



Chakala wind power project in Maharashtra



By KBS Certification Services Pvt. Ltd.

Project Title	Chakala wind power project in Maharashtra
Version	1.0
Report ID	VCS.21.VER.027 (G)

Report Title	Chakala wind power project in Maharashtra
Client	EKI Energy Services Limited
Pages	40
Date of Issue	01-September-2021
Prepared By	KBS Certification Services Pvt. Ltd.
Contact	Registered Office: KBS Certification Services Pvt. Ltd. 414-424, Om Shubham Tower, Neelam Bata Road, N.I.T. Faridabad, Haryana-121001, India Tel: +91 129 4034513, 4054513, Website: www.kbscertification.com
Approved By	Kaushal Goyal

	Managing Director
Work Carried Out By	Team Leader & Technical Expert (TA 1.2): Sanjay Kandari
	Verifier: Deepak Pundlik
	Technical Reviewer: Tushar Chaudhari
	Manager T & C: Tushar Chaudhari

Summary:

KBS Certification Services Pvt. Ltd. has been contracted by, “EKI Energy Services Limited.” to undertake 4th verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Chakala wind power project in Maharashtra’ for the monitoring period 01-April-2020 to 31-May-2021 (Inclusive of both days), under the crediting period 30-December-2011 to 29-December-2021, in the initial monitoring report version 01 dated 02-June-2021, with regard to the relevant requirements of VCS Standard, version 4.1.

The ‘Chakala wind power project in Maharashtra’ has total installed capacity of 39 MW. It involves operation of 26 Wind Turbine Generators (WTGs) with capacity of 1.5 MW each, located in Chakala village in the state of Maharashtra, India.

The Project activity is a greenfield project and the purpose of the project activity is to generate electricity by the utilization of wind velocity. All WTGs in the project has been operational since commissioning. Start date of the project activity is 30-December-2011, on this day 1st WTG of the project was commissioned as per the commissioning certificates/09/, registered VCS PD/03/ and CDM validation report /03/.

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

The crediting period for VCS Project activity began on 30-December-2011 and will end on 29-December-2021. This is the 4th monitoring period under first crediting period under VCS and covers the activity from 01-April-2020 to 31-May-2021 (inclusive of both dates). The total emission reductions achieved for the project activity during the monitoring period has been 61,098 tCO₂e. An undertaking from the project participant confirms that project will not claim any other scheme benefits for the concerned monitoring period.

A risk based approach has been followed to perform the verification of the project activity. In the course of verification, 01 Corrective Action Requests (CARs) and 02 Clarification Requests (CLs) have been raised. All the CARs and CLs have been closed out successfully. No FAR has been raised during this verification or the previous verification.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01-April-2020 to 31-May-2021 (Inclusive of both days) based on the reported emission reductions in the final monitoring

report version 02 dated 20-August-2021 for the same period.

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

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

- The project fulfils criteria of VCS Standard Version 4.1.
- The project is in line with all relevant VCS requirements as per VCS Programme guide version 4.0 /05/
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board and VCS Association;
- All information and references relevant to the project activity resulting in emission reductions;

The monitoring is transparent, adequate and in line with applied baseline and monitoring methodology of ACM0002: Grid-connected electricity generation from renewable sources — Version 13.0 /10/.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 61,098 tCO₂e (round down value) emission reductions during the monitoring period 01-April-2020 to 31-May-2021 (Inclusive of both days), under the crediting period 30-December-2011 to 29-December-2021.

CONTENTS

1 Introduction	6
1.1 Objective	6
1.2 Scope and Criteria	6
1.3 Level of Assurance.....	7
1.4 Summary Description of the Project	9
2 Verification Process.....	10
2.1 Method and Criteria.....	10
2.2 Document Review	10
2.3 Interviews	11
2.4 Site Inspections.....	11
2.5 Resolution of Findings	12
2.5.1 Forward Action Requests	13
2.6 Eligibility for Validation Activities	14
3 Validation Findings.....	14
3.1 Participation under Other GHG Programs	14
3.2 Methodology Deviations.....	14
3.3 Project Description Deviations.....	15
3.4 Grouped Project	15
4 Verification Findings.....	15
4.1 Project Implementation Status	15
4.2 Safeguards	23
4.3 AFOLU-Specific Safeguards	23
4.4 Accuracy of GHG Emission Reduction and Removal Calculations	23
4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals	26
4.6 Non-Permanence Risk Analysis.....	27
5 Verification conclusion	27
APPENDIX I: REFERENCES	29
APPENDIX II: FINDINGS	30
APPENDIX III: Competence of team members	34
APPENDIX IV: Breakdown Details	36

APPENDIX V: CALIBRATION DETAILS.....	38
---	-----------

1 INTRODUCTION

1.1 Objective

KBS Certification Services Pvt. Ltd. has been contracted by, “EKI ENERGY SERVICES LIMITED.” to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Chakala wind power project in Maharashtra’ for the monitoring period 01-April-2020 to 31-May-2021 (Inclusive of both days), under the crediting period 30-December-2011 to 29-December-2021, in the initial monitoring report version 01 dated 02-June-2021/1.1/, with regard to the relevant requirements of VCS Standard Version 4.1. The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

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

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

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

The project is assessed against the requirements of VCS standard version 4.1/4/ and related rules and guidance /05/. KBS has, based on the recommendations in the latest version of Verified Carbon standard, employed a risk-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

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

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

1.3 Level of Assurance

☒ Reasonable level of assurance

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

The items covered in the verification are described below:

- Criteria of VCS Version 4.1 (VCS Program guide Version 4.0 & VCS Standard Version 4.1)
- Criteria of CDM approved methodology, ACM0002- Version 13.0
- VCS Monitoring Report
- Monitoring Plan
- Background investigation and follow up interviews
- Stakeholder feedback
- Registered CDM PDD, VCS PD and Validation Report
- Project's compliance with other relevant rules, including the project country (India) legislation and assurance to stakeholders of the quality

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

- Compliance with relevant law and regulations

- Stakeholder comments (If any)
- Proof of title
- Single line diagram and site location map
- Technical specifications of turbines, meters etc.
- Power Purchase Agreement
- Commissioning Certificate
- Remote auditing (16-July-2021) for verification
- Credit notes
- Invoices
- Calibration Certificates

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

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

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

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

- is materially correct and is a fair representation of the actual project details, and
- is prepared in accordance with VCS requirements/4//5/ and the applied CDM methodology/10/ for information pertaining to GHG qualification, monitoring and reporting.

