



BUNDLED RENEWABLE ENERGY PROJECT IN GUJARAT AND KARNATAKA, INDIA



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Summary:

4K Earth Science Private Limited (4KES) has been contracted by, “Sai Pet Preforms” to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Bundled renewable energy project in Gujarat and Karnataka, India’ for the monitoring period 08/03/2018 to 31/08/2022 in the initial monitoring report version 02, dated 28/02/2023.

The project activity is a bundled project activity involving installation and operation of 2 Wind Turbine Generators (WTGs) having individual capacities 1x2000 kW (G114) and 1x850 kW (G58) manufactured and supplied by Siemens Gamesa Renewable Power Pvt. Ltd. and 3.5 MW solar PV modules manufactured and supplied by Diwakar Soltek Pvt. Ltd. with aggregated capacity of 6.35 MW in Indian states of Karnataka and Gujarat. The project activity is promoted by Sai Pet Preforms.

During the monitoring period, the project has operated continuously and satisfactorily, generating a total net energy delivered to the grid equal to 44,475.68 MWh. No changes on the project entity or applicable legislation have occurred during this 1st monitoring period.

Verification team has verified the technical details with capacity of the project activity by Physical site visit, technical specification /10/, Commissioning certificates /11/ and photos /17/ etc.

The project activity generated renewable electricity without any GHG emissions, which displaced part of the electricity otherwise supplied by grid connected fossil fuel fired power plants. Thus, GHG emission reductions can be achieved.

During current monitoring period i.e. from 08/03/2018 to 31/08/2022, the project activity has supplied 44,475.68 MWh net electricity to the grid, there by resulted in emission reduction of 41,663 tCO₂e. The monitoring period subject to this monitoring report is inclusive of first and last day of period.

A risk based approach has been followed to perform the 1st periodic verification of the project activity. In the course of the verification, 04 Corrective Action Requests (CARs), 02 Clarification Requests (CL) and 00 Forward Action Request were raised.

The management of the ‘Sai Pet Preforms’ 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 3.2 dated 16/10/2023. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the PA Research & Consultants Pvt. Ltd. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 3.2 dated 16/10/2023.

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 08/03/2018 to

31/08/2022 based on the reported emission reductions in the final monitoring report Version 3.2 dated 16/10/2023 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, 4KES 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.

4KES confirms the following;

Reporting period: 08/03/2018 to 31/08/2022

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)
2018 (08-March-2018 to 31-December-2018)	5,159	0	0	5,159
2019 (01-January-2019 to 31-December -2019)	7,406	0	0	7,406
2020 (01- January -2020 to 31-December -2020)	9,058	0	0	9,058
2021 (01- January -2021 to 31-December -2021)	11,886	0	0	11,886
2022 (01- January -2022 to 31- August-2022)	8,154	0	0	8,154
Total	41,663	0	0	41,663

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1 INTRODUCTION

1.1 Objective

4KES has been commissioned by 'Sai Pet Preforms' to perform verification of its registered VCS project 'Bundled renewable energy project in Gujarat and Karnataka, India', for the reported GHG emission reductions for the given monitoring period 08/03/2018 to 31/08/2022 (both dates included). 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 scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

The Verification is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

1.3 Level of Assurance

The verification team verified the complete monitoring data /12/ for the monitoring parameter of the monitoring plan against the Monitoring report /1.2/ and ER Calculation sheet /2.2/ and confirms that the reported emission reductions are free from any type of material errors. Physical site visit was also conducted to verify the implementation and monitoring plan of the project activity. The implementation of the project activity (i.e. major equipment and the metering arrangement) was verified during the Physical site visit and found in accordance with the monitoring report /1.2/ and registered VCS PD /05/. Verification team has also verified the technical details of the project equipments and metering arrangement with the supportive documents /09/, /10/, /11/, /15/ and /17/ and found correct. Therefore, 4KES confirms that the verification is conducted with reasonable level of assurance.

1.4 Summary Description of the Project

The project activity is a bundled project activity involving installation and operation of 2 Wind Turbine Generators (WTGs) having individual capacities 1x2000 kW (G114) and 1x850 kW (G58) manufactured and supplied by Siemens Gamesa Renewable Power Pvt. Ltd. and 3.5 MW solar PV modules manufactured and supplied by Diwakar Soltek Pvt. Ltd. with aggregated capacity of 6.35 MW in Indian states of Karnataka and Gujarat. The project activity is promoted by Sai Pet Preforms.

The 2 MW wind power project site in Karnataka is located in Bableshwar Wind Park at Malaghan village at Basavana Bagewadi Taluka at Vijayapura district and 0.85 MW wind power project in Gujarat is located at Village Juna kataria, Khodasar of Bhachhau Taluka falling under Kutch district. On the other hand, the 3.5 MW solar PV power generation project site is located at Upparhalli village Hospet taluka within Bellari district of Karnataka. The locations have been verified during the site visit. The generated electricity from this project activity is exported to the Indian grid. Electricity generated from 2 MW wind power plant in Karnataka is supplied to the local electricity distribution licensee Hubli Electricity Supply Company Limited (HESCOM), electricity generated from 0.85 MW wind power plant in Gujarat is supplied to Gujarat Urja Vikas Nigam Limited (GUVNL) while the 3.5 MW solar PV power plant supplies electricity to Gulbarga Electricity Supply Company Limited (GESCOM). PPAs /16/ are already signed with the grid companies and still valid.

The project activity is a Greenfield project aimed at utilizing wind and solar energy sources to generate electricity. In the pre-project scenario, the equivalent amount of electricity would have been generated by grid mix power plants connected Indian grid, which is dominated by fossil fuel based thermal power plant. The project activity, thus reduces the anthropogenic emissions of Green House Gases (GHGs) in to the atmosphere associated with the equivalent amount of electricity generation from the fossil fuel-based grid connected power plant.

Type	Location	Installed Capacity (MW)	Number of WTG	Commissioning Date
Wind	Karnataka	2	1	08/03/2018
Wind	Gujarat	0.85	1	01/04/2018
Solar	Karnataka	3.5	-	15/07/2019

The wind and solar project in the bundle are operational since commissioning with planned outage and maintenance which is verified during the site visit interviews and records /22/.

During the monitoring period, the project has operated continuously and satisfactorily, generating a total net energy delivered to the grid equal to 44,475.68 MWh. No changes on the project entity or applicable legislation have occurred during this 1st monitoring period.

Verification team has verified the technical details with capacity of the project activity by Physical site visit, technical specification /10/, Commissioning certificates /11/ and photos /17/ etc.

Project is fully commissioned and supplying electricity to grid as verified from commissioning reports /11/. The net electricity generated from this project is supplied to the national grid via the transmission line as verified during the Physical site visit.

Type	Capacity	Location	Geo-ordinates
Wind Power Project	2.0 MW	Malaghan village at Basavana, Bagewadi Taluka of Vijayapura, District, Karnataka	16.56° N, 75.97° E
Wind Power Project	0.85 MW	Juna Katiar village at Bhachhau taluka of Kutch district, Gujarat	23.29° N, 70.33° E
Solar PV Power Project	3.5 MW	Upparhalli village at Hospet, taluka of Ballari district, Karnataka	15.26° N, 76.39° E

Verification team has verified the physical address through internet /08/ and found consistent.

