



**Verified Carbon
Standard**

44.40 MW WIND ENERGY PROJECT BY RUCHI SOYA INDUSTRIES LIMITED, INDIA



Document Prepared by

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

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Summary:

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by "Ruchi Soya Industries Limited" to perform the Joint RCP validation and verification of the "44.40 MW Wind Energy Project by Ruchi Soya Industries Limited, India".

The project activity envisaged 44.40 MW wind power project located in different location of Madhya Pradesh and Rajasthan state of India. The purpose of the project activities to generate energy electricity by the utilization of wind-based energy and further wheeling to the company's plant and selling remaining generated energy to the Indian grid. In this process there is no consumption of any fossil fuel and hence it does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

Revalidation of the Renewal of Crediting Period purpose: The project is registered with VCS with Project ID 835. Start date of the project activity is the 26-February-2010.

1	First Crediting Period	26-February-2010 to 25-February-2020
3	Second Crediting Period (Proposed)	26-February-2020 to 25-February-2030

Verification purpose: 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.

Start date of the project activity is the 26-February-2010. On this day, first WTG was commissioned. The monitoring period for this VCS verification is 13-December-2018 to 30-June-2021 (including both days) and the project activity achieved 140,837 tCO₂e emission reductions during this monitoring period thereon displaced 149,951.566 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.

Monitoring period of First crediting period is 13-December-2018 to 25-February-2020 and VCUs generated during this period is 68,406 tCO₂.

Monitoring period of second crediting period is 26-February-2020 to 30-June-2021 and VCUs generated during this period is 72,431 tCO₂.

The scope of the verification is the independent and objective review of the joint Project Description (PD) and Monitoring Report (MR). The joint PD & MR 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 previous registered project documents, CDM Project Standard for project activities, version 03.0, , VCS program guideline version 4.1 and VCS Standard version 4.2.

A risk-based approach has been followed to perform this RCP validation and verification activity. In the course of verification, 04 Corrective Action request (CAR) and 00 Clarification Requests (CLs) were raised and successfully closed. No FAR was raised during this RCP validation and verification. The review of the joint PD & MR 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. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The RCP validation and

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 RCP validation and 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/verification conducted to arrive at positive verification conclusions.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Hereafter referred as Applus+ Certification) has been appointed by “Ruchi Soya Industries Limited” to perform the RCP validation and verification of the “44.40 MW Wind Energy Project by Ruchi Soya Industries Limited, India” under guideline version 4.1 and VCS Standard version 4.2. The objective of this validation for renewal of crediting period and verification activity is to have an independent third party for the assessment of the project design, Joint PD & Monitoring Report and Final Joint Validation and 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 of version 20.0”
- The project's monitoring plan is assessed against “ACM0002 of version 20.0”
- 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 4.1 and standard version 4.1
- CDM validation and verification standard for project activities, Version 03.0
- CDM Project Standard for project activities, version 03.0
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- VCS program guideline v4.1
- VCS standard v4.2

Revalidation is seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs) for the renewed crediting period & verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions (VERs).

1.2 Scope and Criteria

The scope is defined as an independent and objective review of the Joint RCP PD and Monitoring report (MR) is prepared as per the approved methodology ACM 0002, version 20.0 for the 2nd crediting period and also followed the registered VCS PD and applied methodology ACM 0002, Version 20.0 The Joint VCS RCP PD and 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 and VCS standard Version 4.2 and guideline version 4.1, including the approved baseline and monitoring methodology ACM 0002, version 20.0. The RCP validation & verification was based on the requirements in the CDM validation and verification standard for project activities, Version 03.0, CDM Project Standard for project activities, version 03.0 and VCS program guideline version 4.1 and VCS Standard version 4.2.

The validation & 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 Joint VCD PD and Monitoring report. In line with Guidelines for Application of materiality in validation & verifications, the validation/verification team has conducted a complete verification of all the information presented in the Joint VCS PD and monitoring report and data presented ex-ante Emission reduction sheet and monitored data presented in the emission reduction calculation spread sheet. It invoices follows the paper trail back to the raw data such as meter reading records and invoices. There are no material errors, overestimation of ER, omission or misstatement. The validation/verification team has reviewed all the documents like commissioning certificates, Monthly Meter Readings, electricity sales records etc.

1.3 Level of Assurance

The validation/verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. The entire documents checked/Power plant verification conducted through site photographs shared by PP to arrive at positive validation and verification conclusions.

1.4 Summary Description of the Project

The project activity includes of 44 WEGs of 600 kW and 12 WEGs of 1500 kW, which makes total capacity of project activity as 44.40 MW, located at different sites of Madhya Pradesh and Rajasthan state of India. WEG wise location details and individual capacity are as follows;

No. of WTGs	Individual Capacity (kW)	Capacity (MW)	WTG model	Location
16	600 kW	9.60	Suzlon / S-52	Piploda, Ratlam (Madhya Pradesh)
6	1500 kW	9.00	Suzlon / S-82	Fatehgarh, Jaisalmer (Rajasthan)
4	1500 kW	6.00	Suzlon / S-82	Shergarh & Osiyan, Jodhpur (Rajasthan)
10	600 kW	6.00	Suzlon / S-52	Piploda, Ratlam (Madhya Pradesh)
2	1500 kW	3.00	Suzlon / S-82	Fatehgarh, Jaisalmer (Rajasthan)
10	600 kW	6.00	Suzlon / S-52	Palsodi, Ratlam (Madhya Pradesh)
8	600 kW	4.80	Suzlon / S-52	Palsodi, Ratlam (Madhya Pradesh)

The project activity supplying the generated electricity to unified Indian grid. The purpose of the project activity is to generate electrical energy through sustainable means using wind power resources. The project activity is estimated to generate 91,158 MWh of electricity annually, thus reducing GHGs to the tune of 84,822 tCO₂/annum for entire crediting period of 10 years.

The start date of operation of the project activity is 26-February-2010, which is the date of commissioning of first WTG of project activity.

Expected annual and total emission reductions during the proposed renewed 2nd crediting period are 84,822 tCO₂e/annum and 848,220 tCO₂e during the entire crediting period. In current monitoring period from 13-February-2018 to 30-June-2021 (First and last date included) the project activity has supplied 149,951.566 MWh of electricity resulting in GHG emission reductions of 140,837 tCO₂e.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

Validation and Verification Scope: The scope is defined as an independent and objective review of the Joint PD & Monitoring report. The RCP VCS PD and 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 and VCS standard, Version 4.2 and guideline version 4.1, including the approved baseline and monitoring methodology ACM 0002, version 20.0 The validation and verification were based on the requirements in the CDM Validation and Verification Standard for project activities, version 03.0, CDM Project standard for project activities, version 03.0, and VCS guideline version 4.1 and standard, version 4.2.

The validation and verification are 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 combined project description and the Monitoring report

Validation and Verification Process: The project assessment is based on the Clean Development Mechanism Validation and Verification Standard for project activities, version 03.0 and VCS Standard version 4.2 and VCS guideline, version 4.1 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:

- I. A desk review of the monitoring Report against the registered PD;
- II. Follow-up interviews with project participant;

III. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The prepared Joint RCP validation and 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. LGAI Technological Center, S.A. (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 verifying the identified criteria.

Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center S.A. (Applus+ Certification) ensuring that the required 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 covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Pankaj Kumar	LA/TE	YES	YES	NA	YES
Mr. Simon Shen	TR	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

Document review

The Joint PD and Monitoring Report version 04 submitted by the PP was reviewed against the approved methodology 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 was conducted by LGAI Technological Center S.A. (Applus+ Certification) who performed interviews, video conferencing with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report in the below sections.

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 Joint RCP PD and MR Version 04 dated: 10-February-2022 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 Joint Validation & Verification of the final documentation including the final Joint validation & 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 project owners the positive verification opinion and relevant documents are submitted to the VCS secretariat through the VCS web-platform.

2.2 Document Review

The details of the document observed during the RCP validation and verification process are listed in appendix 1 of this report.

2.3 Interviews

A remote audit was conducted for the project activity on 15-November-2021. Remote audit was conducted due to on-going COVID-19 pandemic situation in the entire state of India. Taking into account the rules of relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the DOE and other relevant

travel restrictions and guidance (for example, a requirement to self-isolate upon return). Moreover, The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.2)

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 and calibration certificates 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, PPA, JMR sheets, invoice, calibration certificates, s, 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.	Giri	Mr. Sunil	Site-in-Charge, Rajasthan Site	15-November-2021 (Through Skype video conference call)	Project Implementation, JMR & invoicing procedure, calibration, grievance mechanism, Management practices, data storage, QA/QC	Mr. Pankaj Kumar
2.	Khan	Mr. Irshad	Site-in-charge, Madhya Pradesh site			
3.	Ghosh	Mr. Bibhushita	Consultant EKI Energy Services Ltd.			