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

1.4 Summary Description of the Project

Bindu Vayu Urja Private Limited (BVUPL) is working into the renewable energy sector with an objective to build wind power assets in India. BVUPL has set up 39 MW wind power project in Chakla Village in the state of Maharashtra. The project activity comprises of 26 Wind Electric Generators (WTGs) of Suzlon Energy Limited's (SEL) S82 model with a capacity of 1.5 MW each.

The Project activity is a Greenfield project and the purpose of the project activity is to generate electricity by the utilization of wind velocity. The WTGs have been commissioned between 30-December-2011 and 22-February-2012. Start date of the project activity is 30-December-2011, on this day 1st WTG of the project was commissioned.

During the remote audit inspection/11/, location (as mentioned in section 1.7 of MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned in the VCS PD/03/ have been verified. The same was also crosschecked during the desk review of supporting documents like technical specification/06/, single line diagram/07/, PPA/08/ and commissioning certificates/09/.

Project entity information as verified is presented below:

Item	Data
Project Entities	Bindu Vayu Urja Private Limited (Project Owner)
	EKI Energy Services Limited (Project consultant)

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process was carried out in line with the requirements of VCS Version 4.1/04/. In addition, the verification team followed the guidelines of the CDM Validation and Verification Standard. Standard auditing techniques and KBS's CDM Procedures were also applied during the verification. A risk-based approach was followed to carry out verification and access all the factors and concerns that relate to the issuance of emission reductions from a project activity.

They include:

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

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

Duration of Verification:

Verification Contract	15-May-2021
Remote audit	16-July-2021 (Justification section 2.4 below)
Draft Verification Report	20-July-2021
Final Verification Report	01-September-2021

2.2 Document Review

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

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

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

2.3 Interviews

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

2.4 Site Inspections

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects <https://verra.org/covid-19-travel-guidance/> and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. Further Email from VERRA dated 24-March-2020 from "Andrew Beauchamp" has been referred as per which *"The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.0). Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from Verra is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the validation/verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit"*.

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

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

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

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

Date:	16-July-2021 - Zoom application	
Key points discussed:	Name of person, interviewed	Designation, Organization
VCS requirements, Operational data, Monitoring equipment, Calibration, Data collection, storage, Archiving QA/QC procedures Training of monitoring personnel Calculation of ERs Grievance procedure O &M procedures	Anjali Rao	Manager, EKI Energy Services Ltd
	Kiran Chaudhari	Manager, Bindu Vayu Urja Private Limited

2.5 Resolution of Findings

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

Corrective action request (CAR):

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

Clarification request (CL):

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

FAR (Forward Action Request):

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

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

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

01 CARs and 02 CLs were found during verification and closed satisfactorily. The list of CARs/CLs raised and the response provided, the means of verification, reasons for their closure and references to correction in the MR are provided in appendix II of this report. The revised MR/1.2/ with changes incorporated as per the issues raised were rechecked with the documentary evidences and found to be inline.

2.5.1 Forward Action Requests

Verification report/3/ of the previous monitoring period was checked, and it was confirmed that no FAR is open or was raised previously. This is 4th verification and no FAR has been raised. Refer to Appendix II for further details.

2.6 Eligibility for Validation Activities

KBS conducted the verification activity for 4th verification period; the validation and earlier verification were performed by the other VVB. KBS has a valid UNFCCC accreditation in the Sectoral scope from UNFCCC.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity was registered under Clean Development Mechanism (CDM) of UNFCCC (Reference number 9472¹) and CERs were issued from the monitoring period of 02-January-2013 to 29-October-2013 under CDM mechanism. The project activity is registered under the VCS as Project ID 1197². As per MR and undertaking provided, PP would not consider the credit from any other mechanism for the current monitoring period. The undertaking is provided to confirm that there is no any double accounting for current monitoring period/16/. Further, assessment team confirms that the project activity is not participating in any other form of environmental credits. Also, the project activity is not registered for REC benefits. The same was verified by checking the REC website.

3.2 Methodology Deviations

The verification team confirms that the registered VCS PD complies with the requirements in the applied monitoring methodology ACM0002 version 13.0/10/.

The following tools have been used for the project activity under consideration –

- Tools to calculate the emission factors for an electricity system – Version 2.2.1 (EB 63 annex 19)³
- Tools for the demonstration and assessment of additionality – Version 6.0.0 (EB 65 annex 21)⁴

Therefore, no methodology deviations are applied during the monitoring period.