During current monitoring period i.e. from 08/03/2018 to 31/08/2022, the project activity has supplied 44,475.68 MWh net electricity to the grid, there by resulted in emission reduction of 41,663 tCO₂e. The monitoring period subject to this monitoring report is inclusive of first and last day of period.

2 VERIFICATION PROCESS

The registered VCS project is undergoing 1st verification under VCS (1st Crediting period), the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

4KES assessed and determined whether the proposed implementation and operation of the project activity and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- follow up interviews with project stakeholders
- The resolution of outstanding issues and issuance of final report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control before being submitted to the VCS executive board for issuance of credits as per VCS standard v4.4.

Duration of Verification:

Verification Contract	27/01/2023
Audit	02/04/2023 (0.85 MW, Gujarat site), 10/04/2023 (2.0 MW, Karnataka site) and 11/04/2023 (3.5 MW, Karnataka site)
Findings raised	24/04/2023
Draft Verification Report	03/07/2023
Final Verification Report	04/12/2023

2.2 Document Review

The verification is performed primarily as a document review of the approved VCS PD and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

Verification team performed the Physical site visit and interviewed PP representatives/Consultant/Stakeholders and reviewed documents to achieve a reasonable

level of assurance in the verification. No sampling procedures were adopted in document verification and all the document were cross checked to ensure conservative estimation of emission reduction. Kindly find below names of the persons interviewed (Physical site visit).

Location	Type	Capacity	Location	Geo-ordinates
	Wind Power Project	0.85 MW	Juna Katiar village at Bhachhau taluka of Kutch district, Gujarat	23.29° N, 70.33° E
	Wind Power Project	2.0 MW	Malaghan village at Basavana Bagewadi Taluka of Vijaypura District, Karnataka	16.56° N, 75.97° E
	Solar PV Power Project	3.5 MW	Upparhalli village at Hospet taluka of Ballari district, Karnataka	15.26° N, 76.39° E
Dates	02/04/2023 (0.85 MW, Gujarat site), 10/04/2023 (2.0 MW, Karnataka site) and 11/04/2023 (3.5 MW, Karnataka site)			
Key points discussed	Name of person, interviewed	Designation, Organization		
Project Implementation, Operational data, Calibration, Data collection, QA/QC, procedures, Calculation of ERs, VCS requirements, Sustainable development Impact, Complaints, Mode of	0.85 MW, Gujarat site			
	Bhaves S.	Sai Pet Preforms		
	Hiren D.	Sai Pet Preforms		
	Som R.	Sai Pet Preforms		
	Ashish S.	Sai Pet Preforms		
	Mohan Bhui	Local Villager, Ghodasar		
	Raju Bhui	Local Villager, Katariya		
	Kirit Bhui	Local Villager, Chandrodi		
	Sidhrey J.	Driver		

communication, Environmental impact, any other concerns	Phool Chand	PA Research & Consultants Pvt. Ltd, Consultant
	Akhil	PA Research & Consultants Pvt. Ltd, Consultant
	2.0 MW, Karnataka site	
	Raja Kumar	Sai Pet Preforms
	Santosh	Local person, Malaghan
	Ameerkhan	Sai Pet Preforms
	Shiva Kumar	Sai Pet Preforms
	3.5 MW, Karnataka site	
	Vinod Kumar G.	Site Engineer, Sai Pet Preforms
	MD. Mustafa	Site-coordinator, Sai Pet Preforms
	Anand. H.	Technician, Sai Pet Preforms
	Mayurappa	Local person, Upparhalli
	Sudhakar H.	Local person, Upparhalli
	Shivaraj	Local person, Upparhalli

2.4 Site Visits

Verification team performed the Physical site visit and interviewed PP representatives/Consultant/Stakeholders and reviewed documents to achieve a reasonable level of assurance in the verification. No sampling procedures were adopted in document verification and all the document were cross checked to ensure conservative estimation of emission reduction. The name of the persons interviewed is reported under section 2.3 of this report.

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and site visit. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the 4KES during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

During the Verification process, total 04 CAR and 02 CL were raised and resolved satisfactorily. No FAR has been raised. The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix II of this report.

2.5.1 Forward Action Requests

No FAR raised during the verification.

2.6 Eligibility for Validation Activities

4KES conducted the verification activity; the validation was performed by the other VVB. 4KES has a valid UNFCCC accreditation in the sectoral scope from UNFCCC. The accreditation scope can be checked from the below link: <http://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0069>.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project is registered in VCS only, verification team confirms that it has checked that there is no double counting associated with project activity being participation of other GHG programs which is also verified from the declaration given by the PP /18/.

3.2 Methodology Deviations

No deviation is applied during the monitoring period.

3.3 Project Description Deviations

Project deviation is described in section 3.2.2. of the VCS MR /1.2/:

Deviation: It was reported in the VCS PD, for each of the 3 sub projects of the bundle. the electricity generation will be monitored through main meter at 2 outgoing feeders. However, the electricity generated is monitored using main meter from a single feeder only at each of the 3 sites. This deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario as they remain the same. The deviation requested above has no correlation with information provided in Appendix-I.

VVB Justification: Deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario as one main meter and check meter are installed for all three project sites and production is accurate and monitored as verified from the monthly JMR reports /12/ and ER sheet /2.2/ and Physical site visit.

The aforementioned deviation has been adequately described in section 3.2.2. of the MR /1.2/ and complied with according to the VCS rules and requirements /03/. The verification team is of the opinion that the PP has followed an appropriate approach and the deviation has not resulted in the overestimation of the emission reductions in any way. Verification team confirm that the deviation requested above has no correlation with information provided in Appendix-I of the MR /1.2/.

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 a bundled project activity involving installation and operation of 2 Wind Turbine Generators (WTGs) having individual capacities 1x2000 kW (G114) and 1x850 kW (G58) manufactured and supplied by Siemens Gamesa Renewable Power Pvt. Ltd. and 3.5 MW solar PV modules manufactured and supplied by Diwakar Soltek Pvt. Ltd. with aggregated capacity of 6.35 MW in Indian states of Karnataka and Gujarat. The project activity is promoted by Sai Pet Preforms.

The 2 MW wind power project site in Karnataka is located in Bableshwar Wind Park at Malaghan village at Basavana Bagewadi Taluka at Vijayapura district and 0.85 MW wind power project in Gujarat is located at Village Juna kataria, Khodasar of Bhachhau Taluka falling under Kutch district. On the other hand, the 3.5 MW solar PV power generation project site is located at Upparhalli village Hospet taluka within Bellari district of Karnataka. The locations have been verified during the site visit. The generated electricity from this project activity is exported to the Indian grid. Electricity generated from 2 MW wind power plant in Karnataka is supplied to the local electricity distribution licensee Hubli Electricity Supply Company Limited (HESCOM), electricity generated from 0.85 MW wind power plant in Gujarat is supplied to Gujarat Urja Vikas

Nigam Limited (GUVNL) while the 3.5 MW solar PV power plant supplies electricity to Gulbarga Electricity Supply Company Limited (GESCOM). PPAs /16/ are already signed with the grid companies and still valid.