2.4 Site Inspections

Duration of Remote Audit: 15-November-2021 (Via video conferencing)				
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. Assessment team also checked that whether the monitoring plan as described in the VCS PD is actually practised onsite. Also, assessment team checked any change in host country criteria which may affect the baseline of the project activity.	Madhya Pradesh and Rajasthan States of India (Through Skype Video conference call)	15-November-2021	Mr. Pankaj Kumar

2.5 Resolution of Findings

The objective of this phase of the Validation and Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues from previous 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 joint PD & MR Version 04 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
Demonstration of additionality	00	00	00
Emission reductions	00	01	00
Calibration details	00	01	00
Monitoring plan	00	00	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	00	00
Others (No double counting)	00	01	00
Total	00	04	00

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

2.5.1 Forward Action Requests

NO FAR was raised during the earlier verification and during current validation for renewal of crediting period.

3 VALIDATION FINDINGS

3.1 Project Details

The project activity has been undertaken to harness the available wind power potential through WEGs installed in different locations of Madhya Pradesh and Rajasthan States of India. The project envisaged 56 WEGs of total capacity 44.40 MW each in which 12 no's WEGs are of 1500 kW (Suzlon model S-82) and 44 no's WEGs of 600 kW (Suzlon S-52).

The project activity is estimated to generate 91,158 MWh of electricity per annum, which is supplied to Unified Indian grid. The project activity will help in greenhouse gas (GHG) emission reduction by using renewable resources (wind energy) for generating power which otherwise would have been generated using grid mix power plants, which is dominated by fossil fuel based thermal power plants. The project activity is a green field project aimed at utilizing wind to produce power.

Geo coordinates checked on Google earth and verification team conclude geo coordinates of project locations are consistent with JOINT PD AND MR. Geo Coordinates of Project activity are as follows: -

S. No.	Physical Location	Rated Capacity of the WTG (kW)	Location No.	Latitude	Longitude
1.	Village-Naulakha, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600	NL-1	23°38'23.0" N	74°59'12.7" E
		600	NL-2	23°38'25.9" N	74°59'07.1" E
		600	NL-3	23°38'37.3" N	74°59'13.1" E
		600	NL-4	23°38'45.1" N	74°59'25.7" E
		600	NL-5	23°38'35.9" N	74°59'33.3" E
		600	NL-6	23°38'25.9" N	74°59'39.7" E
		600	NL-7	23°38'17.1" N	74°59'39.4" E
		600	NL-8	23°38'21.9" N	74°59'53.7" E
		600	NL-9	23°38'33.5" N	75°00'00.2" E
		600	NL-10	23°38'43.1" N	75°00'00.2" E
2.	Village-Padliya Umat, Taluka- Piploda, District – Ratlam (Madhya Pradesh)	600	JO-10	23°35'51.6" N	75°04'44.1" E
		600	JO-08	23°35'45.5" N	75°04'47.9" E
3.	Village-Bargad, Taluka - Piploda, District Ratlam (Madhya Pradesh)	600	JO-12	23°36'10.3" N	75°04'30.3" E
		600	JO-13	23°36'17.2" N	75°04'26.6" E
4.	Village-Hariyakheda, Taluka- Piploda, District -	600	JO-14	23°36'23.7" N	75°04'24.3" E
		600	JO-15	23°36'31.0" N	75°04'21.8" E

S. No.	Physical Location	Rated Capacity of the WTG (kW)	Location No.	Latitude	Longitude
	Ratlam (Madhya Pradesh)	600	JO-16	23°36'37.7" N	75°04'20.8" E
		600	JO-17	23°36'45.9" N	75°04'15.2" E
		600	JO-18	23°36'59.3" N	75°04'12.6" E
		600	JO-19	23°37'05.9" N	75°02'48.5" E
5.	Village-Chourasi Badayla, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600	JO-03	23°34' 46.9" N	75°05'46.8"E
		600	JO-04	23°34' 53.5" N	75°05'48.4"E
		600	JO-05	23°34' 57.2" N	75°05'22.1"E
6.	Village-Uperwada, Taluka-Piploda, District - Ratlam (Madhya Pradesh)	600	JO-20	23°36' 46.5" N	75°02'20.9"E
		600	JO-21	23°36' 38.2" N	75°02'21.7"E
		600	JO-22	23°36' 58.6" N	75°02'46.0"E
7.	Village-Akal, Taluka-Fatehgarh, District-Jaisalmer (Rajasthan)	1500	AK-400	26°47'17.3" N	77°05'12.0"E
		1500	AK-401	26°47'05.0" N	77°05'25.3"E
		1500	AK-414	26°48'12.4" N	77°05'06.8"E
		1500	AK-415	26°48'33.5" N	77°05'23.5"E
		1500	AK-416	26°48'25.6" N	77°05'35.8"E
		1500	AK-417	26°48'12.2" N	77°05'46.1"E
		1500	AK-253	26°47'51.2" N	77°08'14.0"E
		1500	AK-308	26°47'56.9" N	77°08'55.6"E
8.	Villages-Belwa Ranaji & Sagat Nagar, Taluka-Shergarh, District-Jodhpur (Rajasthan)	1500	RKB-075	26°30'52.3" N	72°32'22.2"E
		1500	RKB-076	26°30'05.7" N	72°31'06.4"E
9.	Village-Dhundhariya, Taluka- Osiyan, District-Jodhpur (Rajasthan)	1500	OS-48	26°43'57.6" N	72°56'43.1"E
		1500	OS-49	26°43'55.5" N	72°56'59.5"E
10.	Village-Gopalpura, Taluka-Ratlam, District-Ratlam (Madhya Pradesh)	600	PR-01	23°23'26.4"N	74°55'27.1"E
		600	PR-02	23°23'20.8"N	74°55'23.1"E
		600	PR-03	23°23'14.9"N	74°55'13.4"E
		600	PR-04	23°23'08.1"N	74°55'10.8"E
		600	PR-05	23°23'01.5"N	74°55'07.9"E
		600	PR-06	23°22'44.6"N	74°55'08.1"E
		600	PR-08	23°22'29.6"N	74°55'14.0"E
		600	PR-17	23°22'54.0"N	74°55'12.0"E
		600	PR-19	23°23'18.0"N	74°55'36.6"E
11.	Village-Rampuriya, Taluka-Ratlam, District-Ratlam (Madhya Pradesh)	600	PR-09	23°22'25.6"N	74°55'24.6"E
		600	PR-10	23°21'59.1"N	74°55'34.4"E
		600	PR-11	23°21'25.3"N	74°55'11.9"E
		600	PR-12	23°21'34.5"N	74°55'30.8"E
		600	PR-13	23°21'41.6"N	74°55'31.2"E
		600	PR-14	23°21'47.8"N	74°55'32.0"E
		600	PR-15	23°21'53.8"N	74°55'32.6"E
		600	PR-16	23°21'28.2"N	74°55'29.2"E
		600	PR-18	23°21'21.8"N	74°55'23.6"E

Assessment team checked the technical details of the WEGs mentioned in the section 1.11 of joint PD and MR. Same is found inline with Suzlon specification document.

The validation team confirms that the project activity falls under the category 1 'Project' as per para 3.9.1 of the VCS Standard version 4.2, as it has potential to reduce GHG emission less than 300,000

tCO₂e/year. The spatial extent of project boundary is the Indian grid. The project activity will supply electricity to the Indian Grid through transmission lines connected through sub-stations.

Since the project activity generates electricity through wind energy, a clean renewable energy source it doesn't cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

Validation team confirmed that the project activity is not a grouped project.

There are no laws and regulations governing the power generation using wind energy. The project is a voluntary effort by the project proponent. There is no legal requirement on the choice of a particular technology for power generation. The project activity conforms to all the applicable laws and regulations in India.

The project ownership is the legal right to control and operate the project activities. Ruchi Soya Industries Limited is the project proponent (PP) of project activity and they have the legal right to control and operate the project activities

Assessment team checked onsite and confirms that the details of the project proponent areas below

Organization name	Ruchi Soya Industries Limited
Contact person	Mr. Ashish Verma
Title	Assistant Manager
Address	601, Part B-2, Metro Tower, 6 th Floor, Vijay Nagar, AB Road, Indore, Madhya Pradesh 452010
Telephone	0731 428 9086
Email	registry@enkingint.org

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. Bibhushita Ghose
Title	Assistant Manager-Operations
Address	Plot No 48, Scheme 78, Vijay Nagar Part- II, Indore 452010, Madhya Pradesh, India
Telephone	0731 428 9086
Email	bibhushita.ghose@enkingint.org

26-February-2010 is the project start date which has been already validated during the initial validation and VVB confirms that the start date based on the validated information in the initial validation of this VCS project activity.