¹ <https://cdm.unfccc.int/Projects/DB/BVQI1356940326.49/view>

² <https://registry.terra.org/app/projectDetail/VCS/1197>

³ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-07-v2.2.1.pdf>

⁴ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-01-v6.0.0.pdf>

3.3 Project Description Deviations

The monitoring plan of registered CDM PDD includes four monitoring parameters viz. $E_{GPJ,y}$ (net electricity export), $E_{exp,y}$ (Electricity export by each WTG), $E_{imp,y}$ (Electricity import) and $E_{WTG,i,y}$ (Quantity of electricity generated by the individual WTGs of the PP in year y). Now the parameter $E_{WTG,i,y}$ (Quantity of electricity generated by the individual WTGs of the PP in year y) is not part of monitoring plan. This deviation was approved during previous periodic verification period. Since as per the registered CDM PDD, the emission reduction calculation is based on $E_{GPJ,y}$ (ex-post) and $E_{F_{grid,CM,y}}$ (ex-ante fixed) and value of $E_{GPJ,y}$ is directly obtained from the JMRs issued by state authority; the estimation of emission reduction is conservative, correct and accurate. Moreover, the change in monitoring plan does not have any impact on methodology, additionality and appropriateness of baseline scenario, and the project remains in compliance with the applied methodology and VCS requirements. Further, assessment team confirms that there is no deviation sought by PP for current monitoring period.

3.4 Grouped Project

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

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is in operation stage as evidenced by the remote inspection/11/ of the site. All the physical components and project boundary are in conformity with the description in registered VCS PD/03/. The project locations and project equipment capacities have been confirmed during the remote inspection, also through the technical specifications/06/ and found in-compliance with the registered VCS PD/03/. The first machine under the project activity was commissioned on 30-December-2011 and last machine under the project activity was commissioned on 22-February-2012. The project activity consists of 26 machines (1.5 MW each) of Suzlon make S-82-1.5 MW, totalling to a capacity of 39 MW. The commissioning dates of all WTGs are provided below. The WTGs was supplied by Suzlon Energy Limited to the project participant. The components are manufactured in India and assembled at the project site. There is no transfer of technology from outside the host country for this project activity. The electricity is exported to the Maharashtra State Electricity Distribution Company Limited. The clean electricity generated from the project would aid in sustainable development of that region. It would also help in reducing greenhouse gas emissions by generating clean and green electricity.

The technical specification of the WTG is as follows:

OPERATING DATA	
Rated power	1500 kW
Cut-in wind speed	4 m/s
Rated wind speed	14 m/s
Cut-off wind speed	20 m/s
Survival wind speed	52.5 m/s
Lifetime of the wind turbines	20 years
ROTOR DATA	
Type	3 Blades, Upwind / Horizontal axis
Diameter	82 m
Rotational speed at rated power	15.6 to 18.4 rpm
Rotor blade material	Epoxy bonded fibre glass
Swept area	5281 m ²
Power regulation	Active pitch regulated with Suzlon Flexi Slip System
GEARBOX	
Type	1 planetary stage / 2 helical stages
Ratio	1 : 95.09
Nominal load	1650 kW
Type of cooling	Forced oil cooling lubrication system
GENERATOR	
Type	Single speed induction generator with slip rings, variable rotor resistance via Suzlon Flexi slip system
Speed at rated power	1511 rpm
Rated power	1500 kW
Rated voltage	690 V AC
Frequency	50 Hz
Insulation	Class H
Enclosure	IP 54 / IP 23 (slip ring unit)
Cooling system	Air cooled
TOWER	
Type	Tubular tower (corrosion proof painting on inner and outer surface) with welded steel plates.
Tower Height	76 m
Hub height (including foundation)	Approximately 78.5 m
BRAKING SYSTEM	
Aerodynamic braking	3 Independent systems with blade pitching
Mechanical braking	Hydraulic fail safe disk brake system
YAW SYSTEM	
Type	Active electrical yaw motor

Bearing	Polyamide Slide bearing with gear ring & automatic greasing system
Protection	Cable twist sensor, proximity sensor
PITCH SYSTEM	
Type	3 independent blade pitch control with battery backup for each blade
Operating range	-5 ° to +90 °
Resolution	0.1 to 10 Deg

The WTG locations and commissioning dates are provided in following table.

Sl. No	State	WTG number	Latitude (N)	Longitude (E)	Date of Commissioning
1	Maharashtra	C-38	21° 15' 30"	74° 19' 48"	30-December-2011
2	Maharashtra	C-39	21° 15' 17.2"	74° 19' 39.4"	30-December-2011
3	Maharashtra	C-40	21° 15' 13.6"	74° 19' 19.7"	30-December-2011
4	Maharashtra	C-41	21° 14' 58.2"	74° 19' 26.7"	30-December-2011
5	Maharashtra	C-42	21° 15' 48.2"	74° 19' 15"	22-February-2012
6	Maharashtra	C-43	21° 15' 35.7"	74° 19' 10.5"	30-December-2011
7	Maharashtra	C-44	21° 15' 23.9"	74° 19' 3.2"	30-December-2011
8	Maharashtra	C-45	21° 15' 10.5"	74° 18' 59.2"	30-December-2011
9	Maharashtra	C-46	21° 14' 57.1"	74° 19' 0.1"	30-December-2011
10	Maharashtra	C-47	21° 15' 46.2"	74° 18' 41.2"	15-February-2012
11	Maharashtra	C-48	21° 15' 33.2"	74° 18' 37.7"	12-January-2012
12	Maharashtra	C-49	21° 15' 20"	74° 18' 36.1"	15-February-2012
13	Maharashtra	C-50	21° 15' 6.6"	74° 18' 38"	03-January-2012
14	Maharashtra	C-51	21° 15' 47.8"	74° 18' 13.7"	20-January-2012
15	Maharashtra	C-52	21° 15' 33.4"	74° 18' 10.2"	20-January-2012
16	Maharashtra	C-53	21° 15' 56.1"	74° 18' 01.9"	22-February-2012
17	Maharashtra	C-54	21° 14' 43.8"	74° 18' 30.9"	30-December-2011
18	Maharashtra	C-55	21° 15' 35.4"	74° 17' 45.6"	30-December-2011
19	Maharashtra	C-56	21° 15' 23.3"	74° 17' 52"	30-December-2011
20	Maharashtra	C-57	21° 15' 15.5"	74° 18' 14.0"	12-January-2012
21	Maharashtra	C-58	21° 15' 1.1"	74° 18' 09"	30-December-2011
22	Maharashtra	C-59	21° 14' 41.2"	74° 17' 53.4"	15-February-2012
23	Maharashtra	C-60	21° 14' 29.6"	74° 18' 6.5"	15-February-2012
24	Maharashtra	C-63	21° 14' 31"	74° 17' 41.1"	12-January-2012
25	Maharashtra	C-64	21° 14' 23"	74° 17' 48.3"	13-January-2012
26	Maharashtra	C-66	21° 14' 48.5"	74° 16' 37.2"	15-February-2012