The project activity is a Greenfield project aimed at utilizing wind and solar energy sources to generate electricity. In the pre-project scenario, the equivalent amount of electricity would have been generated by grid mix power plants connected Indian grid, which is dominated by fossil fuel based thermal power plant. The project activity, thus reduces the anthropogenic emissions of Green House Gases (GHGs) in to the atmosphere associated with the equivalent amount of electricity generation from the fossil fuel-based grid connected power plant.

Type	Location	Installed Capacity (MW)	Number of WTG	Commissioning Date
Wind	Karnataka	2	1	08/03/2018
Wind	Gujarat	0.85	1	01/04/2018
Solar	Karnataka	3.5	-	15/07/2019

The wind and solar project in the bundle are operational since commissioning with planned outage and maintenance which is verified during the site visit interviews and records /22/.

During the monitoring period, the project has operated continuously and satisfactorily, generating a total net energy delivered to the grid equal to 44,475.68 MWh. No changes on the project entity or applicable legislation have occurred during this 1st monitoring period.

Verification team has verified the technical details with capacity of the project activity by Physical site visit, technical specification /10/, Commissioning certificates /11/ and photos /17/ etc.

Project is fully commissioned and supplying electricity to grid as verified from commissioning reports /11/. The net electricity generated from this project is supplied to the national grid via the transmission line as verified during the Physical site visit.

Trainings have been received by team as verified from trainings records /21/.

During the process of verification, 4KES confirmed the capacity, power generation, arrangement for evacuation of electricity generated, technical specifications, date of commissioning, arrangements for Operation & Maintenance (O&M) and necessary clearances for setting the project activity. List of documents reviewed during the course of verification is presented under Appendix I of this report.

The selected monitoring period i.e. 08/03/2018 to 31/08/2022 (both days included) is within the 1st crediting period i.e. 08/03/2018 – 07/03/2028 which is accepted to the verification team.

There was no major breakdown or shutdowns during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions. There was no generation for 2MW WTG from November 2019 to May 2020 as the machine broke down on 04/10/2019 and was restored on 02/06/2020 as confirmed from breakdown records /22/. Verification team confirm that no generation has been considered for ER calculation for the period November 2019 to May 2020 as verified from ER Sheet /2.2/. Verification team confirm that breakdown do not affects the baseline and additionality.

The other 2 units didn't face any major breakdown and were operational with regular maintenance since commissioning.

The project design as mentioned in the registered VCS PD /05/ & monitoring report submitted is implemented except a deviation as mentioned under section 3.3 of this report and thus the same

is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the registered VCS PD & monitoring report are available and implemented in an appropriate manner.

The organisational role and responsibility as mentioned in the registered VCS PD /05/ & monitoring report /1.2/ is followed onsite. All the emergency preparedness as mentioned in the registered VCS PD & monitoring report is followed onsite and no discrepancies were found regarding the same.

The assessment team found that the project is in line with the registered VCS PD and monitoring report except a deviation as mentioned under section 3.3 of this report.

The project is registered only under VCS. Verification team confirms that it has checked that there is no double counting associated with project activity being participation of other GHG programs. Declaration /18/ for the same has been submitted.

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. Also the project has not sought or received another form of GHG-related environmental credits including renewable energy certificates.

Verification team has checked the supportive for the activities that result in the SD contributions from the project activity for each SDG.

SDG Target 13.0: During the monitoring period, project has avoided the emission of 41,663 tCO_{2e}. Verification team has checked the calculation from the monitoring report /1.2/ and the ER calculation sheet /2.2/ and found correct.

SDG Target 7.2: During the monitoring period, 44,475.68 MWh of renewable energy was delivered to the grid. Verification team has verified the reported electricity export/import data with the monthly JMR reports /12/ and found consistent.

SDG Target 8.5: The project activity has provided employment to 26 individuals at all three-project site. Verification team has verified the same during the Physical site visit interviews and also from the list of employees /19/.

Project activity provide local jobs and upgrade the existing roads, directly contributing to the improvement of infrastructure in region. Section 1.11 of the Monitoring report has been checked and found OK. The project activity contributes positively to sustainable development which has been verified from the Physical site visit (Section 2.3 of this report) and supportive documents /19/.

As per the registered VCS PD /05/, ex-ante emission reductions for this monitoring period are 53,143 tCO_{2e} however actual emission reductions corresponding to this monitoring period are 41,663 tCO_{2e}. The actual emission reductions are less than the estimated emission reductions due to lower PLF achieved during the current monitoring period which is acceptable to the verification team.

Section 1.1 of the VCS MR /1.2/ mention about the audit history. The registered VCS project is undergoing 1st periodic verification for the monitoring period 08/03/2018 to 31/08/2022 (including both the days) under VCS 1st Crediting period i.e. 08/03/2018 – 07/03/2028 (including both the days). Verification team has checked the audit history table mentioned under section 1.1 of the VCS MR /1.2/ and found accurate.

Opinion:

Assessment team concludes the following:

- a) There are no material discrepancies between project implementation and the project description provided in the registered VCS PD /05/ except a deviation as mentioned under section 3.3 of this report.
- b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
- c) There is no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology except a deviation as mentioned under section 3.3 of this report.
- d) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading.
- e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification.
- f) Project is only registered under VCS.

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 No Net Harm

The assessment team confirms based on the Physical site visit and document review that the project activity has no potential negative environmental and social-economic impacts. The facility does not produce any pollution in process of power generation as it utilizes renewable energy sources in all its project sites – wind energy and solar energy. Hence there is positive impact on the environment due to this small-scale project activity of reducing the pollution caused by fossil fuel used in power plants in grid. The same was also verified during the site visit. Hence no mitigation measures are required.

4.2.2 Local Stakeholder Consultation

The local stakeholder consultation meeting for the proposed project activity has been conducted at project sites as per table below. The PP has identified the relevant stakeholders and sends personal invitation letters well in advance.

Venue	Invitation Date	Stakeholder Meeting Date
Upprahalli, Karnataka	04 th Dec 2018	12 th Dec 2018
Vijayapar, Karnataka	04 th Dec 2018	14 th Dec 2018
Bachau, Kuchh, Gujarat	10 th Dec 2018	20 th Dec 2018

The process was validated during the registration of project activity under VCS. VCS validation report /06/ verified to confirm the same. The PP had invited identified stakeholders well in advance with details of venue and time of meeting.

PP has a mechanism for on-going communication /23/ with local stakeholders which has been discussed during the on-site visit interviews with local stakeholders. During the monitoring period (from 08/03/2018 to 31/08/2022), No comment was received.

4.3 AFOLU-Specific Safeguards

Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The verification team was able to confirm that the monitoring plan contained in registered VCS PD /05/ and MR /1.2/ is in accordance with the approved small scale methodology applied for

the project activity i.e. “AMS-I.D. ver. 18.0 - Grid connected renewable electricity generation” /07/ and its applicable tools.

