



22.5 MW WIND POWER PROJECT BY RUCHI SOYA INDUSTRIES LIMITED AT PALSODI, DISTRICT – RATLAM, MADHYA PRADESH



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Summary:

The project activity by Ruchi Soya Industries Ltd. involves the generation of electricity through wind power plant with a total capacity of 22.5 MW (15 x 1.5 MW) in the state of Madhya Pradesh, India. This is a greenfield project activity and supply the generated electricity to the National power grid i.e., Indian Grid. Thus, project activity has reduced the dependence on fossil fuel-powered power plants by substituting carbon-intensive energy with the clean renewable 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 10-January-2011 to 28-February-2018¹ (First and last date included) the project activity has supplied 323,354.961MWh of electricity, and thus contributing to the GHG reductions 298,285 tCO₂e.

EKI Energy Services 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 PD (Ver. 03 dated 11-February-2010) and the application of methodology ACM0002: Consolidated methodology for grid-connected electricity generation from renewable sources, Version 10.0.

The verification consisted of three phases: a. Desk review of the project; b. Follow-up interviews/remote audit; 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 00 CL and 05 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.

¹ PP have obtained approval for conducting verification for more than 6 years from VERRA i.e. 10-January-2011 to 28-February-2018 vide approval letter dated 11-November-2020

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1 INTRODUCTION

1.1 Objective

“EKI Energy Services Limited” has contracted ESPL (Hereinafter referred as Earthood) to conduct the verification of the project activity “22.5 MW Wind Power Project by Ruchi Soya Industries Limited at Palsodi, District – Ratlam, Madhya Pradesh” 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” 22.5 MW Wind Power Project by Ruchi Soya Industries Limited at Palsodi, District – Ratlam, Madhya Pradesh” for the period 10-January-2011 to 28-February-2018(including both days).

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; (Asper <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 ACM0002: Large Consolidated methodology-Version 10.0/7/.

The verification of the project activity is based on the 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 site visit was conducted to project plant site 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 10.0 and the VCS standard, Version 4.1.

1.4 Summary Description of the Project

The project activity by Ruchi Soya Industries Ltd. involves the generation of electricity through wind power plant with a total capacity of 22.5 MW in the state of Madhya Pradesh, India. This is a greenfield project activity and supply the generated electricity to the National power grid i.e., Indian Grid. The project activity involves operation of 15 x 1.5 MW (WTGs of Suzlon, Model S-82 model). The generated electricity is sold to Madhya Pradesh State Pashchim Kshetra Vidyut Vitaran Company Limited (MPPKVVCL). The electricity is supplied to the 132 kVA substation at Sailana (Ratlam) for selling to MPPKVVCL. Thus, project activity has reduced the dependence on fossil fuel-powered power plants by substituting carbon-intensive energy with the clean renewable 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 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.

Verification team confirmed the capacity by verifying commissioning certificates/10/ and also verified through interview during remote audit that plants are operational in the location (Madhya Pradesh). The details of interconnection with grid of wind power plant and commissioning details are given in Section 4.1 of this report.

The technical specifications of wind power plant confirmed with technical specifications from technology supplier and details as confirmed on skype during remote audit provided in Sec. 4.1 of this report.

The electricity meters are of a precision of 0.2s. The details of meters such as make, Sr. No., calibration frequency etc. are provided in Appendix 5 of this report. The project is based on sectoral Scope 1: Energy Industries (renewable sources) with ACM0002: Consolidated Baseline Methodology for Grid-connected electricity generation from renewable sources, Version 10.0.

During the Current Monitoring Period from 10-January-2011 to 28-February-2018 (First and last date included) the project activity has supplied 323,354.961 MWh of electricity, and thus contributing to the GHG reductions 298,285 tCO₂e.

2 VERIFICATIONPROCESS

The registered VCS project is undergoing third 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 overall verification, from Contract Review to Verification Report & Opinion, was conducted using ESPL's internal procedures. The Project was verified against the latest requirements (Version 4.1) /14/ and guidance set out in VCS Standards as applicable.