PP has chosen 10-year renewable crediting period. The 1st crediting period was from 26-February-2010 to 25-February-2020. It was confirmed that current Joint PD & MR is being developed under the 2nd crediting period which will start from 26-February-2020 to 25-February-2030.

The project activity is not a part of grouped project. Leakage management is not applicable to current project.

No commercially sensitive information has been excluded from the public version of the project description.

Estimated average annual GHG emission reductions from the project activity are 84,822 tCO₂e per year, which is less than 300,000 tCO₂e per year. Hence the project scale of the project activity will become “Projects”.

The estimated GHG Emission Reductions will depend upon the actual energy supplied to grid by the project activity. The tentative Emission Reduction for the project activity instances being included in the grouped project activity are as follows:

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
2021-2022	84,822
2022-2023	84,822
2023-2024	84,822
2024-2025	84,822
2025-2026	84,822
2026-2027	84,822
2027-2028	84,822
2028-2029	84,822
2029-2030	84,822
2030-2031	84,822
Total estimated ERs	848,220
Total number of crediting years	10
Average annual ERs	84,822

Designated National Authority (DNA) of the host country (India) has stipulated four indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects in India. The project proponent believes that the project activity has contributed to sustainable development in terms of the four indicators as follows

The project promotes sustainable development through the following aspects:

1. Social well-being: The project activity generates additional employment opportunities that help in alleviation of poverty and removal of social disparity. The project activity has led to the development of supporting infrastructure such as road network etc., in the project locations, that also provide access to the local population. Use of a renewable source of energy reduces the dependence on imported fossil fuels and associated price variation thereby leading increased energy security.
2. Economic well-being: The project activity requires temporary and permanent, skilled and semi-skilled manpower at the wind farms; this will create additional employment opportunities. The investment in the project activity will increase the economic activity of the local area.
3. Environmental well-being: The project activity involves use of renewable energy source for electricity generation instead of fossil fuel-based electricity generation which would have emitted gaseous, liquid and/or solid effluents / wastes.
4. Technological well-being: Increased interest in wind energy projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future.

All the above-discussed points are the contributions of the project activity for the sustainable development.

Being a renewable resource, using wind energy to generate electricity contributes to resource conservation.

Thus, the project causes no negative impact on the surrounding environment contributing to environmental well-being.

3.2 Participation under Other GHG Programs

The project was registered under UNFCCC CDM mechanism. Details are as follows:-

Sr. No.	Ref. No.	Date of Registration	Project Title
1	8592	13-December-2012	35.10 MW Wind Energy Project by Ruchi Soya Industries Limited, India
2	8818	20-December-2012	Grid Connected Wind Power Generation Project by Ruchi Soya Industries Limited in Madhya Pradesh

VVB checked the CDM validation reports of CDM 8592 AND CDM 8818 and confirmed that VCS validation completed on 25- Feb-2012 as confirmed with FVR of VCS validation, i.e.before CDM validation and

validation report for validation. The VVB confirms that at the time of establishing the Crediting Period type and duration for this project, leading to its renewal after the expiry of the current period being renewed, the project was not registered under two GHG programmes and so Section 3.20.2 read along with Section 3.8.7. of the VCS Standard version 4.2. is not applicable. The project has not undergone GAP Validation, but being registered first into VCS and hence adhering to VCS rules at the time of registration.

VVB also confirms that the no VCS benefits has been taken for period in which CDM benefits was taken. Same is mentioned in the section 1.15.1 and Assessment team found it correct. Moreover, PP has declared that project is not currently seeking registration under any other GHG programs except CDM, and the project has not participated under any other GHG program except CDM and any other GHG program has not rejected the project activity. VVB checked and verified an undertaking dated 21/01/2022 provided by PP confirming that there will not be any double counting of emission reduction benefits other than VERRA. However project is also approved under UNFCCC. VVB also confirmed that projects were not registered under UNFCCC during validation under VERRA.

CAR 02 were raised on this section and closed successfully. Please refer Appendix 2 for further details.

3.3 Safeguards

3.3.1 No Net Harm

As PP does not see and identify any potential negative environmental and socio-economic impacts, hence this section is not required. Assessment team also cross checked by interviewing stakeholders during remote visit and confirm that there are no any potential negative environmental and socio-economic impacts attributed to the project activity.

3.3.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration hence not applicable in the current monitoring period. No grievances received during the current monitoring period,

3.3.3 Environmental Impact

The project activity involves power generation using wind energy and no environmental impact. Assessment team confirms this based on its local and sectoral expertise.

3.3.4 Public Comments

Not applicable during RCP validation.

3.3.5 AFOLU-Specific Safeguards

Not applicable as this is non-AFOLU project.

3.4 Application of Methodology

3.4.1 Title and Reference

CDM Methodology: ACM0002 version 20.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources. The assessment team has confirmed that the selected baseline methodology is the approved baseline methodology available on UNFCCC web site. The applied methodology is the latest version. The selected baseline methodology, i.e., ACM0002, version 20.0 is correctly applied to this type of project. All the applicability criterion of applied methodology is appropriately justified in the updated JOINT PD and MR by the project participant.

Title and reference of tools applied to the project activity:

TOOL 11: "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1¹.

"Tool to calculate the emission factor for an electricity system"; Version: 07.0 (EB 100)

<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

VVB checked and ensured that the latest version of methodology and corresponding tools are used for renewal of crediting period.

VVB also checked whether there is any change in the policy or regulatory requirement related to renewable energy and confirmed that there is no any change in the regulatory regime and The Electricity Act , 2003 is still valid. VVB confirmed that there is no change in regulatory requirement which affects the baseline and additionality.

3.4.2 Applicability

Applicability criteria for the applied methodology in the VCS Joint PD and MR against these criteria are assessed by the validation team by means of document review and interviews. Thus, the validation team confirms that the Project Participant has correctly applied the approved methodology and the selected version of the methodology is valid at the time of validation.

Sl. No.	CDM Methodology Requirement	Project Justification	Means of Validation
1	According to para 3 of ACM0002 , version 20.0, the methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant;	The project activity is wind power generation through installation of greenfield power plant as there was no power plant in that area prior to installation of this power plant. This project activity is not a capacity	The validation team by means of remote audit interview and supportive documents confirms that the project activity is renewable energy project involving wind

¹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf>

	(b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	addition to an existing plant or retrofit of an existing operating plant or rehabilitation of an existing plant or replacement of an existing plant. So only option (a) is applicable	energy. Hence, the criterion is applicable.
2	The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The project activity is greenfield wind power project.	The validation team by means of remote audit interview confirms that project is greenfield wind power project. Hence, the mentioned criterion is applicable.
3	In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit or rehabilitation of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The project activity is greenfield wind power project.	The validation team by means of remote audit interview confirms that project is greenfield wind power project. Not capacity addition, retrofit, rehabilitation or replacement in the project activity. Hence, the mentioned criterion is not applicable.
4	In case of hydro power plants: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs. (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, as per definitions given in the Project Emissions section, is greater than 4 W/m². (c) The project activity results in new single or multiple reservoirs and the power density, as	This is a wind power project which does not involve construction of any reservoir.	The validation team by means of remote audit interview confirms that project is installed of new wind-based electricity generation plants. Hence, the criterion is not applicable.

	per definitions given in the Project Emissions section, is greater than 4 W/m². (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, as per definitions given in the Project Emissions section, is lower than or equal to 4 W/m², all of the following conditions shall apply: i. The power density calculated using the total installed capacity of the integrated project, as per definitions given in the Project Emissions section, is greater than 4 W/m² ; ii. Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; iii. Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project		
5	In the case of integrated hydro power projects, project proponent shall: a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the	The project activity is wind power project not hydro project.	The validation team has confirmed project is wind power project. Hence, the criterion is not applicable.

	inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.		
6	Methodology is not applicable to the following (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site. (b) Biomass fired power plants.	The Project activity is a Wind project and does not involve switching from fossil fuel to renewable energy. This is a wind power project and not a biomass plant.	The validation team has confirmed project is wind power project. Hence, the criterion is not applicable.
7	In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”	Not applicable as this is not a case of retrofits, rehabilitations, replacements, or capacity additions.	The validation team has confirmed project is wind power project. Hence, the criterion is not applicable.
Applicability of ‘Tool to calculate the emission factor for an electricity system’			
11	This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g., demand-side energy efficiency projects).	Since the project activity is grid connected, this condition is applicable, and the emission factor has been calculated accordingly.	The validation team by means of remote audit interview and supportive documents confirm that the project supplies electricity to the national grid i.e., Indian grid. Hence, the criterion is applicable.
12	Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off grid power plants. In the latter case, the conditions specified in “Appendix 2: Procedures related to off grid power generation” should be met. Namely, the total capacity of off-grid power	Since the project activity is grid connected, this condition is applicable, and the emission factor	The validation team by means of remote audit and supportive documents confirm that the project supplies

	plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	has been calculated accordingly.	electricity to the national grid i.e., Indian grid. Hence, the criterion is applicable.
13	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity is located in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.	The validation team by means of remote audit and supportive documents confirm that the project is located in India. Hence, the criterion is applicable.
14	Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The project activity is a grid connected wind power project and not a biomass power plant. Therefore, this criterion is not applicable for the project activity.	The validation team by means of remote audit and supportive documents confirm that the project is a wind power project. Hence this criterion is not applicable.