The parameter stated in the monitoring plan /05/ and the applied methodology /07/ have been fulfilled in the current monitoring period.

The GHG emission reductions were correctly calculated on the basis of the applied methodology AMS-I.D. Version 18.0 /07/, VCS PD /05/ and the formulae given in the monitoring report /1.2/.

Parameter monitored:

Verification team confirms through site visit and from the document review, the actual monitoring system complies with the monitoring plan mentioned in the registered validated VCS PD /05/. According to the monitoring plan in the registered VCS PD, there are three monitoring parameters required to be monitored.

1. EG_{PJ,y}_WTG 0.85MW (MWh)

		VVB Assessment
Data / Parameter	EG _{PJ,y} _WTG 0.85MW	The monitoring parameter, unit and description are as per the registered VCS PD /05/.
Data unit	MWh	
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh	
Source of data	Joint meter reading reports or Share certificate issued by GUVNL	The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monthly electricity is jointly measured by PP and GUVNL in Monthly JMR Reports /12/ as confirmed during the on-site visit. The source of data is in accordance with the registered VCS PD /05/.
Description of measurement methods and procedures to be applied	These values are monitored through the main meter readings or from check meters as per emergency preparedness procedure. This parameter accounts for the project imports and export, hence showing the net (export – import) electricity supplied to the grid.	Verification team has checked the monitoring practices and found in compliance with the MR /1.2/ and registered VCS PD /05/. The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monthly

	The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value is considered for ER calculations	electricity is jointly measured by PP and GUVNL in Monthly JMR Reports /12/ as confirmed during the on-site visit. The source of data is in accordance with the registered VCS PD /05/. Monthly electricity is invoiced to GUVNL /13/. The measurement methods and procedures are in accordance with the registered VCS PD /05/. The monitoring procedure was verified during the on-site visit and found in accordance with the registered VCS PD /05/.
Frequency of monitoring/recording	Continuous measurement and monthly recording.	The electricity export/import is continuously measured and monthly recorded in the form of the monthly JMR reports /12/ as verified during the on-site visit. The frequency of monitoring/recording is in accordance with the registered VCS PD /05/.
Value monitored	4834.09	Verification team has verified the reported electricity supplied to grid with the monthly JMR reports /12/ and found consistent.
Monitoring equipment	Energy meters Please refer appendix 1 for meter and calibration details	Verification team has checked the meter details/location during the on-site visit and found consistent with the details mentioned in the monitoring report /1.2/. The energy meters are in accordance with the registered VCS PD /05/. MAIN METER Make - Secure Serial Number - XD550597 Accuracy class - 0.2 Calibration date - 10/12/2018, 09/11/2019, 12/12/2020, 07/11/2021 CHECK METER Make - L&T

		Serial Number: GJ-2325-A Accuracy class: 0.2s Calibration date - 10/12/2018, 09/11/2019, 12/12/2020, 07/11/2021 Calibration of the main and check energy meters /15/ have been done at least one in three years by a third party "Secure" (accredited laboratory) which is in accordance with the registered VCS PD /05/ and hence accepted to the verification team. There was no delay in the calibration during this monitoring period. Verification team has checked the test results and found within the accuracy class.
QA/QC procedures to be applied	The energy meters are of 0.2S accuracy class and Calibration of the meter done at least once in 3 years as per the registered PD. However, the meters have been calibrated annually which is conservative. The main and check meters are calibrated and maintained by GEDA/GETCO as per their own schedule and this frequency of meter calibration is not within the control of the Project Proponent. The supply of electricity to the grid can also be cross checked from invoices raised to the DISCOM.	Verification team has checked the monitoring practices and found in compliance with the MR /1.2/ and registered VCS PD /05/. The electricity supplied to grid is also cross-checked from the monthly invoices /13/ and found consistent. The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monitoring procedure was verified during the on-site visit and found in accordance with the registered VCS PD /05/. Calibration of the main and check energy meters /15/ have been done at least one in three years by a third party "Secure" (accredited laboratory) which is in accordance with the registered VCS PD /05/ and hence accepted to the verification team. There was no delay in the calibration during this monitoring period. Verification

		team has checked the test results and found within the accuracy class.
Purpose of the data	For the calculation of Baseline Emissions	The purpose of the monitoring parameter is to calculate the baseline emission which is in accordance with the registered VCS PD /05/.
Calculation method	NA	N/A
Comments	Data will be kept for crediting period + 2 Years	Data will be kept for crediting period + 2 Years in accordance with the VCS PD /05/.

2. EG_{PJ,y}_WTG2MW (MWh)

		VVB Assessment
Data / Parameter	EG _{PJ,y} _WTG2MW	The monitoring parameter, unit and description are as per the registered VCS PD /05/.
Data unit	MWh	
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh	
Source of data	Joint meter reading reports or Certificate from Karnataka Power Transmission Corporation Limited (KPTCL)	The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monthly electricity is jointly measured by PP and KPTCL in Monthly JMR Reports /12/ as confirmed during the on-site visit. The source of data is in accordance with the registered VCS PD /05/.
Description of measurement methods and procedures to be applied	These values are monitored through the main meter readings or from check meters as per emergency preparedness procedure. This parameter accounts for the project imports and export, hence showing	Verification team has checked the monitoring practices and found in compliance with the MR /1.2/ and registered VCS PD /05/. The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified

	the net (export – import) electricity supplied to the grid. The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value is considered for ER calculations	during the on-site visit. The monthly electricity is jointly measured by PP and KPTCL in Monthly JMR Reports /12/ as confirmed during the on-site visit. The source of data is in accordance with the registered VCS PD /05/. Monthly electricity is invoiced to KPTCL /13/. The measurement methods and procedures are in accordance with the registered VCS PD /05/. The monitoring procedure was verified during the on-site visit and found in accordance with the registered VCS PD /05/.	
Frequency of monitoring/recording	Continuous measurement and monthly recording	The electricity export/import is continuously measured and monthly recorded in the form of the monthly JMR reports /12/ as verified during the on-site visit. The frequency of monitoring/recording is in accordance with the registered VCS PD /05/.	
Value monitored	21,013.93	Verification team has verified the reported electricity supplied to grid with the monthly JMR reports /12/ and found consistent.	
Monitoring equipment	Energy meters Please refer appendix 1 for meter and calibration details.	Verification team has checked the meter details/location during the on-site visit and found consistent with the details mentioned in the monitoring report /1.2/. The energy meters are in accordance with the registered VCS PD /05/.	
		MAIN METER	CHECK METER
		Make - L & T Serial Number - 17054717	Make - L & T Serial Number - 17054711