- The verification process consists of the following three phases;
- A document review of the PD and VCS MR (described in Section 2.2)
- Site visit 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

A remote audit was conducted on 17-August-2021 through Skype video call which covers site in the state of Madhya Pradesh 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. Remote audit conducted due to pandemic situation and technical details and metering/monitoring arrangement verified through photos/certificates shared by PP. The names of the persons interviewed during remote audit through Skype/telephonic interview/9/is given below;

Name of Persons/Designation	Affiliation	Topics discussed	Team Member
Mr. Ashish Verma	Ruchi Soya Industries Ltd.	Project Implementation, Management practices, Grievance mechanism, Data collection, data storage, QA/QC etc.	Dr. Atul Takarkhede
		Project Implementation, Monitoring practices, JMR, Calibration requirements etc.	
Mr. Bibhusita Ghose	EKI Energy	GHG calculations, MR and ER preparation	

2.4 Site Inspections

Duration of on-site inspection: NA				
No.	Activity performed on-site	Site location	Date	Team member
1.	NA	NA	NA	NA

At the time of verification, the host country, India, was witnessing increasing numbers of COVID-19 infected people in the country. There have been several restrictions regarding interstate travel under such circumstances, the verification team has avoided the risk of exposure by not conducting the on-site visit due to outbreak of global pandemic Covid-19, increased risk of exposure and contact due to travel, as the affected cases in the country are spurring².

²<https://www.ciicovid19update.in/state-govt-notifications.html>

The project developer has a Verified Emissions Reductions Agreement (VERPA) which requires delivery of credits by 31/12/2021, and the project finances are reliant on the payment from sale of carbon credits/29/.

Moreover, the VCS program does not explicitly mandate site visits as part of the validation and verification process during such unprecedented circumstances, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per section 4.1.2 of the VCS Standard, Version 4.1/14/.

The DOE reached reasonable level of assurance through remote verification via Skype/Telephonic interview (refer section 2.3) with the representative PP. through review of documentation/evidence such as technical layout, metering arrangements/specification of wind power Plants, logbook/26//monthly generation data/ photographs/20/and name plates of wind power plants, calibration certificates of meters, validation and verification report/21/ of various issuance.

A remote audit was conducted by the assessment team (Dr. Atul Takarkhede) on 17-August-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 2 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 05CAR and 00 CL 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 3rd periodic verification of the project activity and no FAR is raised during current verification and no FAR from validation/previous verification as well.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification, as ESPL holds the accreditation for Validation of projects for this Sectoral Scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

This section is not applicable for present verification. Same was also verified from the UNFCCC CDM website, GS registry, VERRA project database and REC registry of India.

3.2 Methodology Deviations

No methodology deviation is envisaged for present verification.

3.3 Project Description Deviations

As per the direction of Honourable commission for the electricity in the state of Madhya Pradesh, monitoring meter has been changed to move for better accuracy class from 0.5s to 0.2s in 2013/4/. During review, Assessment team observed changed meter are of more accuracy and also doesn't affect the project design& monitoring of the project activity. Also same is verified from calibration certificate/4/. Thus, change of monitoring meters from lower to higher accuracy class have been accepted by VVB.

3.4 Grouped Project

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

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the remote verification audit was concluded that the project is implemented as per the instruction of the registered VCS PD/1/, 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 power plant/26/. Scheduled maintenance was carried out as per the instruction of the manufacturer and the same is acceptable to the assessment team/9/.

The project activity by Ruchi Soya Industries Ltd. involves the generation of electricity through wind power plant with a combined capacity of 22.5 MW located at village Palsodi, Ratlam district in the state of Madhya Pradesh, India/10/. There is no addition of any new project instance during this verification/1/,/2/inline with the VCS Standard Version 4.1/14/.The technical parameters/specification have been verified by the assessment team through interview with site personal 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 details of WTGs & its commissioning /10/ are given below.