3.4.3 Project Boundary

The spatial boundary includes the power plant/unit and all power plants/units connected physically to the electricity system that the project power plant is connected to as verified from the applied methodology ACM0002 - Version 20.0. VVB could confirm this during the remote audit, also from the commissioning certificates. The assessment team was able to confirm that all the identified emission sources which are impacted by the project activity are addressed by the approved methodology and can be seen in the Table below.

Source		Gas	Included?	Justification/Explanation
Baseline	Source 1	CO ₂	Yes	Major source of emission
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source

Source		Gas	Included?	Justification/Explanation
Project	Source 1	CO2	No	Minor emission source
		CH4	No	Minor emission source
		N2O	No	Minor emission source

The assessment team confirms that the Joint PD& MR has correctly described the project boundary, including the physical delineation of the project activity and complies with VCS Standard version 4.2

3.4.4 Baseline Scenario

The assessment team assessed the validity of the updated baseline through an assessment of the following points:

- The impact of new relevant national and/or sectoral policies and circumstances on the baseline considering relevant guidance from the Board with regard to renewal of the crediting period of the VCS project activity
- The correctness of the application of the approved methodologies for the determination of the continued validity of the updated baseline and the estimation of GHG emission reductions for the applicable crediting period of the VCS project activity.
- The assessment of estimation of emission reductions for the applicable crediting period.

The validity of the baseline has been assessed as per the methodological tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1. The assessment is performed as follows:

Step 1: Assess the validity of the current baseline for the next crediting period.

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies.

The impact of the national and/or sectoral policies and circumstances upon the baseline scenario of the project activity has been assessed during the crediting period renewal of the project activity.

The Electricity Act of year 2003 is related to the laws relating to generation, transmission, distribution, trading and use of electricity and was in force at the time of the completion of the baseline study for the registered VCS PD. In accordance with the section 3 of the Electricity Act 2003, the Central Government notified the National Electricity Policy² on 12-February-2005 which was in force at the time of completion of the baseline study as stated in the registered VCS PD of the project activity. This policy has not been revised since then and is currently in force as well.

²<http://www.cercind.gov.in/Act-with-amendment.pdf>

In addition, the State Electricity Regulatory Commissions (SERCs) have announced preferential tariffs and Indian Renewable Energy Development Agency (IREDA) provides term loan assistance towards establishing wind power projects. All these fiscal and financial incentives were in force at the time of completion of the baseline study for the registered VCS PD of the project activity and still continue to exist. The state electricity regulatory commission issues tariff order in respect of procurement of WTGs and there is no mandatory national and/or sectoral policies have come into effect that would affect the compliance of the current baseline. Hence, it has been concluded that the current baseline complies with all relevant mandatory national and/or sectoral policies that have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period.

Hence the current baseline remains the same as it was in the registered VCS PD. There has been no significant change in the relevant national and/or sectoral policies from the date of registration till now. In absence of the project activity, similar amount of electricity would have been generated by the Indian grid. Thus, the assessment team concludes that the baseline for the project activity remains same and is in line with the relevant mandatory national and/or sectoral policies.

Step 1.2: Assess the impact of circumstances

There are no impacts of circumstances existing at the time of requesting renewal of the crediting period on the current baseline scenario.

The assessment team has checked the baseline scenario identified at the validation of the project activity which was the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources into the grid. The investment made by the PP was on voluntary level which intends to replace equivalent amount of electricity at grid from renewable source, hence the same baseline as identified in the previous crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period under VCS.

The current installed capacity of India is still predominantly fossil fuel-based power generation and therefore, is a major source of carbon dioxide emissions in India. The sector-wise details of installed capacity as provided in the JOINT PD AND MR have been checked. Hence, there exists scope for reducing the CO₂ emissions in the country by increased use of renewable energy sources. Furthermore, the project participant has considered the latest available CO₂ Baseline Database (CEA database, version 17) at the time of requesting renewal of the crediting period for establishing the baseline emission factor, which itself considered all the new circumstances. Hence it has been concluded that there is no impact of the circumstances existing at the time of requesting renewal of crediting period and the baseline remains unchanged.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

This sub-step is not applicable since the identified baseline scenario at the validation of the project activity did not correspond to the continuation of use of the current equipment(s) without any investment. Further as explained earlier that the baseline scenario was the electricity import/generation from the power plants connected to the electricity grid. The project activity in

green field project and there is no any baseline equipment or investment involved in project activity. Therefore, this condition is not applicable to the project activity.

Step 1.4: Assessment of the validity of the data and parameters

As per this step “where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the VCS project activity”.

The emission factor has been updated along with the approach used to calculate the emission factor in the revised JOINT PD AND MR and the same has been found correct by the assessment team for the second crediting period of the project activity.

Step 2: Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

As the applied methodology ACM0002 - Version 20.0, the baseline for the project remains the same as that in the registered VCS PD as “the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the ‘Tool to calculate the emission factor for an electricity system’.

Step 2.2: Update the data and parameters

The approved baseline methodology, ACM0002 - Version 20.0, has been used to determine the baseline and the estimation of emission reductions for the applicable crediting period. As referred in the methodology “Tool to calculate the emission factor for an electricity system” version 07.0 has been used to determine continued validity of the baseline based on combined margin (CM) calculations.

For the baseline scenario as per the applied methodology ACM0002 - Version 20.0, the following applies

If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “TOOL07: Tool to calculate the emission factor for an electricity system”.

The project activity involved setting up of WTGs to harness the power of wind to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). The

calculations for this combined margin have been made based on data from an official source (where available) and made publicly available. The CEA database version 17 is the latest available data at the time of JOINT PD and MR submission to VVB for validation hence same is accepted for the emission factor calculations.

Parameter	Value	Source
Operating margin CO ₂ emission factor for the project electricity system in year y ($EF_{grid,OM,y}$)	0.9522 tCO ₂ /MWh	This has been calculated as the last 3-year (2018-19, 2019-20, 2020-21) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 17.0, Oct. 2021 published by Central Electricity Authority (CEA), Government of India.
Build margin CO ₂ emission factor for the project electricity system in year y ($EF_{grid,BM,y}$)	0.8653 tCO ₂ /MWh	The value has been fixed ex-ante and calculated based on the most recent information available at the time of submission of PD and is fixed for the entire crediting period. The value of BM is directly , sourced from Baseline CO ₂ Emission Database, Version 17.0, Oct 2021 published by Central Electricity Authority (CEA), Government of India.
Combined margin CO ₂ emission factor for the project electricity system in year y ($EF_{CM,grid,y}$)	0.9305 tCO ₂ /MWh	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 17.0, Oct 2021 published by Central Electricity Authority (CEA), Government of India.

The baseline emissions from the project have been calculated as per the “Tool to calculate the emission factor for an electricity system, version 07.0” with six separated steps. In addition, the calculation has been cross-checked with “Central Electricity Authority (CEA) database Version 17, Oct. 2021” published by India’s Central Electricity Authority (CEA), which was the most recent source of data available at the time of submission of JOINT PD and MR for the request for renewal of the crediting period. The calculations of the operating margin, build margin and combined margin has been found correct by the assessment team.

3.4.5 Additionality

Regulatory Surplus Demonstration:

In India, there is no any regulation to install the wind projects and the project activity is a voluntary step taken by PP. In India, the fossil fuel based thermal power generation is dominant over the renewable based power generation, thus baseline scenario remains same as original. As discussed in section 3.4 of VCS PD, there is no any Impact of the national and/or sectoral policies and circumstances upon the baseline scenario of the project activity and project activity is additional as per CDM Tool for the demonstration and assessment of additionality and as per VCS Program rules.

There are no certain laws and regulations which give comparative advantage to more emission intensive technologies or less emission intensive technologies. There are no any Type E+ and E- policies applicable to the project activity which prevent the implementation of local laws and regulations that would seek to contribute towards climate change mitigation. The project activity is in compliance with local laws and

regulations. As explained in section 3.4, the current baseline complies with all relevant mandatory national and/or sectoral policies.