Based on the remote inspection and the reviewed project documentation like the technical specification, photographs of meters, Wind turbines/06/, single line diagram/07/, power

purchase agreement and O&M Contract /08/, commissioning certificates /09/, calibration certificates of energy meters/13/ and invoices/14/ etc. the verification team confirms that the project was implemented and operated as described in the registered VCS PD /03/. Further, the verification team confirms that-

- There is no material discrepancy between project implementation and the project description in the registered VCS PD.
- The monitoring plan is completely implemented and is suitable with actual monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters)
- The project activity is availing GHG emission reductions for only one program and there will not be any double accounting for the same.
- There is no methodology deviation applied to this project.

The total generation capacity of the power plant with (26 WTGs of 1.5 MW) is 39 MW which was verified during the remote audit.

Further it was noticed that during the monitoring period the project activity operated under normal conditions except for few break down events which have occurred and are mentioned in the Appendix IV.

Ownership and other programs:

PP has declared/16/ that the project is registered in VCS, and will avail GHG emissions reductions for only one program and there will not be any double accounting for the same; thus emission reductions generated by project will be solely claimed by PP and PP has the right of use, which is acceptable. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions as the host country i.e. India is not a participant in any emission trading programs or nor does it have any binding limits.

Sustainable Development Contributions:

As confirmed during the remote audit, the project displaces electricity produced in fossil fuel based power plants, by using clean renewable source to generate electricity and thereby contributes to sustainable development through reduction in greenhouse gas (GHG) emissions. It has also been confirmed that the project implementation has led in significant environmental and socio-economic benefits (as stated in section 1.11 of the submitted MR) and contributes to the social, economic, technological and environmental well-being. The project supplies clean, affordable and renewable energy (64,131.67 MWh net electricity under the monitoring period) without reliance on fossil fuels for generation of electricity to meet the growing demands in the region. Also, the project implementation is providing employment to the locals with a decent and secure work environment by reducing emissions otherwise generated by the operation of fossil fuel based power plants and would lead to promotion of wind based power generation and to encourage other entrepreneurs to participate in similar projects as well.

Management and operational system:

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

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

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

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

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

Implementation status of the monitoring plan:

Verification team confirms through remote inspection/11/ and from the document review like PPAs/08/, Commissioning certificates/09/, calibration certificates/13/, Invoices/14/ that, the actual monitoring system complies with the monitoring plan mentioned in the registered VCS PD/3/ and there is no deviation in monitoring plan, procedures, and the equipments.

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

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

Data - Parameter	EG _{PJ,y}
Data unit	MWh/yr
Description	Quantity of net electricity exported to the grid during the year y.
Source of data	Monthly billing records issued by MSEDCL
Description of measurement methods and	Net electricity supplied is based on the difference between calculated values of “export” and calculated value “import” on the MSEDCL energy

procedures to be applied	meter and the percentage transmission loss incurred in the transmission line between the project and the interconnection point (i.e. sub-station). The meter reading is taken by MSEDCL official.
Frequency of monitoring-recording	Monthly recording of electricity export and import
Value monitored	64,131.67
Monitoring equipment	Energy meters of 0.2s accuracy class
QA-QC procedures to be applied	The quantity of net electricity supplied is cross verified from the invoices raised on MSEDCL by the project proponent and the readings available from the meter available at site. The meters are calibrated annually as per the metering code by MSEDCL. The PP has no control over the calibration of the meters. The calibration details are provided in Appendix V.
Purpose of the data	Calculation of baseline emissions
Calculation method	Delivered/Net electricity supplied to the MSEDCL is calculated based on the difference between measured values of “export” and “import” on the MSEDCL meter and the percentage transmission loss incurred in the transmission line between the project and the interconnection point (i.e. substation).
Comments	Data will be archived for crediting period plus two years after the end of Crediting period.

Data - Parameter	EG _{exp,y}
Data unit	MWh/year
Description	Electricity exported from each WTG of the project activity during the year y.
Source of data	Monthly billing records issued by MSEDCL
Description of measurement methods and procedures to be applied	Delivered/Net electricity supplied to the MSEDCL is noted based on the measured values of “export” on the MSEDCL meter at the interconnection point (i.e. sub-station). The meter reading is taken by MSEDCL officials in presence of BVUPL officials. The measurement is done once a month. All the meters are tri-vector meters, capable of measuring both export and import of electricity. The meters have an accuracy class of 0.2s

Frequency of monitoring-recording	Recording frequency: Monthly. This parameter is measured.
Value monitored	64,609.60
Monitoring equipment	Energy meters of 0.2s accuracy class
QA-QC procedures to be applied	The quantity of net export is cross verified from the invoices raised on MSEDCL by the project proponent and the readings available from the meter available at site. The meters are calibrated annually as per the metering code by MSEDCL. The PP has no control over the calibration of the meters. The calibration details are provided in Appendix V.
Purpose of the data	Calculation of baseline emissions
Calculation method	This parameter is calculated by apportioning approach by using the measured parameters
Comments	Data will be archived for crediting period plus two years after the end of Crediting period.