S.No.	Location No.	Latitude	Longitude	Commissioning Date
1	P 101	23° 20'22.4" N	74° 54'55.7" E	30-May-2008
2	P 104	23° 20'33.9" N	74° 54'40.2" E	30-May-2008
3	P 107	23° 20'36.2" N	74° 55'18.4" E	30-May-2008
4	P 109	23° 20'45.1" N	74° 54'57.1" E	29-March-2008
5	P 112	23° 20'53.8" N	74° 55'23.2" E	29-March-2008
6	P 113	23° 20'54.4" N	74° 55'41.3" E	29-March-2008
7	P 114	23° 21'00.6" N	74° 55'05.6" E	29-March-2008
8	P 131	23° 21'15.5" N	74° 55'17.1" E	29-March-2008
9	P 137	23° 21'37.9" N	74° 56'02.7" E	29-March-2008
10	P 140	23° 21'49.4" N	74° 55'51.1" E	29-March-2008
11	P 143	23° 22'07.2" N	74° 55'47.0" E	29-February-2008
12	P 145	23° 22'15.7" N	74° 55'25.5" E	29-February-2008
13	P 148	23° 22'09.6" N	74° 56'06.1" E	29-February-2008
14	P 150	23° 22'22.8" N	74° 55'51.1" E	29-February-2008
15	P 154	23° 22'37.7" N	74° 55'58.3" E	29-February-2008

The assessment team interviewed remotely with the PP representative in order to verify the status of the project implementation of the monitoring plan. It has also been verified as per the guidelines in ACM0002: Grid-connected electricity generation from renewable sources, Version 10.0that 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/.

During the current monitoring duration, no events have been found that can change the design of project/9/. However, meter has been changed for better accuracy class from 0.5s to 0.2s in 2013/4/. Same is results in the better accuracy during monitoring of the electricity. The installation of better accuracy class monitoring meters do not have impact on the monitoring plan of the project activity/1/ and thus accepted by assessment team.

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

Geo coordinates were checked on the google earth/17/ and also cross-checked with validation report & previous verification report/12/and verification team concluded that the geo coordinates of project locations are consistent with registered PD/1/.

Assessment team checked the technical details of the project activity from the manufactures specification and found correct/18/.

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 298,285 tCO₂e.
- f) Comparison of actual and estimate emission reductions achieved:

There is no change in the design & capacity of the project activity. Assessment team checked the calculation of estimated VER vs. Actual VER. As per the registered PD the amount of VERs annually is 46,323tCO₂e/1/. The days involved in present monitoring period are 2,607. Therefore, on pro-rata basis, the estimated VERs for the monitoring period is 330,860 tCO₂e. Actual VERs obtained for the monitoring period is 298,285 tCO₂e and thus the actual VER is 9.85%lower than the estimated VER. This variation is majorly due to the variations of climatic conditions, grid availability & other parameters which results in lower PLF and are not in the control of PP/6/;/9/. Hence, verification team confirms that decrease in VER by 9.85% in this monitoring period is acceptable.

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/. CAR 01, CAR 02, CAR 03and CAR 04were raised and same were resolved by revision in the MR. details are provided in Appendix 2 of this report.

The total emission reductions achieved in this monitoring period i.e., from 10-January-2011 to 28-February-2018 (including both days) are 298,285 tCO_{2e}.

4.2 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 has kept a dedicated visitor cum grievance registers at the project sites which is accessible to stakeholders to provide their feedback on the project as an ongoing communication with local stakeholders. This is in compliance with the requirement of para 3.16.4 of VCS standard, Version 4.1. Assessment team has checked the grievances register and confirms that there are no any grievances received during the current monitoring period/28/.

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	CAR 05was raised during the verification process and closed successfully. Refer Appendix 2 of this report for the detail closure of the CAR.