The additionality will be similar to the conditions mentioned in the registered and validated VCS PD of 1st crediting period. As per paragraph 3.8.9 of VCS standard, a full reassessment of additionality is not required when renewing the project crediting period. Therefore, it is not applicable during the validation of renewal of crediting period.

3.4.6 Quantification of GHG Emission Reductions and Removals

Quantification of Baseline emissions

The proposed project activity has applied baseline methodology as mentioned in the methodology ACM0002 - Version 20.0. As per the paragraph 22 of the methodology: “Baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants”.

The baseline emissions are calculated as follows

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh)

$EF_{grid,CM,y}$ = 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” (tCO₂/MWh)

Project Activity is greenfield project, Hence

$$EG_{PJ,y} = EG_{PJ,facility,y}$$

Where;

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

Calculation of the emission factor

Following the “Tool to calculate the emission factor for an electricity system, version 07.0”, the baseline grid emission factor has been updated as per “Baseline CO₂ Emission Database, Version 17.0, Oct 2021 published by Central Electricity Authority (CEA), Government of India.

The updated operating margin (OM) emission factor in the revised JOINT PD and MR is 0.9522 tCO₂/MWh and the build margin (BM) emission factor is 0.8653 tCO₂/MWh. The assessment team has confirmed that this is the most recent data publicly available at the time of the validation for the renewal of the crediting period.

According to the “Tool to calculate the emission factor for an electricity system, version 07.0”, the default weights: W_{OM}=0.75 for Operating Margin and W_{BM}=0.25 for Build Margin in the third crediting period of wind power generation projects are adopted.

The combined margin emissions factor is calculated as follows:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM}$$

Where:

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor of national grid in year y (tCO₂/MWh)

$EF_{grid,OM,y}$ = Operating margin CO₂ emission factor of national grid in year y (tCO₂/MWh)

W_{OM} = Weighting of operating margin emissions factor (%)

$EF_{grid,BM,y}$ = Build margin CO₂ emission factor of national grid in year y (tCO₂/MWh)

W_{BM} = Weighting of build margin emissions factor (%)

$$\begin{aligned} EF_{CM,grid,y} &= 0.9522 \times 0.75 + 0.8653 \times 0.25 \\ &= 0.9305(\text{tCO}_2/\text{MWh}) \end{aligned}$$

The calculation of the $EF_{CM,grid,y}$ has been checked by the assessment team and was found consistent with the latest emission factor calculation tool.

The baseline emissions for the proposed project activity were calculated as follow:

$$\begin{aligned} BE_y &= EG_{PJ,y} \times EF_{grid,CM,y} \\ &= 91,158 \text{ MWh} \times 0.9305 \text{ tCO}_2\text{e/MWh} \\ &= 84,822 \text{ tCO}_2\text{e} \end{aligned}$$

Annual average baseline emission is estimated to be **84,822 tCO₂e**.

Quantification of Project emissions (PE_y)

The project activity is based on renewable wind energy, therefore, as per methodology ACM0002 Version 20.0, Project emissions should not be considered, PE_y = 0

Quantification of Leakage (LE_y)

In accordance with Methodology ACM0002 - Version 20.0, as activities such as power plant construction and upstream emissions from fossil fuel use (e.g., extraction, processing, transport etc.) are neglected, leakage is not considered.

Emission reductions

In accordance with Methodology ACM0002 - Version 20.0, emission reductions were calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂e/yr)

PE_y = Project emissions in year y (t CO₂e/yr)

The results of the emission reduction estimation of project activities in the first crediting period are shown in the table below:

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
2020-2021	84,822	0	0	84,822
2021-2022	84,822	0	0	84,822
2022-2023	84,822	0	0	84,822
2023-2024	84,822	0	0	84,822
2024-2025	84,822	0	0	84,822
2025-2026	84,822	0	0	84,822
2026-2027	84,822	0	0	84,822
2027-2028	84,822	0	0	84,822
2028-2029	84,822	0	0	84,822
2029-2030	84,822	0	0	84,822
Total	848,220	0	0	848,220

The total emission reductions are 848,220 tCO₂e over 10 years (second) crediting period.

Through the assessment process validation team confirmed that:

- All the assumptions and data used by the project participants are listed including their references and sources;

- All documentation used by the project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the JOINT PD and MR;
- All values used in the JOINT PD and MR are considered reasonable in the context of the VCS project activity;
- The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

All estimates of the baseline emissions can be replicated using the data and parameter values provided in the JOINT PD and MR.

3.4.7 Methodology Deviations

The assessment team confirms that the JOINT PD and MR complies with the requirements in the applied monitoring methodology ACM0002, Version 20.0. Hence, there is no any methodology deviation applicable for the project activity.

3.4.8 Monitoring Plan

The project monitoring plan is in compliance with the monitoring ACM0002 - Version 20.0. Since the project is a wind energy generation activity, Project emissions and Leakage accounting has not been considered for the project since the renewable energy technology equipment used is new equipment and not transferred from another activity. The monitorable action plan for the same has been included in section 5.3 of the JOINT PD and MR. Validation team confirms that the project participant is able to implement the monitoring plan.

Parameters determined ex-ante

The baseline emission factor of 0.9305 tCO₂/MWh is determined ex-ante based on the most recent information available at the time of requesting for the renewal of the crediting period, which is calculated as a combined margin (CM), consisting of the combination of OM and BM emission coefficient. The parameters applied in the calculation are validated by the assessment team to be credible.

Parameter determined ex-post

The project applies monitoring methodology ACM0002 - Version 20.0. "Grid connected renewable electricity generation", as per the methodology, monitoring shall consist of following parameters:-

Electricity exported to the grid by the project activity in year y (EG_{export, y}):-

This parameter refers to the total energy exported to the grid by project activity and measured through energy meters of 0.2s accuracy class installed at common metering point at each project location on continuous basis and recorded monthly in joint meter reading report jointly by the representatives of the state utility and the contractor (SISL).

Electricity imported by the project activity from the grid in year y (EG_{import, y}):-

This parameter refers to the total energy imported from the grid by project activity and measured through energy meters of 0.2s accuracy class installed at common metering point at each project location on

continuous basis and recorded monthly in joint meter reading report jointly by the representatives of the state utility and the contractor (SISL).

Quantity of net electricity supplied to the grid as a result of the implementation of the project activity in year y ($EG_{\text{facility}, y}$);

The net electricity supplied from the project is calculated using parameters i.e., $EG_{\text{export}, y}$ & $EG_{\text{import}, y}$. Net electricity calculated using below formula:

$$EG_{\text{facility}, y} = EG_{\text{export}, y} - EG_{\text{import}, y}$$

Further, Meters installed at common metering point, at each project location of both Madhya Pradesh and Rajasthan states of India, accurately monitors electricity supplied to the grid. Joint Meter readings taken at all metering location have been used to achieve the parameter $EG_{\text{facility}, y}$. The billing of the net energy supplied will be done based on the net energy supplied to the state utility board. Calibration of monitoring meters will be tested once in a year.

The net electricity supplied to the grid by the given WTG for the given month (net export MWh) is obtained by subtracting gross electricity generated from auxiliary electricity generated and transmission losses.

The monitoring plan describes the organizational structure, roles and responsibility, the monitoring instruments, data monitoring procedures, emergency preparedness and the management system. During the remote audit assessment team has confirmed that the monitoring is planned in a reasonable manner and considered feasible to be implemented by the PP. All the monitored data will be archived electronically for a period of 2 years after the crediting period. Accuracy, calibration, periodical testing and maintenance procedures of monitoring equipment is clearly mentioned in the section 5.2 of JOINT PD and MR. Assessment team has reviewed the same and is convinced that the same is adequate and will lead to correct measurement of the net electricity exported to the grid.