Data - Parameter	EG _{imp,y}
Data unit	MWh
Description	Electricity imported from the grid by the project activity during the year y
Source of data	Monthly Joint Meter Readings.
Description of measurement methods and procedures to be applied	Electricity imported from the MSEDCL is noted based on the measured values of “import” on the MSEDCL meter at the interconnection point (i.e. sub-station). The meter reading is taken by MSEDCL officials in presence of BVUPL officials. The measurement is done once a month. All the meters are tri-vector meters, capable of measuring both export and import of electricity. The meters have an accuracy class of 0.2s.
Frequency of monitoring-recording	Recording frequency: Monthly.
Value monitored	477.92
Monitoring	Energy meters of 0.2s accuracy class

equipment	
QA-QC procedures to be applied	The quantity of net export is cross verified from the invoices raised on MSEDCL by the project proponent and the readings available from the meter available at site. The meters are calibrated annually as per the metering code by MSEDCL. The PP has no control over the calibration of the meters. The calibration details are provided in Appendix V.
Purpose of the data	Calculation of baseline emissions
Calculation method	This parameter is calculated by apportioning approach by using the measured parameters
Comments	Data will be archived for crediting period plus two years after the end of Crediting period.

Findings: CAR 01 and CL 02 were raised and successfully closed

Opinion:

The verification team confirms that

- The project activity has been implemented and operated as per the registered VCS PD/03/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place, as per the documents provided by the PP and remote audit/11/;
- The monitoring complies with the requirement of the applied methodology/10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD/03/;
- The values included in the monitoring report/1.2/ and corresponding emission reduction sheets/2.2/ are verified and included under each monitoring parameter.

4.2 Safeguards

4.2.1 No Net Harm

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

4.2.2 Local Stakeholder Consultation

PP has placed a dedicated Visitor register cum grievance register at the project site which is accessible to stakeholders to provide their feedback on the project. It is appropriate publicly accessible location at which local stakeholders can provide their feedback on the project. This location is also conducive to continuous and regular checks for stakeholder comments. For the global stakeholders, the suggestion and the grievance can be submitted to mail@mytrah.com

During the current monitoring period, positive feedbacks had been received regarding site operation. No any grievances received during the current monitoring period therefore, no any mitigation measures were required. In case of grievances, the nature of probable resolution is discussed with the plant head office and implemented by the site in charge.

The stakeholder consultation process was validated during the registration of project activity in VCS. VCS validation report /3/ was verified to confirm the same. The documentary evidence for the visitor cum grievances register was checked by the assessment team and confirms that there is no any grievance of stakeholders during the current monitoring period.

4.3 AFOLU-Specific Safeguards

This is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

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

All the monitored parameters are described above in section 4.1. All the ex-ante parameters which are used in the calculation of emission reduction are presented in section 4.1 of the MR/1.2/ transparently. It is confirmed that all the ex-ante parameters have been correctly used in the emission reduction calculation.

Baseline emissions:

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

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

Where:

BE_y = Baseline emissions in year y (tCO_2/yr)

$EG_{PJ,y}$ = Quantity of net electricity exported to the grid during the year y (MWh/yr).

$EF_{grid,CM,y}$ = Combined margin CO_2 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” at the time of validation (tCO_2e/MWh)

The baseline emission factor in year y (tCO_2/MWh), is fixed ex-ante for the duration of the crediting period, and is $0.9527 tCO_{2e}/MWh$.

Therefore,

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

$$BE_y = 64,131.67 \times 0.9527$$

$$BE_y = 61,098 tCO_{2e} \text{ (round down value)}$$

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

Project Emissions:

As per the applied methodology/10/, the PE_y in case of a wind power project is considered zero. Hence, $PE_y = 0$ is acceptable to the verification team.

Leakage:

As per the applied methodology/10/ and as defined in the registered VCS PD /03/, no leakage is considered in the project activity and the same is followed in this monitoring period also. Thus, it is in compliance with the VCS PD.

The following are the ex-ante parameters used in the ER calculation which are in compliance with registered VCS PD:

Parameter	Description	Source/Justification
$EF_{grid,OM,y}$ tCO_2/MWh	Operating margin CO_2 emission factor in year y	Calculated as per “Tool to calculate the emission factor for an electricity system, version 2.2.1” as 3-year generation weighted average using data for the years 2008-09,2009-10 and 2010-11. The data are obtained from “ CO_2 Baseline Database for Indian Power Sector” version 07, published by the Central Electricity Authority, Ministry of Power, Government of India.

		The value 0.9851 is used for the calculation of the Baseline Emission and is found to be consistent with the registered VCS PD/03/.
EF _{grid,BM,y} tCO ₂ /MWh	Build margin CO ₂ emission factor in year y	Calculated as per “Tool to calculate the emission factor for an electricity system, version 2.2.1” as 3-year generation weighted average using data for the years 2009-2010, 2010-2011 & 2011-2012. The data is obtained from “CO₂ Baseline Database for Indian Power Sector” version 07, published by the Central Electricity Authority, Ministry of Power, Government of India. The value 0.8587 is used for the calculation of the Baseline Emission and is found to be consistent with the registered VCS PD/03/.
EF _{grid,CM,y} tCO ₂ /MWh	Combined margin CO ₂ emission factor in year y	Combined margin emission factor has been calculated by the Central Electricity Authority in accordance with CDM methodology: ACM0002 and tool to calculate the emission factor for an electricity system. The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: EF_{grid,BM,y}= Build margin CO₂ emission factor in year y (tCO₂/MWh) EF_{grid,OM,y}= Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= Weighting of build margin emissions factor (%) = 25% The value 0.9527 is used for the calculation of the Baseline Emission and is found to be consistent with the registered VCS PD/03/.