Conclusion	Ex-ante Parameter: 1. EF_{grid,OM,y}: Operating margin CO₂ emission factor of NEWNE grid(now a part of Unified Indian Grid) This Parameter is fixed ex-ante for the entire crediting period and as per the validated PD same is fixed 1.004919 tCO₂/MWh for NEWNE grid. Verification team found same was used in the ER calculations. 2. EF_{grid,BM,y}: Build margin CO₂ emission factor of NEWNE grid(now a part of Unified Indian Grid) This Parameter is fixed ex-ante for the entire crediting period and as per the validated PD same is fixed 0.675181 tCO₂/MWh for NEWNE grid. Verification team found same was used in the ER calculations. 3. EF_{grid,CM,y}: Combined margin CO₂ emission factor for NEWNE grid(now a part of Unified Indian Grid) connected power generation in year y calculated using the “Tool to calculate the emission factor for an electricity system”, version 01.1, EB 35. This Parameter is fixed ex-ante for the entire crediting period and as per the validated PD same is fixed 0.92248tCO₂/MWh for NEWNE grid. Verification team found same was used in the ER calculations. Ex ante value of emission factor is taken from CEA database, Ver. 05. Verification team checked the EF value and found in consistent with registered PD/1/. 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: - $BE_y = EG_y * EF_{grid,y}$ Where, EG_{PJ,y}= Net electricity supplied to grid in year y (MWh) EF_{grid,y}= Baseline emission factor of the grid in the year y (tCO₂/MWh) Thus BE_y = 298,285 tCO_{2e} (round down values) Monitored Parameter: 1. EG_{TOTAL,y}: Total electricity generation by the wind mills during the year y This parameter is measured continuously at Central Monitoring System (CMS) through controller attached with each WTG. Site operators on daily basis will record the generation of each WTG at CMS. Assessment team found 334,658.493 MWh value correct and inline with the controller data. Thus
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	accepted. 2. EG_{export}: Electricity exported to the grid by the project activity in year y This parameter is measured by the main meters. The meter readings are recorded and verified, once in a month, jointly by the representatives of MPPKVV CO. LTD. and the authorized representative of the SISL. Site operators also record main meters readings daily. Assessment team found 324,830.609 MWh value correct and inline with the JMR. Thus accepted. 3. EG_{import}: Electricity imported (consumed) by the project activity in year y. This parameter is measured by the main meters. The meter readings are recorded and verified, once in a month, jointly by the representatives of MPPKVV CO. LTD. and the authorized representative of the SISL. Site operators also record main meters readings daily. Assessment team found 1,475.647 MWh value correct and inline with the JMR. Thus accepted. 4. EG_{y,Net}: Net Electricity exported to grid by the project activity in year y This parameter is calculated as: $EG_y = EG_{\text{export}} - EG_{\text{import}}$ Assessment team found 323,354.961 MWh value correct and inline with the JMR and invoices. Thus accepted. 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 State Utilities for the monitoring period. All values are found correct/3/. All the parameters are monitored and recorded as per the monitoring plan in the MR/2/. However, PPs have apportioned the values for the first month of the monitoring period where date is not matching with JMR cycle. Apportioning found appropriate and conservative/3/. 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. PE_y = As per approved PD, para 35 of the large scale methodology ACM0002 (Version 10.0), 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/1/. Leakage: As per approved PD, para 35 of the large-scale methodology ACM0002 (Version 10.0), Leakage emissions are not considered for the project activity/1/.
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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/26/. During the remote verification audit and the feeder wise location of the wind plants is also checked.
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	The metering arrangement is bi-directional energy meters (main and check) at the Switchyard/State Electricity Board (SEB) substation. These meters record parameters including electricity exported & imported/6/. 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/20/. These electricity meters are being used by state electricity board for JMR (Joint Meter Reading)/credit note 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/5/. 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/9/. 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 wind 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/1/. Calibration of all the meters is done by state electricity board officials as per the industry standards/9/. The calibration is done once in a 5 year/19/as per calibration frequency in registered VCD PD/1/.The details of Calibration of the meters as confirmed from verification and during remote verification audit and calibration details are mentioned in Appendix 5 of this report/4/. Pre-calibrated energy meters were installed during the commissioning of the project activity and valid for 1 year/1/. The assessment team checked the same and found correct/10/. 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/9/. PP representatives confirmed that the DGR data as well as JMR sheets and invoices will be kept for 2 years following the end of the crediting period/1/. During site visit and discussion with PP, assessment team confirm that the data will be kept for 2 years following the end of the crediting period/9/. 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 document review and by interviewing O&M personnel and checking of records/ log books maintained at site/9/.
Findings	No CARs were raised.
Conclusion	The assessment team confirms that the value of net electricity exported to the grid as used in emission reduction calculation is correct/3/. 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. Interview with O&M personnel during remote verification audit 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/9/.