3.5 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

4 VERIFICATION FINDINGS

4.1 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 monitoring plan in the Joint PD & MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been
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	carried out in accordance with the formulae and methods described in the monitoring plan of JOINT PD & MR.
Findings	CAR 03 was raised on this section and closed successfully. Please refer Appendix 2 for further details.
Conclusion	Ex-ante Parameter: For verification of period from 13-December-2018 to 25-February-2020 (Comes under 1st Crediting Period): EF_{grid,OM, y} : Parameter is fixed ex-ante for the entire 1st crediting period and as per the registered VCS PD same is fixed 0.9941 tCO₂/MWh. EF_{grid,BM, y} : Parameter is fixed ex-ante for the entire 1st crediting period and as per the registered VCS PD same is fixed 0.8123 tCO₂/MWh. Ex ante value of OM and BM emission factor is taken from CEA database, version 06 published in March 2011. Verification team checked the EF value and found in consistent with registered CDM PDD and VCS PD. EF_{grid,CM, y} : Parameter is fixed ex-ante for the entire 1st crediting period and as per the registered VCS PD same is fixed 0.94865 tCO₂/MWh. Verification team found same was used in the ER calculations. Ex ante value of emission factor is calculated based on above parameters and their weighing - 75% and 25% respectively). Verification team checked the EF value and found in consistent with registered PD. For verification period from 26-February-2020 to 30-June-2021 (comes under 2nd Crediting Period) EF_{grid,OM, y} = Parameter is fixed ex-ante for the entire 2nd crediting period which has been calculated This has been calculated as the last 3-year (2018-19, 2019-20, 2020-21) generation-weighted average, sourced from Baseline CO2 Emission Database, Version 17.0, Oct. 2021 published by Central Electricity Authority (CEA), Government of India. The calculated value of OM is 0.9522 tCO₂/MWh. EF_{grid,BM, y} = Parameter is fixed ex-ante for the entire 2nd crediting period . The value of BM has been sourced from the CEA CO2 baseline database, version 17. The value of BM is calculated to be 0.8653 tCO₂/MWh. . EF_{grid,CM, y} = Parameter is fixed ex-ante for the entire 2nd crediting period The calculated value of CM is 0.9305 tCO₂/MWh. Verification team found same was used in the ER calculations. Ex ante value of emission factor is calculated based on above parameters and their weighing - 75% and 25% respectively). 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'

	PE_y = As per above section 3.4.6, the project activity involved wind power. thus, project emissions (PE_y) are taken as zero. Leakage: As per applied methodology, leakage emissions are not considered for the project activity. $ER_y = BE_y - PE_y$ $= 140,837 - 0$ $= 140,837 \text{ tCO}_2\text{e}$ Assessment team confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS PD and Joint RCP PD & MR.
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4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the break down log sheet for the monitoring period. The feeder wise location of the wind power plant was also confirmed during the interview with PP and same was verified with the Joint PD and MR and previous verification report. The metering arrangement is tri-vector bi-directional energy meters at the State Electricity Board (SEB) substation. These meters record parameters including electricity exported & imported. These electricity meters are being used by state electricity board for f net export units report monthly Breakup of net export units. 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. Electricity export to the grid and import from the grid is metered by main and backup tri-vector energy meters. 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 will be 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. 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. Calibration of all the meters was conducted by state electricity board officials as per the industry standards. The calibration is done once in a year for the meters installed at respective project locations. However, delay in calibration has been observed in this monitoring period and same is provided in appendix 5. PP has applied error factor of maximum permissible error as 0.2% applied to the energy exported and imported between the delayed period, same is demonstrated in emission reduction sheet too. Energy meters installed at generation point are calibrated once in a year. The details
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	of Calibration of the meters as confirmed during remote audit and details of calibration certificates are mentioned below as confirmed with calibration certificates provided by PP: The both main and check meters will be calibrated once in a year as per state utility practice. Details of Meters and Calibration are given in the appendix 05 of this report. 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/ logbooks maintained at site.
Findings	CAR 04 was raised on this section and closed successfully. Please refer Appendix 2 for further details.
Conclusion	Hence assessment team confirmed 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 Joint PD and 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 and break down. No unforced error observed, and feeder wise WTG location is also checked and found correct. Assessment team checked the calculation of estimated VER vs. Actual VER. As per the registered PD the amount of VERs annually is 81,853 tCO₂e for first crediting period and 84,822 tCO₂e for second crediting period. The days involved in present monitoring period are 931 days within which first 440 days are under first Crediting Period and next 491 days are under second Crediting Period. Therefore, on pro-rate basis the estimated VERs for the monitoring period is 212,775 tCO₂e (first crediting period + second crediting period). Actual VERs obtained for the monitoring period 140,837 tCO₂e and thus the actual VER is 33.81% lower than the estimated VER.

	As actual VER is less than estimated VER for current monitoring period, assessment team checked the same found to be appropriate and accepted. Remote audit and interview with site personnel also confirms that the operational and organizational chart as mentioned in registered VCD PD and Joint PD & MR is as per the site practice and thus assessment team confirms that the details are correct. No unforced error observed.
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5 VALIDATION AND VERIFICATION CONCLUSION

RCP Validation Conclusion:

Applus+ Certification has been engaged by Ruchi Soya Industries Limited to perform the Validation for Renewal of Crediting Period (RCP) and verification of the “44.40 MW Wind Energy Project by Ruchi Soya Industries Limited, India”.

The management of the project participant/owner is responsible for the preparation of the GHG emissions data and the reported/estimated GHG emissions reductions on the basis set out within the project’s Monitoring Plan in the Joint VCS PD & MR and the applied methodology ACM0002 Version 20.0

Our Validation approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and VCS board. Our approach is risk-based, drawing on an understanding of the risks associated with estimated GHG emissions data and the controls in place to mitigate these. The validation can confirm that:

- The projects description 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 4.1 and standard version 4.2
- The project’s baseline and additionality are assessed against “ACM0002, Version 20.0.
- The project’s monitoring plan is assessed against “ACM0002, version 20.0.
- A risk-based approach has been followed to perform this validation activity. The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews with Project Owner have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence for positive validation opinion as per the requirement of VCS.

The project is expected to generate 84,822 tCO₂e per year during the length of entire 2nd crediting period (26-February-2020 to 25-February-2030).

Verification Conclusion:

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. The verification can confirm that

- The project is operated as planned and described in the registered VCD PD (2nd CP);
- The monitoring plan is as per the applied methodology;
- The monitoring process in Monitoring Report is as per the PD
- 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.
- No limitation observed for the present verification

Verification period: 13-December-2018 to 25-February-2020 (first and last date included) under 1st CP; 26-February-2020 to 30-June-2021 (first & last date included) under 2nd CP Verified GHG emission reductions and removals in the above verification period are reported the Joint PD & MR version 04, dated 10-February-2022:

Net Emission Reduction from 13-December-2018 to 25-February-2020 (Monitoring Period under second Crediting 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)
13-December-2018 to 31-December-2018	2,484	0	0	2,484
01-January-2019 to 31-December-2019	58,761	0	0	58,761
01-January-2020 to 25-February-2020	7,161	0	0	7,161
Total	68,406	0	0	68,406

Net Emission Reduction from 26-February-2020 to 30-June-2021 (Monitoring Period under second Crediting 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)
26-February-2020 to 31-December-2020	44,527	0	0	44,527
01-January-2021 to 30-June-2021	27,904	0	0	27,904
Total	72,431	0	0	72,431

The total emission reduction for current monitoring period (01-September-2020 to 31-August-2021) is
= (68,406 + 72,431) tCO₂e

= 140,837 tCO₂e.

The total monitoring period (13-December-2018 to 30-June-2021) is of 931 days within which first 440 days are under 1st CP and next 491 days are under 2nd CP. The estimated annual emission reduction for, 1st CP as per registered VCS PD is 81,853 tCO₂ and for 2nd CP is 84,822 tCO₂. The estimated emission reduction for the first 440 days is 98,672 tCO₂e (81,853 tCO₂/MWh * 440 days/365 days). The estimated emission reduction for the next 491 days is 114,103 tCO₂e (84,822 tCO₂/MWh * 490 days/365 days). The estimated emission reduction in current monitoring period is 212,775 (98,672 tCO₂e + 114,103 tCO₂e). The ER generated during the current monitoring period is 33.81% lower than the estimated values, which is conservative.

Applus checked the calculation in ER sheet and confirmed that estimated ER is calculated using the unitary method. The daily VERs generation is calculated using the ratio of annual average generation of the commissioned plant by the number of days in a year, then the calculated daily VERs generation is multiplied with the monitoring duration of the project.

The ER estimated during the current monitoring period (931 days) is 212,775 tCO₂e. The ER generated during the current monitoring period is 33.81% less than the estimated values, which is conservative.

Applus checked the calculation in ER sheet and confirmed that estimated ER is calculated using the unitary method. The daily VERs generation is calculated using the ratio of annual average generation of the commissioned plant by the number of days in a year, then the calculated daily VERs generation is multiplied with the monitoring duration of the project.

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1.	VCS	VCS webpage for the project, VCS ID 835.	https://registry.terra.org/app/projectDetail/VCS/835	
2.	State utility	Commissioning certificates of the individual WEGs of wind power plant	-	PP
3.	UNFCCC	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources",	version 20.0	
4.	Applus	Contract of the project participant with the DOE	Contract document signed between PP and DOE	PP
5.	NA	CO2 Baseline Database for the Indian Power Sector published by the Central Electricity Authority (CEA), Ministry of Power, Govt. of India	Version 17.0	
6.	NA	The operational lifetime of the project activity from the manufacturer = (Technical specifications)	Manufacturer technical specifications	PP
7.	NA	Registered VCS PD, version 02 VCS Validation report by TUV NORD, version 01 Previous verification report by TUV NORD version 01	26-February-2011 25-february-2012 12-August-2016	PP
8.	NA	Meter change MoM and Calibration Certificates of energy meters	N-A	PP
9.	NA	Joint Project Description and Monitoring Report, version 03 Joint Project Description and Monitoring Report, version 04	01-November-2021 10-February-2022	PP
10.	NA	Emission reduction sheet version 01 RCP ER Sheet version 01 Emission reduction sheet version 02 RCP ER Sheet version 01	01-November-2021 01-November-2021 10-February-2022 10-February-2022	PP
11.	NA	O & M Agreements	-	PP
12.	UNFCCC	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 3.0.1	-	
13.	NA	Power Purchase Agreements (PPAs)	-	PP

No.	Author	Title	References to the document	Provider
14.	NA	Tools/ guidelines used in the project activity - Glossary of CDM terms version 07 - VCS Standard version 4.2 - VCS Program Guide 4.0 - VCS verification report template version 4.0 - Tool to calculate the emission factor for an electricity system" version 07.0	UNFCCC CDM/VCS web site	UNFCCC
15.	NA	Monthly statement- JMR & invoices for the complete monitoring period	-	PP
16.	NA	Declaration regarding no participation in other GHG program for the concerned monitoring period	21-January-2022	PP
17.	NA	Breakdown details for the monitoring period	-	PP
18.	NA	Employment records for plant persons	-	PP
19.	NA	Grievance Register maintained at site	-	PP
20.	NA	CDM validation and verification standard for project activities, Version 03.0	-	UNFCCC
21.	NA	Validation & previous Verification Report	-	PP
22.	NA	Breakdown details of the power plant	-	PP

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 :
Description of FAR			
No FAR was raised during validation and previous verification of this 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 RCP validation and verification

CL ID	01	Section no.	Date :
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Description of CL	
No CL observed	
Project participant response	Date :
NA	
Documentation provided by project participant	
NA	
DOE assessment	Date:
NA	

Table 3. CAR from this RCP validation and verification

CAR ID	01	Section no.	1	Date: 09-November-2021
Description of CAR				
- Font size used throughout the joint PD & MR is not in line with the guidelines to complete VCS Joint PD & MR, version 4.0. thus, corrective action sought. - Title of Appendix missing in the content page. Thus, corrective action sought. - Section 1.1 of joint PD and MR is not inline with the guidelines to complete joint PD & MR template version 04. Section covering more than one page. Thus, corrective action sought. - Geo-Coordinates for the project activity are missing in the section 1.12 of Joint PD and MR. Corrective action sought.				
Project participant response				Date: 08-February-2022
- Font size has been corrected in Joint PD&MR as per VERRA guidelines. - Title of Appendix has been added in content. - Section 1.1 of Joint PD&MR has been updated as per VERRA guidelines and now is covered within one page. - Geo Coordinates of the project activity has been included in Section 1.12 of updated Joint PD&MR.				
Documentation provided by project participant				
Updated Joint PD&MR.				
DOE assessment				Date: 09-February-2022
- PP has rectified the font size throughout the joint PD &MR and it is now inline with the VERRA Guidelines to complete VCS joint PD&MR, Version 4.0. Thus, CAR is closed. - PP has added the Title of the Appendix in the content page of the Joint PD & MR, version 4.0. Thus, CAR is closed. - PP has rectified Section 1.1 of Joint PD&MR, Version 4.0 as per VERRA guidelines and summary description of the project has now been covered within one page. Thus, CAR is closed. - PP has included Geo Coordinates of the project activity in Section 1.12 in the updated Joint PD & MR, Version 4.0. Thus, CAR is closed.				

CAR ID	02	Section no.	1.16	Date:09-November-2021
Description of CAR				
Declaration from PP regarding participation in other trading / GHG programs, rejection under other GHG program etc. is not submitted by PP. PP requested to submit the same.				
Project participant response				Date: 08-February-2022

Declaration regarding participation in other trading / GHG programs, rejection under other GHG program has been submitted to assessment team.	
Documentation provided by project participant	
Declaration regarding participation in other trading / GHG programs, rejection under other GHG program from PP.	
DOE assessment	Date: 09-February-2022
PP has submitted the Declaration dated 21-January-2022 regarding participation in other trading / GHG programs, rejection under other GHG program to the assessment team. Thus, CAR is closed.	

CAR ID	03	Section no.	6.1	Date: 09-November-2021
Description of CAR				
PP is requested to submit copies of JMRs and invoices relevant to the current monitoring period of the project activity till value for achieved emission reduction is thus reserved.				
Project participant response				Date: 08-February-2022
Copies of JMRs and invoices relevant to the current monitoring period of the project activity has been submitted to assessment team.				
Documentation provided by project participant				
JMR, Invoices of current Monitoring Period.				
DOE assessment				Date: 09- February-2022
PP has submitted Copies of JMRs and invoices relevant to the current monitoring period of the project activity to assessment team and the values of the same is now made consistent throughout the ER sheet. The calculation of achieved emission reduction is found conservative and inline with the standards. Thus accepted, CAR is closed.				

CAR ID	04	Section no.	6.1	Date: 09-November-2021
Description of CAR				
Details related to the monitoring equipment's and its calibration is missing in the joint PD & MR. Thus, corrective action sought. Moreover, supporting document related to the same also requested to submit to DOE.				
Project participant response				Date: 08-February-2022
Monitoring equipment and its calibration details has been provided in Appendix 1 of updated Joint PD&MR. Also, calibration certificates have been submitted to assessment team.				
Documentation provided by project participant				
Updated Joint PD&MR, Calibration Certificates.				
DOE assessment				Date: 09-February-2022
PP has updated the Details related to the monitoring equipment's and its calibration in Appendix 1 of updated Joint PD&MR, Version 4.0. Moreover, calibration certificates with all meter calibration details for current monitoring period have been submitted to assessment team. During review of the same, Delay in calibration is observed (details provided in appendix 05). However, PP has applied error factor				

of maximum permissible error as error between the delayed period found under the maximum permissible error. Thus, accepted and **CAR is closed.**

CAR ID	05	Section no.	6.1	Date: 25- July- 2022
Description of CAR				
Project proponent to provide justification that the crediting period request meets the requirements set out in Section 3.20.2 of the VCS Standard, v4.2, given that the two CDM projects which form this VCS project, have different crediting periods under the CDM: CDM #8592 – CP 13/12/2012 to 12/12/2022 (Fixed) and CDM #8818 – CP 31/12/2012 to 30/12/2022 (Fixed).				
Project participant response				Date: 26- July-2022
This project activity is not registered through GAP Validation in VCS. The project has been registered in VCS separately. The Validation Report of VCS project was prepared earlier than CDM Validation Report. PP would like to clarify that VCS validation completed on 25-Feb-2012 before the project's registration under CDM. CDM 8592 and CDM 8818 registered with UNFCCC on 05/12/2012 and 12/12/2012 respectively, hence after VCS validation, so no case of gap validation				
Documentation provided by project participant				
Validation report of VCS 835 Project, Validation report of CDM 8592 and CDM 8818.				
DOE assessment				Date: 27-July-2022
VVB checked the CDM validation reports of CDM 8592 AND CDM 8818 and confirmed that VCS validation completed on 25- Feb-2012 confirmed with FVR of VCS validation, i.e.before CDM validation and validation report for validation. The VVB accepts the PP's responses due to the circumstance that at the time of establishing the Crediting Period type and duration for this project, leading to its renewal after the expiry of the current period being renewed, the project was not registered under two GHG programmes and so Section 3.20.2 read along with Section 3.8.7. of the VCS Standard version 4.2. is not applicable. The project has not undergone GAP Validation, but being registered first into VCS and hence adhering to VCS rules at the time of registration. CAR closed				

Table 4. FAR from this RCP validation and verification

FAR ID	Nil	Section no.	-	Date: -
Description of FAR				
No FAR is raised				
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

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	Kumar	Mr. Pankaj	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	Shen	Simon	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

Short CVs of the Team:

- Mr. Pankaj Kumar** worked as team leader – Bihar for South Asia Climate Proofing and Growth Development(CPGD) – Climate Change Innovation Programme (CCIP) supported by DFID that seeks to mainstream climate change resilience into planning and budgeting at the national and sub-national level in India,Pakistan, Nepal, and Afghanistan. Pankaj Kumar has worked previously with IL&FS Infrastructure Development Corporation and BUIDCO(Bihar Urban Infrastructure Development Corporation), Govt. of Bihar as Environmental Specialist for WB & ADB funded projects. Prior to this, he worked with Carbon Check (UNFCCC accredited DoE), Johannesburg, RSA as Team Leader for validation, verification of around 100 GHG projects in Asia, Africa, USA, Asia Pacific & Americas. Pankaj is accredited Lead Auditor, Validator, Verifier and Technical Expert for Sectoral Scope/Technical Area – 1.1, 1.2, 3.1 & 13.1 by UNFCCC DoE (Designated Operational Entity), APPLUS, Spain. He is also member of task force on climate change & human health, Health Department, GoB. He is an experienced, qualified and result oriented Environment

Professional having more than 14 yrs. of relevant experience in Climate Change (Mitigation & Adaptation), Environmental Due Diligence, Disaster Risk Reduction, Validation and Verification of GHG project under CDM, Verified Carbon Standard, Gold Standard & Social Carbon Standard, Brazil. He provides technical support for environmental investigative, consultative and remedial projects involving air, water and soil, Waste management, EIA, Environmental Compliance, ISO 14001, OHSAS 18001, GHG accounting (ISO 14064) and Carbon foot printing Pankaj Kumar is Masters in Environment Management from Forest Research Institute (University), I.C.F.R.E, Dehradun, which is Centre of Excellence in South East Asia for Forestry education & research and PGDEL from National Law School of India University, Bangalore (India).

