	10-June-2015	Annual
				05-July-2015	04-July-2016	
				03-August-2016	02-August-2017	
				08-August-2017	07-August-2018	
				18-August-2018	17-August-2019	
				29-August-2019	28-August-2020	
				20-August-2020	19-August-2021	
JTH-183	14953584	16268014		11-June-2014	10-June-2015	
				05-July-2015	04-July-2016	

				03-August-2016	02-August-2017	
				08-August-2017	07-August-2018	
				18-August-2018	17-August-2019	
				29-August-2019	28-August-2018	
				20-August-2020	19-August-2021	

WTG ID	Main Meter	Check Meter	Accuracy Class	Date of Calibration	Due Date of Calibration	Frequency
JTH-67	HT01150083	HT01150084	0.2	11-June-2014	10-June-2015	Annual
				05-July-2015	04-July-2016	
				17-July-2016	16-July-2017	
				02-August-2017	01-August-2018	
				08-August-2018	07-August-2019	
				29-August-2019	28-August-2020	
				26-August-2020	25-August-2021	
JTH-158	HT0115002			11-June-2014	10-June-2015	

				05-July-2015	04-July-2016	
				03-August-2016	02-August-2017	
				08-August-2017	07-August-2018	
				18-August-2018	17-August-2019	
				29-August-2019	28-August-2020	
				06-September-2020	05-September-2021	

Rajasthan

WTG ID	Main Meter	Check Meter	Accuracy Class	Date of Calibration	Due Date of Calibration	Frequency
KD-84, 86 & 89	UPP31771 & RJB90204	UPP31772 & RJB90205	0.2	25-December-2014	24-December-2016	3 years
				25-January-2017	24-January-2019	
				04-February-2019	03-February-2021	
				10-February-2021	09-February-2023	