	The break down log/26/ is checked and found that the wind panels 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 PD/6/. 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 PD/6/, /5/. Comparison of actual and estimate emission reductions achieved: Assessment team checked the calculation of estimated VER vs. Actual VER. As per the registered PD the amount of VERs annually is 46,323tCO₂e/1/. The days involved in present monitoring period are 2,607. Therefore, on pro-rata basis, the estimated VERs for the monitoring period is 330,860 tCO₂e. Actual VERs obtained for the monitoring period is 298,285 tCO₂e and thus the actual VER is 9.85% lower than the estimated VER. This variation is majorly due to the variations of climatic conditions, grid availability & other parameters which results in lower PLF and are not in the control of PP/6/;/9/. Hence, verification team confirms that decrease in VER by 9.85% in this monitoring period is acceptable.
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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 EKI Energy Services Limited, has performed the independent verification of the emission reductions for the VCS project activity reference number 751“22.5 MW Wind Power Project by Ruchi Soya Industries Limited at Palsodi, District – Ratlam, Madhya Pradesh” in India for the monitoring period 10-January-2011 to 28-February-2018(inclusive both days) reported in the Monitoring Report Version 02 dated 04-October-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 “ACM0002 - Version 10.0, the monitoring plan contained in the PD version 03 and VCS guidelines version 4.0, Monitoring Report Version 02 dated 04-October-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 10-January-2011 to 28-February-2018are fairly stated in the Monitoring Report Version 02 dated 04-October-2021. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology “ACM0002 - Version 10.0” and the VCS standard.

Verification period: 10-January-2011 to 28-February-2018(inclusive of both days).

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
10-January 2011 to 31-December-2011	45,672	0	0	45,672
01-January 2012 to 31-December-2012	46,990	0	0	46,990
01-January 2013 to 31-December-2013	44,073	0	0	44,073
01-January 2014 to 31-December-2014	43,532	0	0	43,532
01-January 2015 to 31-December-2015	38,096	0	0	38,096
01-January 2016 to	36,051	0	0	36,051

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
31-December-2016				
01-January 2017 to 31-December-2017	39,732	0	0	39,732
01-January 2018 to 28-February-2018	4,139	0	0	4,139
Total	298,285	0	0	298,285

Approved by



Dr. Kaviraj Singh

Managing Director

Earthood Services Privated Limited

Date: 04-February-2022

Place: Gurgaon, Haryana

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

S.No	Title of Document	Version	Date
1.	Registered VCS PD	version 03	11-February-2010
2.	Initial VCS Monitoring Report Final VCS Monitoring Report	01 02	16-July-2021 04-October-2021
3.	ER spreadsheet (corresponding to the final monitoring report)	02	16-September-2021
4.	Certificates of calibration for all SPVs belongs to project activity	-	-
5.	Invoice issued by PP for the duration of monitoring period (10-January-2011 to 28-February-2018)	-	-
6.	Joint Meter Readings for the duration of monitoring period (10-January-2011 to 28-February-2018)	-	-
7.	ACM0002: Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources	Version 10.0	-
8.	CO ₂ Baseline Database for the Indian Power Sector published by the Central Electricity Authority (CEA), Ministry of Power, Govt.	version 05	November 2009
9.	Remote Audit through Skype video call/Telephonic discussions	-	17-August-2021
10.	Commissioning certificates/Calibrations records for initial calibration of the meters installed during commissioning of the project activity	-	-