		Accuracy class - 0.2	Accuracy class - 0.2
		The main and check meters were replaced with new meters with compatible CTs & PT at both Injection point of IPPs on 11/09/2018.	
		Make - L & T Serial Number - 18077778 Accuracy class - 0.2 Calibration date - 15/03/2019, 12/06/2020, 17/06/2021	Make - L & T Serial Number - 18053894 Accuracy class - 0.2 Calibration date - 15/03/2019, 12/06/2020, 17/06/2021
		The check meter was replaced as there was error found in the existing one on 31/12/2021.	
		Make - L & T Serial Number - 18077778 Accuracy class - 0.2 Calibration date - 31/12/2021	Make - L & T Serial Number - 18077740 Accuracy class - 0.2 Calibration date - 31/12/2021
		Calibration of the main and check energy meters /15/ have been done at least one in three years by a government authority "Hubli Electricity Supply Company Limited" which is in accordance with the registered VCS PD /05/ and hence accepted to the verification team.	
		Meters were changed during this monitoring period as verified from the	

		meter change document /15/ and during the on-site visit. The new meters are factory calibrated and tested at the time of installation and hence accepted to the verification team. There was no delay in the calibration during this monitoring period. Verification team has checked the test results and found within the accuracy class.
QA/QC procedures to be applied	The energy meters are of 0.2S accuracy class and Calibration of the meter done at least once in 3 years as per the registered PD. However, the meters have been calibrated annually which is conservative. The main and check meters are calibrated and maintained by BESCO as per their own schedule and this frequency of meter calibration is not within the control of the Project Proponent. The supply of electricity to the grid can also be cross checked from invoices raised to the DISCOM.	Verification team has checked the monitoring practices and found in compliance with the MR /1.2/ and registered VCS PD /05/. The electricity supplied to grid is also cross-checked from the monthly invoices /13/ and found consistent. The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monitoring procedure was verified during the on-site visit and found in accordance with the registered VCS PD /05/. Calibration of the main and check energy meters /15/ have been done at least one in three years by a government authority “Hubli Electricity Supply Company Limited” which is in accordance with the registered VCS PD /05/ and hence accepted to the verification team. There was no delay in the calibration during this monitoring period. Verification team has checked the test results and found within the accuracy class.
Purpose of the data	For the calculation of Baseline Emissions	The purpose of the monitoring parameter is to calculate the baseline emission which is in

		accordance with the registered VCS PD /05/.
Calculation method	NA	N/A
Comments	Data will be kept for crediting period + 2 Years	Data will be kept for crediting period + 2 Years in accordance with the VCS PD /05/.

3. EG_{PJ,y}_3.5MWSolar (MWh)

		VB Assessment
Data / Parameter	EG _{PJ,y} _3.5MWSolar	The monitoring parameter, unit and description are as per the registered VCS PD /05/.
Data unit	MWh	
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y in MWh	
Source of data	Joint meter reading reports or Certificate from Karnataka Power Transmission Corporation Limited (KPTCL)	The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monthly electricity is jointly measured by PP and KPTCL in Monthly JMR Reports /12/ as confirmed during the on-site visit. The source of data is in accordance with the registered VCS PD /05/.
Description of measurement methods and procedures to be applied	These values are monitored through the main meter readings or from check meters as per emergency preparedness procedure. This parameter accounts for the project imports and export, hence showing the net (export – import) electricity supplied to the grid. The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value is considered for ER calculations.	Verification team has checked the monitoring practices and found in compliance with the MR /1.2/ and registered VCS PD /05/. The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monthly electricity is jointly measured by PP and KPTCL in Monthly JMR Reports /12/ as confirmed during the on-site visit. The source of data is in accordance with the registered VCS

		PD /05/. Monthly electricity is invoiced to KPTCL /13/. The measurement methods and procedures are in accordance with the registered VCS PD /05/. The monitoring procedure was verified during the on-site visit and found in accordance with the registered VCS PD /05/.										
Frequency of monitoring/recording	Continuous measurement and monthly recording	The electricity export/import is continuously measured and monthly recorded in the form of the monthly JMR reports /12/ as verified during the on-site visit. The frequency of monitoring/recording is in accordance with the registered VCS PD /05/.										
Value monitored	18,627.66	Verification team has verified the reported electricity supplied to grid with the monthly JMR reports /12/ and found consistent.										
Monitoring equipment	Energy meters Please refer appendix 1 for meter and calibration details	Verification team has checked the meter details/location during the on-site visit and found consistent with the details mentioned in the monitoring report /1.2/. The energy meters are in accordance with the registered VCS PD /05/. <table><tr><th>MAIN METER</th><th>CHECK METER</th></tr><tr><td>Type - L & T</td><td>Type - L & T</td></tr><tr><td>Serial Number - 18075405</td><td>Serial Number - 18069071</td></tr><tr><td>Accuracy class - 0.2s</td><td>Accuracy class - 0.2s</td></tr><tr><td>Calibration date -</td><td>Calibration date - 12/02/2019, 22/01/2020</td></tr></table>	MAIN METER	CHECK METER	Type - L & T	Type - L & T	Serial Number - 18075405	Serial Number - 18069071	Accuracy class - 0.2s	Accuracy class - 0.2s	Calibration date -	Calibration date - 12/02/2019, 22/01/2020
MAIN METER	CHECK METER											
Type - L & T	Type - L & T											
Serial Number - 18075405	Serial Number - 18069071											
Accuracy class - 0.2s	Accuracy class - 0.2s											
Calibration date -	Calibration date - 12/02/2019, 22/01/2020											

		12/02/2019, 22/01/2020	
		The main and check meter were replaced by SCADA compatible RS 485 communication ETV meter on 02/12/2020.	
		Type - L & T Make - 3ph-4Wire Serial Number - 20005930 Accuracy class - 0.2s Calibration date - 12/10/2021	Type - L & T Make - 3ph-4Wire Serial Number - 20006037 Accuracy class - 0.2s Calibration date - 12/10/2021
		Calibration of the main and check energy meters /15/ have been done at least one in three years by a government authority (Bangalore Electricity Supply Company Limited/Gulbarga Electricity Supply Company Limited) which is in accordance with the registered VCS PD /05/ and hence accepted to the verification team. Meters were changed during this monitoring period as verified from the meter change document /15/ and during the on-site visit. The new meters are factory calibrated and tested at the time of installation and hence accepted to the verification team. There was no delay in the calibration during this monitoring period. Verification team has checked the	

		test results and found within the accuracy class.
QA/QC procedures to be applied	The energy meters are of 0.2S accuracy class and Calibration of the meter done at least once in 3 years as per the registered PD. However, the meters have been calibrated annually which is conservative. The main and check meters are calibrated and maintained by BESCOM as per their own schedule and this frequency of meter calibration is not within the control of the Project Proponent. The supply of electricity to the grid can also be cross checked from invoices raised to the DISCOM.	Verification team has checked the monitoring practices and found in compliance with the MR /1.2/ and registered VCS PD /05/. The electricity supplied to grid is also cross-checked from the monthly invoices /13/ and found consistent. The monitoring parameter is measured by a main and check bidirectional electricity meters installed at project site as verified during the on-site visit. The monitoring procedure was verified during the on-site visit and found in accordance with the registered VCS PD /05/. Calibration of the main and check energy meters /15/ have been done at least one in three years by a government authority (Bangalore Electricity Supply Company Limited/Gulbarga Electricity Supply Company Limited) which is in accordance with the registered VCS PD /05/ and hence accepted to the verification team. There was no delay in the calibration during this monitoring period. Verification team has checked the test results and found within the accuracy class.
Purpose of the data	For the calculation of Baseline Emissions	The purpose of the monitoring parameter is to calculate the baseline emission which is in accordance with the registered VCS PD /05/.
Calculation method	NA	N/A