The estimated emission reductions to be achieved from the project activity for the current monitoring period were 86,725 tCO₂e, whereas actual emission reductions achieved are 61,098 tCO₂e, which is 29.55% lower than the estimated emission reductions. Assessment team has confirmed that this is due to variations in wind flow pattern, grid availability during the current monitoring period as compared to the PLF in the registered CDM PDD / VCS PD. These parameters are not in control of the PP and same is accepted.

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

Findings: CL 01 was raised and successfully closed

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered VCS PD /03/;
- The monitoring complies with the requirement of the applied methodology/10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD /03/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheet /2.2/ are verified and included under each monitoring parameter, wherever appropriate.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

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

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan/03/. No significant lack of evidence and missing data were detected during remote audit discussion and video inspection/11/. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures. The monitoring parameters have been measured / determined without material mis-statements and is in line with all applicable standards and relevant requirements. The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included in section 4.1 under each parameter and confirms to the requirement of the registered VCS PD/03/. The export and import data is measured by the electricity meters, recorded continuously and the invoices are generated monthly/14/. The data is then reported annually through VCS Monitoring Report as verified by the verification team through remote assessment.

It was also verified through remote audit inspection that the plant's team involved in the monitoring of project activity is well experienced. Hence, the verification team concludes that competent staff is employed by the project proponent to carry out the relevant tasks with

sufficient accuracy. Furthermore, it was confirmed during remote audit discussion that internal training program for the monitoring staff is conducted on regular basis.

4.6 Non-Permanence Risk Analysis

Not applicable to the project activity.

5 VERIFICATION CONCLUSION

KBS Certification Services Pvt. Ltd. has been commissioned by 'BINDU VAYU URJA PRIVATE LIMITED' to perform verification of its registered VCS project 'Chakala wind power project in Maharashtra', for the monitoring period 01-April-2020 to 31-May-2021 (Inclusive of both days), under the crediting period 30-December-2011 to 29-December-2021, with regard to the relevant requirements of VCS Standard Version 4.1.

The management of the 'BINDU VAYU URJA PRIVATE LIMITED' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final Monitoring Report Version 02 dated 20-August-2021. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'BINDU VAYU URJA PRIVATE LIMITED'. The development and maintenance of records and reporting procedures are in accordance with the final Monitoring Report/1.2/.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01-April-2020 to 31-May-2021 (Inclusive of both days) based on the reported emission reductions in the final Monitoring Report/1.2/ for the same period.

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

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

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

Verification period: From 01-April-2020 to 31-May-2021 (Inclusive of both days)

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01-April-2020 to 31-December-2020	39,947	0	0	39,947
1-January-2021 to 31-May-2021	21,151	0	0	21,151
Total	61,098	0	0	61,098

Location: Faridabad

Date: 01-September-2021



Authorized Signatory: Kaushal Goyal

Designation: Managing Director

KBS Certification Services Pvt. Ltd.

APPENDIX I: REFERENCES

/1/	/1.1/ Monitoring Report, Version 01, dated 02-June-2021 (Initial Version) /1.2/ Monitoring Report, Version 02 dated 20-August-2021 (Final Version)
/2/	/2.1/ Emission Reduction calculation sheet, Version 01 dated 02-06-2021 (corresponding to initial Version of VCS MR) /2.2/ Emissions Reduction calculation Sheet, Version 02 dated 20-August-2021 (corresponding to final Version of VCS MR)
/3/	- Registered CDM PDD version 07 dated 29-December-2012 - Registered VCS PD version 06 dated 15-May-2014 - CDM Validation report version 01 dated 30-December-2012 3rd Verification report version 03 dated 17-December-2020
/4/	VCS Standard Version 4.1
/5/	VCS Programme guide Version 4.0 VCS_Validation_Verification_Manual_v3.2
/6/	Technical specifications/photographs of turbines, electricity meters etc.
/7/	Single line diagram and meter locations / Layout
/8/	Power purchase agreement for the WTGs Operation and maintenance contracts
/9/	Commissioning Certificates for the WTGs installed
/10/	ACM0002: Grid-connected electricity generation from renewable sources -- Version 13.0
/11/	Remote auditing (16-July-2021) for verification of measuring and monitoring procedure, - Video recordings & snapshots of the project site/equipment's - Interviews and data/log review
/12/	Credit notes for the entire monitoring period 01-April-2020 to 31-May-2021
/13/	Calibration Certificates for main meters and check meters
/14/	Invoices raised during the monitoring period 01-April-2020 to 31-May-2021
/15/	Organization structure/chart
/16/	Supportive for avoidance of double counting dated 01-August-2020

APPENDIX II: FINDINGS

Summary of findings	CAR	CL	FAR
	01	02	00

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

Date	Type & Number	Raised by	Reference
XX/XX/2021	FAR		NA
Non-conformities raised			
No pending/open FAR identified from validation/previous verifications.			
Project Participant 's response		Date:	
Documentation Provided as Evidence by Project Participant			
Information Verified by Team Leader		Date of review:	
NA			
Reasoning for not acceptance or close-out			
NA			
Date of acceptance or non-acceptance		Date:	Status: Closed

Table 2. CAR from this verification

Date	Type & Number	Raised by	Reference
06-July-2021	CAR 1	Verification team	Verification Protocol
Non conformities raised			