S.No	Title of Document	Version	Date
11.	Power Purchase Agreements for SPVs	-	-
12.	VCS webpage for the project, VCS ID 1497; https://registry.terra.org/app/projectDetail/VCS/751	-	Last accessed on 18-September-2021
13.	O&M contract for all project sites	-	-
14.	VCS Standard	Version 4.1	Last accessed on 18-September-2021
15.	VCS Program Guide	Version 4.0	Last accessed on 18-September-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	-	02-September-2021
17.	Google Earth desktop/Mobile application	-	Last accessed on 18-September-2021
18.	Technical specifications by technology supplier		
19.	Meter calibration guidelines: https://cea.nic.in/cdm-co2-baseline-database/?lang=en	-	-
20.	Photograph of site/Name plates	-	-
21.	Verification report of the last monitoring period. Report Number VCS.11.VER. 001.MP02	1.1,	06-March-2012
22.	Ministry of Home Affairs Order https://www.mha.gov.in/sites/default/files/MHAOrder%20copy.pdf		24-March-2020
23.	Ministry of Home Affairs Order (D.O No.40-3/2020-DM-I(A) https://www.mha.gov.in/sites/default/files/MHA%20DO%20letter%20dt.14.4.2020%20to%20Chief%20Secretaries%20and%20Administrators%20for%20strict%20implementation%20of%20Lockdown%20Order%20during%20extended%20period.pdf	-	14-April-2020
24.	Ministry of Home Affairs Order (Order No.40-3/2020-DM-I(A) https://www.mha.gov.in/sites/default/files/MHA%20Order%20Dt.%201.5.2020%20to%20extend%20Lockdown%20period%20for%202%20weeks%20w.e.f.%204.5.2020%20with%20new%20guidelines.pdf	-	01-May-2020
25.	https://www.mha.gov.in/sites/default/files/MHAOrderextension_1752020_0.pdf	-	17-May-2020
26.	Break down log sheet of Plants	-	-
27.	Skill development training records	-	-
28.	Copies of the grievance registers maintained at sites	-	-
29.	ERPA signed for sale of credits from the project activity		07-June-2021
30.	Approval for conducting verification for more than 6 years from VERRA i.e. 10-January-2011 to 28-February-2018 vide approval letter dated 11-November-2020	-	11-November-2020

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 :DD/MM/YYYY
Description of FAR		
There is no FAR from the validation of the project activity		
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	Section no.	Date :DD/MM/YYYY
Description of CL		
NA		
Project participant response		Date :DD/MM/YYYY
Documentation provided by project participant		
DOE assessment		Date: DD/MM/YYYY

Table 3. CAR from this verification

CAR ID	Section no.	Date
01	4.1	:20-August-2021
Description of CAR		
Following discrepancies observed during review of the MR:		
1. Alteration in MR template For missing Page numbers. Corrective action sought.		
2. Unused Spaces observed throughout the MR. Corrective action sought.		
Project participant response		Date :16-September-2021
1. Page numbers have been included in updated MR. Also, alterations have been corrected.		
2. Unused spaced have been deleted from updated MR.		
Documentation provided by project participant		
Monitoring Report Version 02.		
DOE assessment		Date:18-September-2021
PP has made required revision in revised MR and assessment team found it correct. CAR#01 is Closed.		

CAR ID	Section no.	Date
02	4.1	:20-August-2021
Description of CAR		
PP requested to submit all relevant supporting documents like technical specifications, O&M agreements, break down details etc. for review by assessment team.		
Project participant response		Date :16-September-2021
Technical specifications of WTG, O&M Agreement and Breakdown details have been provided to assessment team.		
Documentation provided by project participant		
1. Technical specifications of WTG, O&M Agreement, Breakdown details		

DOE assessment	Date: 18-September-2021
Following documents has been submitted by PP to assessment team: 1. Commissioning certificate of all site issued by their respective state authority. 2. Power Purchase Agreement between PP and respective DISCOM. 3. Technical Specification Document issued by OEM of Wind panels. 4. O&M agreements 5. Breakdown details 6. training records for the onsite personnel Above all supporting documents found consistent with the revised MR. hence accepted and CAR#02 is closed.	

CAR ID	03	Section no.	4.1	Date :20-August-2021
Description of CAR				
PP requested to submit declaration in effect of avoiding double counting with regard to participation under other GHG Programs/Other forms credits, rejection under other GHG program etc.				
Project participant response				Date :16-September-2021
No double counting declaration has now been submitted to assessment team.				
Documentation provided by project participant				
No double counting declaration				
DOE assessment				Date: 18-September-2021
PP has submitted Declaration related to No double counting of credits with regards to participation under GHG program credits. Hence accepted and CAR#04 is closed.				

CAR ID	04	Section no.	4.2.2	Date :20-August-2021
Description of CAR				
In section 2.1 of the MR need to correct the name of DNA/ Ministry and also shall provide the weblink for notification 2006				
Project participant response				Date :16-September-2021
DNA/Ministry name has been corrected in section 2.1 of updated MR and the weblink of EIA notification has been provided.				
Documentation provided by project participant				
Monitoring Report Version 02				
DOE assessment				Date: 18-September-2021
PP has corrected the name of DNA and weblink for notification 2006, found correct and accepted. thus CAR#04 is closed.				

CAR ID	06	Section no.	4.4	Date :20-August-2021
Description of CAR				
PP requested to submit all supporting documents for calculation of net electricity generation supplied by the project activity along the copies of invoices for cross checking.				
Project participant response				Date :16-September-2021
Joint Meter Readings (JMRs) and invoices for the current monitoring period has now been submitted to assessment team.				
Documentation provided by project participant				
1. JMRs 2. Invoices				
DOE assessment				Date: 18-September-2021
PP has submitted all relevant copies of JMR and Invoices to the assessment team. During Review, team found value of net electricity generated throughout MP in JMRs/invoice are consistent and conservatively calculated in the ER sheet. Hence accepted and CAR#06 is closed.				

Table 4. FAR from this verification

FAR ID	XX	Section No.		Date :DD/MM/YYYY
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Description of FAR	
There is no FAR from this verification	
Project participant response	Date :DD/MM/YYYY
NA	
Documentation provided by project participant	
NA	
DOE assessment	Date: DD/MM/YYYY
NA	

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Competence Statement			
Name	Atul Takarkhede		
Education	Ph.D. Environmental Science		
Experience	12 years		
Field	Climate Change and environment		
Approved Roles			
Team Leader	YES		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	YES (1.2)		
Reviewed by	Shreya Garg	Date	24/04/2019
Approved by	Anshika Gupta	Date	25/04/2019

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	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J.,

Expert	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 ₂ e	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: METER CALIBRATION DETAILS

WTG ID	Meter No.	Make	Meter Type	Calibration Date	Validity of Calibration	Delay in Calibration	Remarks
P101, P104, P107, P109, P112, P113, P114, P131	MPE15233 (0.5s class)	SEMS	Main Meter	20-February-2010, 18-July-2011, 04-June-2012	19-February-2011, 17-July-2012, 03-June-2013	20-February-2011 to 17-July-2011, 25-February-2014 to 21-May-2014, 22-May-2015 to 19-February-2016,	Meter No. MPE15233 was replaced by Meter No. MPC49084 on 25-February-2013.
	MPC 49084 (0.2s class)	SEMS	Main Meter	25-February-2013, 22-May-2014, 20-February-2016	24-February-2014, 21-May-2015, 19-February-2017	20-February-2017 to 28-February-2018	Meter No. MPC 49084 was replaced by Meter No. XE479853 on 31-May-2019.
	XE479853 (0.2s class)	Secure	Main Meter	31-May-2019, 03-September-2020	30-May-2020, 02-September-2021		
	3596486 (0.2s class)	Genus Power	Check Meter	20-February-2016	19-February-2017		
P137, P140, P143, P145, P148, P150, P154	MPE57986 (0.5s class)	SEMS	Main Meter	19-March-2010, 04-June-2012	18-March-2011, 03-June-2013	19-March-2011 to 03-June-2012, 25-February-2014 to 21-May-2014, 22-May-2015 to 19-February-2016,	Meter No. MPE57986 was replaced by Meter No. MPC49086 on 25-February-2013.
	MPC 49086 (0.2s class)	Secure	Main Meter	25-February-2013, 22-May-2014, 20-February-2016	24-February-2014, 21-May-2015, 19-February-2017		Meter No. MPC 49086 was replaced by Meter No. XE479855
	XE479855 (0.2s class)	Secure	Main Meter	03-September-2020	02-September-		

WTG ID	Meter No.	Make	Meter Type	Calibration Date	Validity of Calibration	Delay in Calibration	Remarks
					2021		on 31-May-2019.
	3596488 (0.2s class)	Genus Power	Check Meter	20-February- 2016	19-February- 2017	20-February- 2017 to 28- February-2018	