Comments	Data will be kept for crediting period + 2 Years	Data will be kept for crediting period + 2 Years in accordance with the VCS PD /05/.
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Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered VCS PD /05/ except the deviations mentioned under section 3.3 of this report;
- The monitoring complies with the requirement of the applied methodology /07/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under monitoring parameter and confirms to the requirement of the VCS PD /05/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheet /2.2/ are verified and included under monitoring parameter, wherever appropriate;

Parameters not monitored/ex-ante:

1. $EF_{grid,OM,y}$ (tCO₂/MWh)

Operating Margin CO₂ emission factor for the Indian Grid in year y

	Discussion and verification assessment
Purpose of data	Calculation of combined margin emission
Verified value	0.9610
Source of value	CEA's "Baseline Carbon Dioxide Emission Database Version 14.0" https://cea.nic.in/cdm-co2-baseline-database/?lang=en
Justification	It is fixed for the entire crediting period as per the registered VCS PD/05/. The values of this ex-ante parameter have been correctly taken as per the registered VCS PD /05/ and hence accepted by the verification team.

2. $EF_{grid,BM,y}$ (tCO₂/MWh)

Build Margin CO₂ emission factor for the India Grid in year y

	Discussion and verification assessment
Purpose of data	Calculation of combined margin emission
Verified value	0.8644
Source of value	CEA's "Baseline Carbon Dioxide Emission Database Version 14.0" https://cea.nic.in/cdm-co2-baseline-database/?lang=en

Justification	It is fixed for the entire crediting period as per the registered VCS PD/05/. The values of this ex-ante parameter have been correctly taken as per the registered VCS PD /05/ and hence accepted by the verification team.
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3. $EF_{grid,CM,y}$ (tCO₂/MWh)

Combined Margin CO₂ emission factor for the India Grid in year y

	Discussion and verification assessment
Purpose of data	Calculation of baseline emissions
Verified value	0.9368
Source of value	Central Electricity Authority (CEA) of India Database Version 14.0 https://cea.nic.in/cdm-co2-baseline-database/?lang=en
Justification	It is fixed for the entire crediting period as per the registered VCS PD/05/. The values of this ex-ante parameter have been correctly taken as per the registered VCS PD /05/ and hence accepted by the verification team.

Opinion:

In the opinion of assessment team, ex-ante parameter values that were applied in the calculations is consistent with registered VCS PD /05/ and correctly applied in MR /1.2/, emission reductions spreadsheet /2.2/ and justified.

Assessment of Data and Calculation of GHG emission reductions:

According to the approved methodology AMS-I.D., Version 18.0, Emission Reductions are calculated as follows:

Baseline Emissions

The baseline emissions are calculated as follows:

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

Where:

BE_y	=	Baseline emissions in year y (t CO ₂)
$EG_{PJ,y}$	=	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)
$EF_{grid,y}$	=	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" (t CO ₂ /MWh)

Calculation of $EG_{PJ,y}$

As project activity is a greenfield project, in accordance with para 26 of applied methodology /07/,

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

Where,

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

$EG_{facility,y}$ is an ex-post parameter and justified above.

Calculation of $EF_{grid,CM,y}$

The grid emission factor ($EF_{grid,CM,y}$) is an ex-ante parameter and justified above. The emission factor is not monitored during the first crediting period of the project activity but shall be updated at the renewal of the crediting period of the project activity.

The baseline emission calculation for the monitoring period is described below:

$$EF_{grid,y} = 0.9368 \text{ tCO}_2\text{e/MWh}$$

$$EG_{PJ,y} = EG_{PJ,0.85MW} + EG_{PJ,2MW} + EG_{PJ,3.5MW}$$

$$EG_{PJ,y_WTG0.85MW} = 4,834.09 \text{ MWh}$$

$$EG_{PJ,y_WTG2MW} = 21,013.93 \text{ MWh}$$

$$EG_{PJ,y_3.5MWSolar} = 18,627.66 \text{ MWh}$$

Hence, baseline emission is

$$BE_y = (4,834.09 + 21,013.93 + 18,627.66) \times 0.9368 = 41,663 \text{ tCO}_2\text{e}$$

The baseline emission (BE_y) for the monitoring period is:

$$BE_y = 41,663 \text{ tCO}_2\text{e (rounded down)}$$

Project Emissions

As per the approved methodology AMS-I.D. version 18, para 39 /07/, For most renewable energy project activities, project emissions i.e., $PE_y = 0$.

As the proposed project activity is installation of new wind and solar energy-based power plants, it does not involve any project emissions. Hence $PE_y = 0$.

Leakage

According to Methodology AMS-I.D., Version 18.0 /07/ and registered VCS PD /05/, No leakage emissions are considered.

Emission reductions

Net GHG Emission Reductions are calculated as follows:

$$ER_y = BE_y - PE_y - L_y$$

Where:

ER_y = Emission reductions in year y (t CO₂e)

BE_y = Baseline emissions in year y (t CO₂e)

PE_y = Project emissions in year y (t CO₂e)

LE_y = Leakage Emissions in year y (tCO₂)

As mentioned in earlier section PE_y and LE_y are considered zero.

Hence,

$$ER_y = BE_y - 0 - 0$$

$$ER_y = 41,663 - 0 - 0$$

$$ER_y = 41,663 \text{ tCO}_2\text{e}$$

The results of the emission reduction are shown in the table below:

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)
2018 (08-March-2018 to 31-December-2018)	5,159	0	0	5,159
2019 (01-January-2019 to 31-December -2019)	7,406	0	0	7,406

2020 (01- January -2020 to 31- December -2020)	9,058	0	0	9,058
2021 (01- January -2021 to 31- December -2021)	11,886	0	0	11,886
2022 (01- January -2022 to 31- August-2022)	8,154	0	0	8,154
Total	41,663	0	0	41,663

Opinion:

The verification team confirms that

- The complete data set for the identified and required parameter for the operational days in the current monitoring period was available;
- The reported data has been cross checked with available records, as indicated in the section 4.4 above under monitored data, wherever appropriate;
- The baseline, project and leakage emissions have been determined in accordance with the requirement of the applied methodologies, as contained in the final monitoring report and corresponding emission reductions spreadsheet;
- The assumptions, emission factors and default values used are justified, as indicated in the section 4.4 above.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Evidences referred for verification of individual monitoring parameter and fixed parameter are defined under section 4.4. We further confirm that, sufficient evidence covering the entire monitoring period and at the required frequency were available. A list of referred documents for verification is also included in Appendix 1 of this report.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION OPINION

4K Earth Science Pvt. Ltd (4KES), contracted by 'Sai Pet Preforms', has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1878) "Bundled renewable energy project in Gujarat and Karnataka, India" in India for the monitoring period 08-March-2018 to 31-August-2022 as reported in the Monitoring Report Version 3.2 dated 16/10/2023. Sai Pet Preforms are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

4KES commenced the verification on the basis of the baseline and monitoring methodology AMS-I.D. - Version 18.0, the monitoring plan contained in the registered VCS PD /05/ and Monitoring Report (Version 3.2 dated 16/10/2023) as per the process described under Section 2 of this report.