Following findings observed in the submitted VCS PD.		
1. Geographical co-ordinates for WTGs; C-53 and C-57 are incorrect. 2. Please update the electricity grid nomenclature as per the latest information in section 4.1 3. Please use correct font, font colour and size through the monitoring report as per VCS monitoring report version 4.0. 4. In section 4.3, the organization structure mentions Coordinator as 'CDM coordinator'. Kindly correct this to 'VCS coordinator' as this is VCS project.		
Project Participant's response		Date: 20-August-2021
1. Correct geographical co-ordinates are now being mentioned in this submission. 2. Electricity grid nomenclature is now being updated as per latest information in section 4.1 3. Correct font, font colour and size has now been maintained throughout the VCS MR as per template guidelines. 4. The organization structure mentioned in section 4.3 of the VCS MR is now being rectified in this submission.		
Documentation Provided as Evidence by Project Participant		
VCS MR V02.0		
Information Verified by Team Leader		Date of review: 26-August-2021
1. Geographical co-ordinates were checked and accepted to be correct. 2. Electricity grid nomenclature as "Indian grid" is updated as per latest information in section 4.1 3. Revised MR uses correct font, font colour and size as per template guidelines. 4. The organization structure mentioned in section 4.3 is corrected and accepted.		
Reasoning for not acceptance or close out		
1. Geographical co-ordinates were checked with the help of google map software and found correct. Hence this part of CAR is closed 2. Electricity grid nomenclature as "Indian grid" is updated as per latest information in section 4.1 Hence this part of CAR is closed 3. Revised MR uses correct font, font colour and size as per a template guideline which is verified. Hence this part of CAR is closed 4. The organization structure mentioned in section 4.3 provided clear roles and responsibilities of PP and o & m contractor which is accepted Hence this part of CAR is closed		
Date of acceptance or non- acceptance	Date: 26-August-2021	Status: CLOSED

Table 3. CL from this verification

Date	Type & Number	Raised by	Reference
06-July-2021	CL 1	Verification Team	Verification Protocol
Non conformities raised			
1. In section 4.1, it is mentioned that ‘....based on the most recent data available on CEA database..’. PP is requested to clarify data from which years has been considered as a source of data for parameter – $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ 2. Please provide the version of “Tool to calculate the emission factor for an electricity system” used for calculation of $EF_{grid,CM,y}$			
Project Participant’s response		Date: 20-August-2021	
1. Section 4.1 is now being updated with the years from which data is considered for parameters $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ 2. Version of “Tool to calculate the emission factor for an electricity system” used for calculation of $EF_{grid,CM,y}$ is now being mentioned in this submission.			
Documentation Provided as Evidence by Project Participant			

VCS MR V02.0		
Information Verified by Team Leader		Date of review: 26-August-2021
1. PP has updated section 4.1 to mention years considered i.e. 2008-09,2009-10 and 2010-11 as a source of data for parameter – $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ 2. PP has provided version of “Tool to calculate the emission factor for an electricity system” used for calculation of $EF_{grid,CM,y}$ in footnote 10 as version 2.2.1		
Reasoning for not acceptance or close out		
1. PP has updated section 4.1 to mention years considered i.e. 2008-09,2009-10 and 2010-11 which is accepted hence this part of CL is closed 2. PP has provided version of “Tool to calculate the emission factor for an electricity system” used for calculation of $EF_{grid,CM,y}$ in footnote 10 as version 2.2.1 which is correct and accepted hence this part of CL is closed		
Date of acceptance or non- acceptance	Date: 26-August-2021	Status: CLOSED

Date	Type & Number	Raised by	Reference
06-July-2021	CL 02	Verification team	Verification Protocol
Non conformities raised			
Following documents are to be submitted to assessment team for verifying the project implantation & operation. 1. Undertaking to confirm no double counting. 2. Supporting document for ‘....Stakeholder meetings are organized on regular intervals in order to identify the major challenges around the area...’ PP is also requested to provide copies of ‘Visitor register cum grievance register’ maintained at the project site. 3. Commissioning certificates for entire project activity. 4. Calibration reports for both the meters covering the entire monitoring period. 5. MJRs for the monitoring period to verify the appropriateness of apportioning. 6. Joint meter readings for missing months, kindly note that the submitted JMRs doesn’t cover the entire monitoring period.			
Project Participant’s response		Date: 20-August-2021	
1. Undertaking to confirm no double counting is now being submitted. 2. The above documents are now been submitted. 3. Commissioning certify certificates for entire project activity is being attached in this submission. 4. Complete set of JMRs for this monitoring period is now being submitted. 5. Joint meter readings for missing months are also being submitted.			
Documentation Provided as Evidence by Project Participant			
Undertaking signed by PP regarding no double counting, grievance register, calibration reports, JMRs & Invoices.			
Information Verified by Team Leader		Date of review: 26-August-2021	
Following documents were submitted to assessment team for verifying the project implantation & operation which were checked and verified 1. Undertaking dated 01/08/2020 to confirm no double counting is now being submitted. 2. Visitor register cum grievance register maintained at site which shows that no grievance was mentioned in the current monitoring period 3. Commissioning certificates for entire project activity were checked and commissioning dates were confirmed 4. Calibration reports for both the meters covering the entire monitoring period are submitted and verified 5. Appropriateness of apportioning was checked and confirmed as complete set of JMRs for the current monitoring period is now submitted. 6. Joint meter readings for missing months i. e. April, 2021 and May, 2021 were submitted and were verified.			

Reasoning for not acceptance or close out		
1. PP's undertaking confirms there is no double counting for current monitoring period hence this part of CL is closed 2. Visitor register cum grievance register maintained at site was checked which confirms that no grievance was registered in the current monitoring period hence this part of CL is closed 3. Commissioning certificates for entire project activity were checked and commissioning dates in the MR were confirmed hence this part of CL is closed 4. Calibration reports carried out on 20-March-2020 and 15-March-2021 for both the meters were checked and it is verified that the energy meter details in the MR are correct and no delay in the calibration schedule observed for the current monitoring period. Hence this part of CL is closed. 5. Appropriateness of apportioning was checked and confirmed as complete set of JMRs for the current monitoring period is now submitted hence this part of CL is closed. 6. Joint meter readings for missing months i. e. April, 2021 and May, 2021 were submitted and the values in the ER sheet were verified with the same and found ok, hence this part of CL is closed		
Date of acceptance or non- acceptance	Date: 26-August-2021	Status: CLOSED

Table 4.FAR from this verification

No FAR raised during current verification.