2. **Mr. Simon Shen** (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Assessment team and ISO 9001/14001 Lead Auditor for 5 years.

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 05: CALIBRATION DETAILS

Palsodi

WTG ID	Feeder	Meter No.	Meter Type	Make	Accuracy	Calibration Date	Validity of Calibration	Delay in Calibration	As per Conservative Approach, Error Factor applied for
PR-11, 12, 16, 18	Palsodi I	MPC49084	Main Meter	SEMS	0.2	20-February-2016	19-February-2017	13-December-2018 to 30-May-2019, 31-May-2020 to 02-September-2020	December-2018 to May-2019
		XE479853 ³	Main Meter	Secure	0.2	31-May-2019 03-September-2020	30-May-2020 02-September-2021		May-2020 to September-2020
		3596373	Check Meter	Genus Power	0.5	22-February-2018	21-February-2019	22-February-2019 to 02-September-2020.	February-2019 to September-2020
		Q0337345 ⁴	Check Meter	Secure	0.2	03-September-2020	02-September-2021		
PR-01 to 06, PR-17, 19	Palsodi II	MPC49087	Main Meter	Secure	0.2	20-February-2016	19-February-2017	13-December-2018 to 30-May-2019, 31-May-2020 to 02-September-2020	December-2018 to May-2019
		XE479854 ⁵	Main Meter	Secure	0.2	31-May-2019, 03-September-2020	30-May-2020, 02-September-2021		May-2020 to September-2020
		3596486	Check Meter	Genus Power	0.5	22-February-2018	21-February-2019	22-February-2019 to 02-September-2020.	February-2019 to September-2020
		Q0306206 ⁶	Check Meter	Secure	0.2	03-September-2020	02-September-2021		
PR-08, 09,	Palsodi III	MPC49086	Main Meter	SEMS	0.2	20-February-2016	19-February-2017	13-December-2018 to 30-May-2019,	December-2018 to May-2019

³ Meter No. MPC49084 was replaced by Meter No. XE479853 on 31-May-2019

⁴ Meter No. 3596373 was replaced by Meter No. Q0337345 on 03-September-2020.

⁵ Meter no. MPC49087 was replaced by Meter No. XE479854 on 31-May-2019

⁶ Meter No. 3596486 was replaced by Meter No. Q0306206 on 03-February-2020.

10, 13, 14, 15		XE479855 ⁷	Main Meter	Secure	0.2	31-May-2019, 03-September-2020	30-May-2020, 02-September-2021	31-May-2020 to 02-September-2020	May-2020 to September-2020
		3596488	Check Meter	Genus Power	0.5	22-February-2018	21-February-2019	22-February-2019 to 02-September-2020.	February-2019 to September-2020
		Q0380984 ⁸	Check Meter	Secure	0.2	03-September-2020	02-September-2021		

Rajasthan(Osiyan, RKB, Akal)

WTG ID	Feeder	Meter No.	Meter Type	Make	Accuracy	Calibration Date	Validity of Calibration	Delay in Calibration	As per Conservative Approach, Error Factor applied for
OS-48, OS-49	Phase -127	RJB74503	Main Meter	Secure	0.2	27-February-2018, 18-April-2019, 12-September-2020	26-February-2019, 17-April-2020, 11-September-2021	27-February-2019 to 17-April-2019, 18-April-2020 to 11-September-2020	February-2019 to April-2019, April-2020 to September-2020
		RJB74504	Back up Meter	Secure	0.2	27-February-2018	26-February-2019,	27-February-2019 to 12-July-2019, 13-July-2020 to 11-September-2020.	February-2019 to July-2019
		RJB78180 ⁹	Back up Meter	Secure	0.2	13-July-2019, 12-September-2020	12-July-2020, 11-September-2021		July-2020 to September-2020
AK-400, AK-401, AK-414, AK-415,	Phase 81	RJB90208	Main Meter	Secure	0.2	18-July-2017, 20-April-2018, 17-June-2019, 26-November-2020	17-July-2018, 19-April-2019, 16-June-2020, 25-November-2021	20-April-2019 to 16-June-2019, 17-June-2020 to 25-November-2020	April-2019 to June-2019, June-2020 to November-2020

⁷ Meter No. MPC49086 was replaced by Meter No. XE479855 on 31-May-2019.

⁸ Meter No. 3596488 was replaced by Meter No. Q0380984 on 03-February-2020.

⁹ Meter No. RJB74504 was replaced by Meter No. RJB78180 on 13-July-2019.

AK-416, Ak-417, AK-253, AK-308		RJB90209	Back up Meter	Secure	0.2	18-July-2017, 20-April-2018, 17-June-2019, 26-November-2020	17-July-2018, 19-April-2019, 16-June-2020, 25-November-2021	20-April-2019 to 16-June-2019, 17-June-2020 to 25-November-2020	April-2019 to June-2019, June-2020 to November-2020
RKB-075, RKB-076	Tinwari Feeder No. 1	RJB90216	Main Meter	Secure	0.2	24-April-2017, 25-April-2019, 07-November-2020	23-April-2018, 24-April-2020, 06-November-2021	13-December-2018 to 24-April-2019, 25-April-2020 to 06-November-2020	December-2018 to April-2019, April-2020 to November-2020
		RJB90217	Back up Meter	Secure	0.2	24-April-2017, 25-April-2019, 07-November-2020	23-April-2018, 24-April-2020, 06-November-2021	13-December-2018 to 24-April-2019, 25-April-2020 to 06-November-2020	December-2018 to April-2019, April-2020 to November-2020

Jaora

WTG ID	Feeder	Meter No.	Meter Type	Make	Accuracy	Calibration Date	Validity of Calibration	Delay in Calibration	As per Conservative Approach, Error Factor applied for
NL-01-10, JO-10, 12, 19, JO-13,14,15)	Feeder III	MPC49089	Main Meter	SEMS	0.2	25-August-2015	24-August-2016	13-December-2018 to 31-May-2019, 01-June-2020 to 27-December-2020	December-2018 to May-2019,
		XE479856 ¹⁰	Main Meter	Secure	0.2	01-June-2019, 28-December-2020	31-May-2020, 27-December-2021		June-2020 to December-2020
		34412	Check Meter	SEMS	0.5	17-November-2012	16-November-2013	13-December-2018 to 31-May-2019, 01-June-2020 to 27-December-2020	December-2018 to May-2019,
		Q0306209 ¹¹	Check Meter	Secure	0.2	01-June-2019, 28-December-2020	31-May-2020, 27-December-2021		June-2020 to December-2020
JO-03 to 05,	Feeder IV	MPC49082	Main Meter	SEMS	0.2	06-October-2018	05-October-2019	01-June-2020 to 27-	June-2020 to December-2020

¹⁰ Meter No. MPC49089 was replaced by Meter No. XE479856 on 01-June-2019.

¹¹ Meter No. 34412 was replaced by Meter No. Q0306209 on 01-June-2019.

JO-08, JO-16 to 18, JO-20 to 22		XE479857 ¹²	Main Meter	Secure	0.2	01-June-2019, 28-December-2020	31-May-2020, 27-December-2021	December-2020	
		3475860	Check Meter	SEMS	0.5	17-November-2012	16-November-2013	15-November-2014 to 31-May-2019	November-2014 to May-2019
		Q0306205 ¹³	Check Meter	Secure	0.2	01-June-2019, 28-December-2020	31-May-2020, 27-December-2021		

¹² Meter No. MPC 49082 was replaced by Meter No. XE479857 on 01-June-2019.

¹³ Meter No. 3475860 was replaced by Meter No. Q0306205 on 01-June-2019.