4KES verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. 4KES planned and performed the verification by obtaining evidence and other information and explanations that 4KES considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 08-March-2018 to 31-August-2022 are fairly stated in the Monitoring Report Version 3.2 dated 16/10/2023. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS-I.D.- Version 18.0 and the VCS standard v4.4 /03/.

Verification period: From 08-March-2018 to 31-August-2022

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

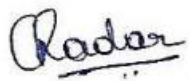
Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2018 (08-March-2018 to 31-December-2018)	5,159	0	0	5,159
2019 (01-January-2019 to 31-December -2019)	7,406	0	0	7,406
2020 (01- January -2020 to 31-December -2020)	9,058	0	0	9,058
2021 (01- January -2021 to 31-December -2021)	11,886	0	0	11,886
2022 (01- January -2022 to 31-August-2022)	8,154	0	0	8,154

Total	41,663	0	0	41,663
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The comparison of the estimated ex-ante GHG emission reductions and removals and the achieved emission reductions and removals for this monitoring period are reported in the below table.

Year	Ex-ante emissions reductions/removals	Achieved emissions reductions/removals	Percent difference	Justification for the difference
08-March-2018 to 31-August-2022	53,143	41,663	-21.60%	The actual emission reductions are less than the estimated emission reductions due to lower PLF achieved during the current monitoring period which is acceptable to the verification team.

Approved by



Chandrakala R.

Director

4K Earth Science Private Limited

Date: 04-December-2023

Place: Bangalore, India

APPENDIX I: LIST OF DOCUMENTS

/1/	/1.1/ Monitoring Report, Version 02, dated 28/02/2023 (Initial Version) /1.2/ Monitoring Report, Version 3.2, dated 16/10/2023 (Final Version)
/2/	/2.1/ Draft Emission Reduction Calculation sheet (corresponding to initial Version of VCS MR) /2.2/ Final Emission Reduction Calculation Sheet (corresponding to final Version of VCS MR)
/3/	VCS Standard Version v4.4 https://verra.org/project/vcs-program/rules-and-requirements/
/4/	VCS Program Guide, v4.3 https://verra.org/project/vcs-program/rules-and-requirements/
/5/	Registered VCS PD version 02 dated 31/10/2019
/6/	Web-Link for the Registered project activity for Grid emission factor and Validation Report https://registry.verra.org/app/projectDetail/VCS/1878
/7/	Approved monitoring methodology: AMD-I.D. ver. 18.0 - Grid connected renewable electricity generation
/8/	Websites referred: http://www.itouchmap.com/latlong.html (Latitude-Longitude location finder)
/9/	Single line diagrams showing monitoring points along with grid connection
/10/	Technical Specifications of major equipments: Energy meter, PV module, Inverter, Transformer and WTG
/11/	Commissioning certificates
/12/	JMR Sheets for electricity exported/imported for this monitoring period
/13/	Monthly invoices for this monitoring period
/14/	Company registration
/15/	Calibration certificates for the electricity meters corresponding to this monitoring period along with supportive for the meter change
/16/	Power Purchase Agreements
/17/	Name plate pictures for PV modules, Inverter, transformer, meters and WTGs
/18/	Declaration by PP for No double counting of Emission Reductions, dated 30/05/2023
/19/	Supporting document for the sustainability criteria: List of employees

/20/	Operation and maintenance contracts
/21/	Training records
/22/	Supportive for broke down and restore.
/23/	Grievance mechanism supportive

APPENDIX II: VERIFICATION FINDINGS

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

This is the 1st periodic verification of the project activity. No FAR was raised during validation.

FAR ID	XX	Section no.	Date: DD/MM/YYYY
Description of FAR			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

Table 2. CL from this verification

CL ID	01	Section no.	4.4	Date: 24/04/2023
Description of CAR				
Under the monitoring parameter tables (Section 4.2 of the Monitoring report):				
1. Under heading “Description of measurement methods and procedures to be applied”, PP has mentioned “These values are monitored through the main meter readings at two outgoing feeders or from check meters as per emergency preparedness procedure” however the energy meter details mentioned under appendix 1 of the MR are not consistent with the statement. PP need to clarify.				
2. As per the VCS PD, the electricity supplied to grid can also be crosschecked from invoice raised by PP however the same is not reported under heading “QA/QC procedures to be applied” of the monitoring parameter tables.				
Project participant response				Date: 27/06/2023
1. The electricity generated and supplied are monitored through main meter readings and there is only one outgoing feeder. The description of the energy meters at site has been attached as appendix. As its written as 2 outgoing feeders the same is to be considered as a project description deviation. However, this deviation will not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario as they remain the same.				
2. Electricity supplied to the grid are monitored through the JMR produced and can be cross checked from invoices raised by PP. The same has been added as under heading “QA/QC procedures to be applied” of the monitoring parameter tables.				

Documentation provided by project participant	
Revised Monitoring Report	
DOE assessment	Date: 03/07/2023
1. Clarification has been provided by PP and found OK. PP has revised monitoring parameter tables under section 4.2 of the Monitoring report /1.2/ and found OK. Verification team has checked the meter details during the site visit. Project Description Deviation has been applied under section 3.2.2 of the monitoring report /1.2/ and found OK. The deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario and hence accepted to the verification team. Hence this part of CAR is closed. 2. Corrections have been done in the revised MR /1.2/ and found OK. Verification team has checked the electricity supplied to grid from the monthly JMR reports /12/ and cross checked from the monthly invoices /13/ and found consistent. Hence this part of CAR is closed.	

CL ID	02	Section no.	4.4	Date: 24/04/2023
Description of CAR				
From the review of the calibration certificates and MR, Verification team has found that calibration of energy meters was delayed during this monitoring period. PP need to clarify how the emission reduction has been calculated conservatively during the calibration delay.				
Project participant response				Date: 27/06/2023
As per the registered PD, the calibration of the energy meter shall be conducted at least once in every 3 years. Thus, there was no delay in calibration of the energy meters for all the three sites during the monitoring period.				
Documentation provided by project participant				
-				
DOE assessment				Date: 03/07/2023
Clarification has been provided by PP and found convincing. Verification team has checked the VCS PD /05/ and found the calibration frequency as “at least once in three years”, hence there is no delay in the calibration of the energy meters during this monitoring period as verified from the calibration certificates /15/. Though some meters were changed during this monitoring period which is checked from the meter change supportive /15/. Hence this CL is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	4.4	Date: 24/04/2023
Description of CAR				
Under tab “Generation Data” of the ER Sheet:				
1. Verification team has found that reported monthly electricity supplied to grid is not consistent with submitted monthly reports. 2. For 1x850 kW (G58), electricity supplied to grid for the month March 2018 is reported as 0 and also for 3.5 MW solar PV, electricity supplied to grid from March 2018 till July 2019 is reported as 0 however the reason for the same is not clear. 3. Reported emission reduction for the year 2022 i.e. 8155 tCO₂e is not round down value.				