Date	Type & Number	Raised by	Reference
DD/MM/YYYY	FAR		NA
Non-conformities raised			
No FAR identified during the current verifications.			
Project Participant 's response		Date: DD/MM/YYYY	
Documentation Provided as Evidence by Project Participant			
Information Verified by Team Leader		Date of review:	
NA			
Reasoning for not acceptance or close-out			
NA			
Date of acceptance or non-acceptance	Date:		Status: Closed

APPENDIX III: COMPETENCE OF TEAM MEMBERS

Personnel Name:		Deepak Pundlik	
Qualified to work as:			
Team Leader	☐	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Approved by (Manager C & T)	Shikha Sharma		
Approval date:	07/07/2021		

Personnel Name:		Sanjay Kandari	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		

Energy demand	TA 3.1. Energy Demand
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure
Approved by (Manager C & T)	Akhilesh Joshi
Approval date:	11/12/2015

Personnel Name:		Tushar Chaudhari	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	Technical Area		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal		
Approved by	Manager Competency & Training		
Approval date:	02/09/2020		

APPENDIX IV: BREAKDOWN DETAILS

Date	WTGs	Total B/D in hrs.	Due to
18-April-2020	C49	24.00	Material shortage
19-April-2020	C49	24.00	Material shortage
20-April-2020	C49	24.00	Material shortage
21-April-2020	C49	24.00	Material shortage
04-June-2020	C50	24.00	Material shortage
05-June-2020	C50	24.00	Material shortage
06-June-2020	C50	24.00	Material shortage
07-June-2020	C50	24.00	Material shortage
08-June-2020	C50	24.00	Material shortage
09-June-2020	C50	24.00	Material shortage
10-June-2020	C50	24.00	Material shortage
11-June-2020	C50	24.00	Material shortage
12-June-2020	C50	24.00	Material shortage
13-June-2020	C50	24.00	Material shortage
14-June-2020	C50	24.00	Material shortage
15-June-2020	C50	24.00	Material shortage
16-June-2020	C50	24.00	Material shortage
18-July-2020	C49	24.00	Material shortage (OFC cable)
22-September-2020	C39	24.00	transformer fail
23-September-2020	C39	24.00	transformer fail
07-October-2020	C40	24.00	Material shortage (pitch coil & break pad)
08-October-2020	C40	24.00	Material shortage (pitch coil & break pad)

09-October-2020	C40	24.00	Material shortage (pitch coil & break pad)
10-October-2020	C40	24.00	Material shortage (pitch coil & break pad)
09-November-2020	C41	24.00	pitch coil
28-November-2020	C39	24.00	Slip ring issue
29-November-2020	C39	24.00	Slip ring issue
30-November-2020	C39	24.00	Slip ring issue
19-December-2020	C44	24.00	Material shortage (battery cells)
20-December-2020	C44	24.00	Material shortage (battery cells)
20-December-2020	C44	24.00	Material shortage (battery cells)
13-Feb-2021	C38	24.00	Material shortage (pitch coil & break pad)
14-Feb-2021	C38	24.00	Material shortage (pitch coil & break pad)
26-April-2021	C64	24.00	Material shortage (pitch coil & break pad)
28-April-2021	C64	23.30	Material shortage (pitch coil & break pad)
29-April-2021	C64	24.00	Material shortage (pitch coil & break pad)
30-April-2021	C64	24.00	Material shortage (pitch coil & break pad)
01-May-2021	C64	24.00	Material shortage (pitch coil & break pad)
02-May-2021	C64	24.00	Material shortage (pitch coil & break pad)

APPENDIX V: CALIBRATION DETAILS

L o c a t i o n N o .	Date of Commis sioning	WT G cap acit y (M W)	Me ter ing Poi nt	M et e r M a k e	MSE DCL Main Mete r Seria l	MSEDCL Check Meter Serial Number	Calibration date	Calibration due date	Next calibration	Calibration due date
C 5 4	30- Decemb er-2011	1.5	Ga ng ap ur 12	El st e r	0281 1287	028112 88	20-March- 2020	19-March- 2021	16-March- 2021	15-March- 2022
C 5 5	30- Decemb er-2011	1.5								
C 5 6	30- Decemb er-2011	1.5								
C 5 8	30- Decemb er-2011	1.5								
C 5 7	12- January- 2012	1.5								
C 6 3	12- January- 2012	1.5								
C 6 4	13- January- 2012	1.5								
C 5 5	15- Februar	1.5								

9	y-2012									
C 6 0	15- Februar y-2012	1.5								
C 6 6	15- Februar y-2012	1.5								
C 5 3	22- Februar y-2012	1.5								
C 3 8	30- Decemb er-2011	1.5	Ga ng ap ur 11	El st e r	0283 1554	028315 55	20-March- 2020	19-March- 2021	16-March- 2021	15-March- 2022
C 3 9	30- Decemb er-2011	1.5								
C 4 0	30- Decemb er-2011	1.5								
C 4 1	30- Decemb er-2011	1.5								
C 4 3	30- Decemb er-2011	1.5								
C 4 4	30- Decemb er-2011	1.5								
C 4 6	30- Decemb er-2011	1.5								
C 5 0	03- January- 2012	1.5								
C	20-	1.5								

5 1	January- 2012									
C 5 2	20- January- 2012	1.5								
C 4 8	12- January- 2012	1.5								
C 4 7	15- Februar y-2012	1.5								
C 4 9	15- Februar y-2012	1.5								
C 4 2	22- Februar y-2012	1.5								