Project participant response	Date: 27/06/2023
1. There were some typo errors. The same has been corrected in the revised ER sheet. 2. 850 kW wind turbine was commissioned on 01/04/2018 while 3.5 MW solar was commissioned on 15/07/2019. That's why the time before it has been considered as zero. A note about the same has been added in the ER sheet for better understanding. 3. The revised ER sheet represents vintage wise rounded down values. Relevant changes have been made in the revised ER sheet and MR.	
Documentation provided by project participant	
Revised Monitoring Report Revised ER sheet	
DOE assessment	Date: 03/07/2023
1. Corrections have been done in the revised ER sheet /2.2/ and found consistent with the monthly JMR reports /12/. Hence this part of CAR is closed. 2. Corrections have been done in the revised ER sheet /2.2/ and found OK. Hence this part of CAR is closed. 3. Corrections have been done in the revised ER sheet /2.2/ and found OK. Hence this part of CAR is closed.	

CAR ID	02	Section no.	4.1	Date: 24/04/2023
Description of CAR				
Under section 1.1 of the MR, PP need to mention following (as per VCS MR filling guidelines):				
1. A summary description of the implementation status of the technologies/ measures (e.g., plant, equipment, process, or management or conservation measure) included in the project. 2. The relevant implementation dates (e.g., dates of construction, commissioning, and continued operation periods). 3. Table for audit history is missing.				
Project participant response				Date: 27/06/2023
1. All relevant data have been added in section 1.1 as per template filling guidelines in the revised MR. 2. Implementation dates like PO dates and commissioning dates of the plants have been added in section 1.1 of the revised MR. 3. The missing audit history has been added in section 1.1 of the revised MR for review.				
Documentation provided by project participant				
Revised Monitoring Report				
DOE assessment				Date: 03/07/2023
1. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed. 2. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed. 3. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed.				

CAR ID	03	Section no.	4.1	Date: 24/04/2023
Description of CAR				

1. Under section 1.2 of the MR, PP need to mention whether the project is a grouped project (as per VCS MR filling guidelines). 2. Under section 1.6 of the MR, PP need to indicate the project crediting period, specifying the day, month and year for the start and end dates (as per VCS MR filling guidelines). 3. Under section 1.10 of the MR, PP need to provide a list of all and any other programs under which the project is eligible to create another form of GHG-related environment credit (as per VCS MR filling guidelines). 4. Under section 2.1 of the MR, PP need to summarize any potential negative environmental and socio-economic impacts and the steps taken to mitigate them (as per VCS MR filling guidelines). 5. Under section 3.2.2 of the MR, Describe and report on any project description deviations applied in previous monitoring reports (as per VCS MR filling guidelines).	
Project participant response	Date: 27/06/2023
1. The project activity is not a group project activity. The same has been reported in section 1.2 of the revised MR. 2. The crediting period is specified as per the template filling guide in section 1.6 of the revised MR. 3. The project activity is not eligible to create another form of GHG-related environment credit under any other program. The same has been clearly specified under section 1.10 of the revised MR. 4. There are no potential negative environmental and socio-economic threat related to the project activity. The same has been added in section 2.1 of the revised MR. 5. The electricity generated and supplied are monitored through main meter readings and there is only one outgoing feeder. The description of the energy meters at site has been attached as appendix. As its written as 2 outgoing feeders the same is to be considered as a project description deviation. However, this deviation will does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario as they remain the same.	
Documentation provided by project participant	
Revised Monitoring Report	
DOE assessment	Date: 03/07/2023
1. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed. 2. Correction has been done in the revised MR /1.2/ and found consistent with the VCS PD /05/. Hence this part of CAR is closed. 3. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed. 4. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed. 5. Correction has been done in the revised MR /1.2/ and found OK. Hence this part of CAR is closed.	

CAR ID	04	Section no.	4.2.2	Date: 24/04/2023
Description of CAR				

Under section 2.2 of the MR, PP need to “Describe the process for, and the outcomes from, ongoing communication with local stakeholders conducted prior to verification. Include details on the following:	
- The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought). - The procedures or methods used for documenting the outcomes of the local stakeholder communication. - The mechanism for on-going communication with local stakeholders. - How due account of all and any input received during ongoing communication has been taken. Include details on any updates to the project design or justify why updates are not appropriate.” (as per VCS MR filling guidelines).	
Project participant response	Date: 27/06/2023
Relevant information about ongoing communications with the local stakeholders have been mentions in section 2.2 of the revised MR.	
Documentation provided by project participant	
Revised Monitoring Report	
DOE assessment	Date: 03/07/2023
Correction has been done under section 2.2 of the revised monitoring report /1.2/. No grievance was received during this monitoring period as confirmed from the grievance books. Same has been checked during the stakeholder interviews. Hence this CAR is closed.	

Table 4. FAR from this verification

No FAR raised during this verification.

FAR ID	xx	Section no.	Date: DD/MM/YYYY
Description of CAR			
NA			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

APPENDIX III: TEAM COMPETENCE

<u>Certificate of Competence</u>		
Name	☒ Mr. ☐ Ms.	Chetan Swaroop Sharma
Qualification Procedure	Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.	
Appointed to work as:		

	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert			
<i>Appointed</i>	Yes	Yes	Yes	Yes	Yes	No			
<i>Appointed Date</i>	28-02-2023								
Authorized to work as Technical Expert for:									
<i>Authorized Technical Area</i>	Sectoral Scope		TA Code	Technical Area within the scope					
	Energy industries (renewable - / non-renewable sources)		1.1	Thermal energy generation					
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables					
	Energy distribution		2.1	Energy distribution					
	Energy demand		3.1	Energy demand					
	Waste handling and disposal		13.1	Solid waste and wastewater					
	Waste handling and disposal		13.2	Manure					
Authorized to work as Local Expert for:									
<i>Country/Countries</i>	India, Mauritius, Vietnam, Senegal and Thailand								
Compliance check by: Anand S. R.									

<u>Certificate of Competence</u>											
Name	☒ Mr. ☐ Ms.	Ma Paa Puratchikkanal									
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.										
Appointed to work as:											
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert					

Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	27-04-2021					
Authorized to work as Technical Expert for:						
Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope			
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy demand	3.1	Energy demand			
	Construction	6.1	Construction			
	Waste handling and disposal	13.1	Solid waste and wastewater			
	Waste handling and disposal	13.2	Manure			
	Agriculture	15.1	Agriculture			
Authorized to work as Local Expert for:						
Country/Countries	India and Sri Lanka					
Compliance check by: Anand S. R.						

APPENDIX IV: ABBREVIATIONS

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request

GHG	Greenhouse Gases
IPCC	Intergovernmental Panel for Climate Change
MP	Monitoring Period
MR	Monitoring Report
MW	Mega Watt
MWh	Mega Watt hour
PD	Project Description
PP	Project proponent
QA/QC	Quality Assurance/Quality Control
tCO ₂	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit