



**Verified Carbon
Standard**

VERIFICATION REPORT 'SOLAR PHOTOVOLTAIC PROJECT BY GIRIRAJ RENEWABLES PRIVATE LIMITED'

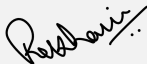


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Summary:

EcoLance Private Limited, appointed by Emergent Ventures India Pvt. Ltd., has verified the greenhouse gas emission reductions reported of the project activity “Solar Photovoltaic Project by Giriraj Renewables Private Limited” in India (VCS 1786), for the period of 01/09/2021 to 31/03/2023 (both dates included) with regards to the relevant requirement for VCS activities.

The objective of the verification is to have an independent review of ex-post determination of the monitored reductions in GHG emission. Verification was conducted using EPL’s procedures in line with the requirements specified in the VCS program guide version 4.3, VCS standard Version 4.4, VCS validation & verification manual version 3.2, ISO14064-3: 2019, CDM M&P, the latest version of the CDM validation & verification standard, and relevant discussion of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consists of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification.

The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS/CDM requirements in order to be certified.

The project was validated by LGAI Technological Centre, S.A (Applus+ Certification) (Report ID 7518, version 3.0 of 19/05/2020) and it was registered under the VCS registration reference N° 1786.

During this verification, 3 Corrective Action Request (CARs) and 2 Clarification Request (CLs) were raised related to operation, monitoring and GHG emission reduction calculations of the VCS project activity in relation to all relevant VCS requirements for the project activity and the applied baseline and monitoring methodology; these CAR and CL are successfully closed after necessary corrections/clarifications by the client. The same has been discussed in Appendix B of this verification report.

VVB found no uncertainties during this verification of the project activity.

In conclusion, it is EPL's opinion that the project activity "Solar Photovoltaic Project by Giriraj Renewables Private Limited" in India (VCS 1786) meets all the relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology ACM0002 – Grid-connected electricity generation from renewable sources" version 19.0. The monitoring system is in place and emission reductions are calculated without material misstatement. Hence, EPL is able to clarify that the emission reduction of the project during the monitoring period from 01/09/2021 to 31/03/2023 amount of 443,891 tCO₂e.

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1 INTRODUCTION

1.1 Objective

Emergent Ventures India Pvt. Ltd. has appointed EcoLance Private Limited (EPL) to carry out verification of the project “Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd, registered under VCS with project ID.1786 for the reported GHG emission for the given monitoring period of 01/09/2021 to 31/03/2023 (both dates included). This report summarizes the findings of the verification of the project, performed on the basis of VCS requirements & UNFCCC criteria of CDM, as well as criteria to provide for consistent project operations, monitoring and reporting.

The objective of the verification is to have an independent evaluation of a project activity by an accredited validation and verification body against the requirements of the VCS Version 4.3, VCS standard version 4.4 and GHG program applied, on the basis of the registered project design document.

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 Verified Carbon Units (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:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- to verify that reported GHG emission data is sufficiently supported by evidence.

The project is assessed against the of VCS program guide version 4.3, VCS standard version 4.4, validation and verification manual version 3.2 and related rule and guidance. EPL has, based on the recommendations in the latest version of CDM validation and verification standard, VCS Validation and Verification Manual, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

The verification assessment was conducted to provide a reasonable level of assurance of compliance against the defined audit criteria and materiality threshold (defined as 5% as per VCS standard) within the audit scope. Based on the audit findings, the verification statement reasonably assures that the GHG assertion is materially correct and is a fair representation of the GHG data and information. The final verification report before being submitted to the client was subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent EPL's instructions, with a **reasonable level of assurance**.

The technical review was performed by a technical reviewer qualified In accordance with EPL's qualification scheme for VCS validation and verification.

The verification team and the technical reviewer consist of the following personnel.

Role/Qualification	Last Name	First Name
Team Leader, technical expert	Buragohain	Champok
Verifier	Pokhrel	Prem Kumar
Verifier	Lahon	Biswajit
Trainee Auditor	Basumatary	Himolin
Technical Reviewer	Menon	Rekha

1.4 Summary Description of the Project

The project involves 153 MW solar power plant for electricity generation and exported to grid. This project is a bundled project activity located in different states of India i.e. Maharashtra, Karnataka and Uttar Pradesh. The project initiated the commercial operation on 02/03/2018 (Avaada Sustainable Energy Pvt. Ltd. 30MW))/15/. The generated electricity is exported to the national grid. The project qualified as a “Large Project” as per the VCS standard.

The Solar PV system mainly consist of PV modules, mounting module structures, inverters, regulators, transformers, and monitoring devices, and so on. The solar PV cells convert solar radiation into DC current. The solar panels are installed in arrays. The models in each array are connected in parallel and/or in string in order to get the preferred current and voltage which match with the rated input of the inverter. The inverter connected in each array converts the DC current to AC current.

During the on-site visit the main component of the project were checked physically verifying the nameplate with specifications of the equipment’s. The details of commissioning are provided below:

Name of SPV	Capacity Commissioned	Commercial Operation Date /11/	Connection with Grid	Geo- coordinates	State
Avaada Sustainable Energy Pvt. Ltd	30 MW	02-Mar-2018	Indian Grid	14° 40' 38.2728" N, 76° 40' 34.0644" E	Karnataka
Avaada Clean Energy Power Limited	5 MW	14-Sep-2018	Indian Grid	26° 28' 34.7124" N, 80° 16' 10.4340" E	Uttar Pradesh
Avaada Energy Private Limited (Previously known as Giriraj Renewables Pvt. Ltd.)	28 MW	16-Apr-2018	Indian Grid	17° 33' 28.8" N, 74° 48' 36.7" E	Maharashtra
Solarsys Non-Conventional Energy Pvt. Ltd	30 MW	30-Mar-2018	Indian Grid	14° 45' 41.3" N, 76° 31' 21.9" E	Karnataka
	60 MW	31-Mar-2018	Indian Grid	15° 57' 35.2" N, 76° 04' 34.3" E	Karnataka

The geo-coordinates of each project location were checked on-site using GPS map and confirm to be correct as stated above. The project's initial crediting period is from 02/03/2018 to 01/03/2028 and the emission reductions until 31/08/2021 has been already claimed and verified by the PP.

The project is going for the 5th verification from 01/09/2021 to 31/03/2023 under the first crediting period. The emission reductions are calculated conservatively as per the applied methodology.

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification was conducted using EPL's procedures in line with the requirements specified in the VCS Requirements, i.e. VCS Program Guide, VCS Version 4.3, VCS standard document version 4.4. The GHG emission reductions are on the basis of the approved Baseline and monitoring methodology ACM0002 version 19.

The verification consisted of the following three phases

- Document review;
- On-site assessment and interviews done on 1st August 2023 to 4th August 2023.
- Resolution of any Material Discrepancy and the issuance of the final verification report and certification. The following sections outline each step in more details.

2.2 Document Review

The monitoring report (MR) version 1.0 of 10/07/2023 and version 1.1 of 21/08/2023, version 1.2 of 01/09/2023 /1/, and the emission reduction calculations spreadsheets (ER5-VCS1786-evi20230710) version 1.0 of 10/07/2023 and (ER5-VCS1786-evi20230817) version 1.1 of 17/08/2023 /03/ received from the Project Developer were assessed as part of the verification. In addition, the registered Project Design Document (VCS-PD) /2/ in particular the baseline estimations and the monitoring plan for the project was reviewed.

The following table lists the documentation that was reviewed during the verification.

/1/	Emergent Ventures India Pvt. Ltd.: VCS monitoring report for the project activity "Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd." covering from 01/09/2021 to 31/03/2023, version 1.0 of 10/07/2023, version 1.1 of 21/08/2023, version 1.2 of 01/09/2023
/2/	EKI Energy Services Limited: Registered VCS project description for project activity "Solar Photovoltaic project by Giriraj Renewables Pvt Ltd." in India, version 3.0 of 15/05/2020
/3/	Emergent Ventures India Pvt. Ltd.: Emission Reduction spread sheet titled "ER5-VCS1786-evi20230710" version 1.0 of 10/07/2023 and "ER5-VCS1786-evi20230817" version 1.1 of 17/08/2023
/4/	VCS: VCS Program Guide, version 4.3 of 17/01/2023
/5/	VCS: VCS Standard, version 4.4 of 17/01/2023
/6/	CDM Executive Board: Baseline and Monitoring Methodology "ACM0002 'Grid-connected electricity generation from renewable sources' version 19
/7/	VERRA Registry: Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd. (ID: 1786) https://registry.terra.org/app/projectDetail/VCS/1786

/8/	LGAI Technological Centre, S.A (Applus+ Certification) (Report ID 7518, version 3.0 of 19/05/2020) "Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd."
/9/	VCS: Monitoring report form (MONITORING REPORT: VCS Version 4.2) , dated 21/12/2022
/10/	KBS Certification Services Pvt. Ltd.: Verification report (VCS.21.VER.072) for the project activity "Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd." covering monitoring period from 01/09/2020 to 31/01/2022, version 1.3 of 14/06/2022
/11/	Monthly gross generation and import grid statement from September 2021 to March 2023 the project for Karnataka site: 1. Avaada Sustainable Energy Pvt. Ltd.(30MW) 2.Solarsys Non-Conventional Energy Pvt. Ltd.(30MW) 3.Solarsys Non-conventional Energy Pvt. Ltd. (60MW). For Uttar Pradesh site: 1. Avaada Clean Energy Power Limited (5MW). For Maharashtra site: 1. Avaada Energy Pvt. Ltd. (28MW)
/12/	Monthly invoices covering the monitoring period for 'Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd.' from September 2022 to March 2023
/13/	State Electricity Board (Karnataka, Uttar Pradesh, Maharashtra of India): Calibration Certificates of energy meter with serial no. for 1. Avaada Sustainable Energy Pvt. Ltd.(30MW) 21001412 (earlier meter no. 18015390), 21001885 (earlier meter no. 18015388) Calibrated on 16-03-2022 (earlier meters validity from 28-02-2018 to 27-03-2023) validity until 15-03-2027 (for both the meters) 2. Avaada Clean Energy Power Limited (5 MW) UPP67363, UPP67364, UPP67365 calibrated on 21-07-2018 validity until 20-07-2023 (for all the meters). 3. Solarsys Non-conventional Energy Pvt. Ltd. (30 MW) 21007585 (earlier meter no. 18015356), 21007587 (earlier meter no. 18015439) calibrated on 24-02-2022 (earlier meters validity from 14-11-2018 to 13-11-2023) validity until 23-02-2027 (for both the meters) 4. Solarsys Non-conventional Energy Pvt. Ltd. (60MW) 23000921 (earlier 18015391), 23002802 (earlier meter no. 18015392) calibrated on 27-03-2022 (earlier meters validity from 28-03-2019 to 27-03-2024) validity until 23-03-2028 (for both the meter) 5. Avaada Energy Pvt. Ltd. (28 MW) 028689319, 02874835, 028689315 calibrated on 28-11-2019 validity until 27-11-2024 (for all the meters)
/14/	Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd : Complaint register book
/15/	Commissioning Certificates: 1. Avaada Sustainable Energy Pvt. Ltd.(30MW) on 2 nd Mar 2018 2. Avaada Clean Energy Power Limited (5 MW) on 14 th Sep 2018 3. Solarsys Non-conventional Energy Pvt. Ltd. (30 MW) on 16 th April 2018 4. Solarsys Non-conventional Energy Pvt. Ltd. (60MW) on 30 th Mar 2018 5. Avaada Energy Pvt. Ltd. (28 MW) on 31 th Mar 2018
/16/	Technical details/specification: 1. Avaada Sustainable Energy Pvt. Ltd.(30MW), 2. Avaada Clean Energy Power Limited (5 MW), 3. Solarsys Non-conventional Energy Pvt. Ltd. (30 MW), 4. Solarsys Non-conventional Energy Pvt. Ltd. (60MW), 5. Avaada Energy Pvt. Ltd. (28 MW)
/17/	Project Search: UNFCCC: https://cdm.unfccc.int/ , Goldstandard: https://www.goldstandard.org/ , VERRA: https://verra.org/
/18/	Tool to calculate the emission factor for an electricity system, version 07
/19/	Undertaking from Avaada Energy Pvt. Ltd. regarding 72 MW (M/s Avaada Satara MH Pvt. Ltd. commissioning on 09-11-2020) project excluded from project activity not calming any carbon credit for the same.

/20/	Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013
/21/	Final MR and corresponding verification report for previous report MP3 & MP4.

2.3 Interviews

The audit team conducted on site assessment from 1st August 2023 to 4th August 2023. During the on-site assessment of the project, the audit team visited each project site, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and actual records. Also, local stakeholders were interviewed to confirm the SDG outcome reported by PP.

The main topics of the interviews are-summarized in the table below:

	Date	Name and Role	Organization	Topic
Avaada Sustainable Energy Private Limited (30 MW)				
/a/	01/08/2023	Uday Kumar Sr. Engineer	Avaada Sustainable Energy Private Limited	Technical aspect of the project activity. Monitoring report, emission reduction calculations, Operational details of the project, records of monitoring parameters, VCS rules, application of methodology etc.
/b/	01/08/2023	Satish Kumar. T Deputy Manager	Avaada Sustainable Energy Private Limited	
/c/	01/08/2023	Obleshwar. N Stakeholder	Local People	Stakeholder interaction regarding views and impact from project activity in local area including health, safety and environmental aspects and ongoing method of communication.
Solarsys Non-Conventional Energy Private Limited (30 MW)				
/d/	01/08/2023	G. Madhu Supervisor	Mitarsh Energy	Technical aspects of the project activity. Operational life
/e/	01/08/2023	Yogesh. B Supervisor	Mitarsh Energy	
/f/	01/08/2023	Moonluno.th Stakeholder	Local people	Stakeholder interaction regarding views and impact from project activity in local area including health, safety and environmental

				aspects and ongoing method of communication.
Solarsys Non-Conventional Energy Private Limited (60 MW)				
/g/	02/08/2023	Surya Prakash Manager	Solarsys Non-Conventional Energy Private Limited	Technical aspects of the project activity. Operational life, environmental aspects etc. Operational details of the project, management structure, legal compliance, health, safety and environmental aspects, data monitoring and recording procedure, safety practices, production controls, internal audits etc
/h/	02/08/2023	Ajay Kumar. P Sr. Engineer	Solarsys Non-Conventional Energy Private Limited	
/i/	02/08/2023	Shoshikanth.L Rathod Retainer	Solarsys Non-Conventional Energy Private Limited	
/j/	02/08/2023	Chidanad Rampur Technician	Mitarsh Energy	
/k/	02/08/2023	Babavaraj. T Stakeholder	Local People	Stakeholder interaction regarding views and impact from project activity in local area including health, safety and environmental aspects and ongoing method of communication.
/l/	02/08/2023	Sharanappa Stakeholder	Local People	
/m/ /	02/08/2023	Babavaraj. S Stakeholder	Local People	
Avaada Energy Private Limited (28 MW)				
/n/	03/08/2023	Sandeep Chine Asst. manager	Avaada Energy Pvt. Ltd.	Technical aspects of the project activity. Operational life, environmental aspects etc. Operational details of the project, management structure, legal compliance, health, safety and environmental aspects, data monitoring and recording procedure, safety practices, production controls, internal audits etc

/o/	03/08/2023	Sambhaji Mandale Stakeholder	Local People	Stakeholder interaction regarding views and impact from project activity in local area including health, safety and environmental aspects and ongoing method of communication.
/p/	03/08/2023	Afroj Inamdar Supervisor	Avaada Energy Pvt. Ltd.	Technical aspects of the project activity. Operational life
Avaada Clean Energy Private Limited (5 MW)				
/q/	04/08/2023	Subham Mondal Asst. manager	Avaada Clean Energy Private Limited.	Technical aspects of the project activity. Operational life, environmental aspects etc.
/r/	04/08/2023	Ujjaneal Pandey Engineer	Mitrash Energy	Operational details of the project, management structure, legal compliance, health, safety and environmental aspects, data monitoring and recording procedure, safety practices, production controls, internal audits etc
/s/	04/08/2023	Indra Bahadur Helper	Mitrash Energy	Operational details of the project.
/t/	04/08/2023	Vimal Kumar Stakeholder	Local People	Stakeholder interaction regarding views and impact from project activity in local area including health, safety and environmental aspects and ongoing method of communication.

2.4 Site Visits

EPL team conducted the on-site audit from 1st August 2023 to 4th August 2023 in all project locations of Karnataka, Maharashtra and Uttar Pradesh of India. During the on-site assessment of the project, there were no hindrance and all the equipment's and the systems were accessible. EPL team assessed the implementation and operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for EPL's positive conclusion on the project description. To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described below.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

In summary, 2 CLs and 3 CARs were raised during this verification which were closed successfully and details are given under Appendix B of this report.

2.5.1 Forward Action Requests

Based on previous verification report /10/, it is noted that 01 FAR was raised which is addressed and closed in the current verification as discussed in Appendix B of this report and no FAR has been raised during this verification.

2.6 Eligibility for Validation Activities

The project activity is registered under VCS registration reference number 1786 /7/. hence this section is not applicable.

3 VALIDATION FINDINGS

The project was validated by by LGAI Technological Centre, S.A (Applus+ Certification) (Report ID 7518, version 3.0 of 19/05/2020) and it was registered under the VCS registration reference N° 1786 /8/. The first crediting period is from 02/03/2018 to 02/03/2028. This verification assessment for the monitoring period 01/09/2021 to 31/03/2023 falls under the first crediting period.

3.1 Participation under Other GHG Programs

The MR confirms regarding no participation in any other GHG mechanism. The same was confirmed during the site visit by interacting with the PP. The VVB confirms that PP has not participated or participating in any other GHG mechanism during the current monitoring period from 01/09/2021 to 31/03/2023. Furthermore, VVB has checked the websites /17/ of other program such as UNFCCC, VERRA, Gold Standard and confirms that the project has not availed ERs for the current monitoring period (01/09/2021 to 31/03/2023) under any of these programs.

3.2 Methodology Deviations

No methodology deviations has been applied.

3.3 Project Description Deviations

There is a Project Description Deviation observed from the registered PD. VVB noted inconsistent information in the MR and registered PD. The actual technical specifications noted at the site were different from the registered PD for Avaada Sustainable Energy Pvt. Ltd. (30 MW), Avaada Clean Energy Power Limited (5 MW), Avaada Energy Pvt. Ltd. (28 MW) and Solarsys Non-Conventional Energy Pvt. Ltd.(30 MW) and Solarsys Non-Conventional Energy Pvt Ltd (60 MW). PP has now corrected the same in-line with the actual technical specification in the project activity of the updated the MR, section 3.2.2. VVB confirms the deviations are in editorial correction nature and does not have any impact on the project design or mainly the capacity of the plant. Hence, deviations are accepted.

The technical specifications are as below.

1. Avaada Sustainable Energy Private Limited (30 MW)

Technical details of the equipment	Description in registered PD	Corrected description
Number of modules and their model capacity	No. of Modules-192,024 Model capacity-310 Wp, 315 Wp & 320 Wp	No. of Modules-124,880 Model capacity-320 Wp & 325 Wp
Number of Inverters , Inverter Make & Model	67 Inverters TMEIC-PVLO750 E(750 KW) – 65 nos TMIEC-PVLO500 E(625 KW) – 2 nos	18 Inverters ABB PVS800-57B - 1732kW-C – 17 nos ABB PVS800-57 – 0630kW – 1 no

2. Solarsys Non-Conventional Energy Private Limited (30 MW)

Technical details of the equipment	Description in registered PD	Corrected description
Number of modules and their model capacity	No. of Modules-192,024 Model capacity-310 Wp, 315 Wp & 320 Wp	No. of Modules-124,620 Model capacity-320 Wp, 325 Wp & 330 Wp
Number of Inverters, Inverter Make & Model	67 Inverters TMEIC-PVLO750 E(750 KW) – 65 nos TMIEC-PVLO500 E(625 KW) – 2 nos	18 Inverters ABB PVS800-57B-1732kW-C – 17 nos ABB PVS800-57 – 0630kW-A – 1 no

3. Solarsys Non-Conventional Energy Private Limited (60 MW)

Technical details of the equipment	Description in PD	Corrected description
Number of modules and their model capacity	No. of Modules-192,024 Model capacity-310 Wp, 315 Wp & 320 Wp	No. of Modules-250396 Model capacity-320 Wp & 325 Wp
Number of Inverters, Inverter Make & Model	67 Inverters TMEIC-PVLO750 E(750 KW) – 65 nos TMIEC-PVLO500 E(625 KW) –2 nos	44 Inverters Gamesa E-1.4 MVA – 44 nos

4. Avaada Energy Private Limited (28 MW) (erstwhile known as Giriraj Renewables Pvt. Ltd.)

Technical details of the equipment	Description in PD	Corrected description
Number of modules and their model capacity	No. of Modules-103,740 Model capacity-315 Wp, 320 Wp, 325 Wp & 330 Wp Renesola, Trina, Risen, JA Solar, Exide & Waree	No. of Modules-102,774 Model capacity-300Wp. 310 Wp, 315 Wp, 320 Wp, 325 Wp & 330 Wp Renesola, Trina, Risen, JA Solar, Exide & Waaree
Number of Inverters , Inverter Make & Model	16 Inverters ABB-PVS800-1732kW-16 Nos	16 Inverters ABB-PVS800-57B - 16 nos

5. Avaada Clean Energy Private Limited (5 MW)

Technical details of the equipment	Description in PD	Corrected description
Number of modules and their model capacity	No. of Modules-192,024 Model capacity-310 Wp, 315 Wp & 320 Wp	No. of Modules-21,506 Model capacity-325 Wp
Number of Inverters, Inverter Make & Model	67 Inverters TMEIC-PVLO750 E(750 KW) –65 nos. TMIEC-PVLO500 E(625 KW) –2 nos.	2 Inverters TBEA TC2500KF – 2 nos.

There was a deviation raised during previous verification about the geo-coordinates for Solarsys Non-Conventional Energy Pvt. Ltd. (both 30MW & 60 MW) of the project activity. The same was also checked during the current verification using GPS map by assessment team. The geo-coordinates are in line with the MR.

There was a project deviation in last verification about the name change to Avaada Energy Private Limited earlier known as Giriraj renewables Private Limited. This has been also cross-checked by VVB assessment team in this monitoring period and VVB confirm the same /21/(Appendix 3).

Project entity information as verified is presented below:

Item	Data
Project Entities	Giriraj Renewables Private Limited (now known as Avaada Energy Private Limited) (Project Owner)
	Emergent Ventures India Pvt. Ltd. (Project developer: Responsible for development of emission reduction through the Verified Carbon Standard)

3.4 Grouped Project

The Project is not a group project. Therefore, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

On the basis of the on-site visit and reviewed project documentation, commissioning certificates , JMR and Invoices /15/ /11/ /12/, it was concluded that the project is implemented as per the requirement of the registered PD /2/. The total generation capacity of the project is a 153 MW solar power plant for electricity generation and export to grid. One of the project participant – Avaada Energy Pvt. Ltd. (earlier Giriraj Renewables Pvt. Ltd.) had planned 100MW capacity as per the registered Joint PD-MR Version 03 dated 15-May-2020. As per the site visit observations, PP had installed 28MW capacity on 16-April-2018 and the remaining 72MW capacity, though installed was under a separate SPV named M/s Avaada Satara MH Pvt. Ltd. on 09-November-2020 /19/. As per the interactions with the PP, it was confirmed that PP is not claiming GHG emission reductions from the balance 72MW capacity. A commissioning certificate for the same is submitted to VVB and verified by the verification team. PP had applied the project description deviation during earlier (3rd verification) verification period (01-10-2020 – 31-12-2020) and same is approved. /1/ /10/

The Project locations were confirmed by the assessment team through GPS map during on-site audit and cross checked the same via google earth /1/. Assessment team also checked the longitude and latitude mention in the monitoring report and confirmed that the details as mentioned in the monitoring report are correct.

The technical specification was verified with the name plates as well as with the technical specification of the Solar PV module and also cross checked from the technical specifications of the manufactures /16/. For this project activity all the solar power plant based on Poly Crystalline solar PV technology. The brief technical detail of the solar plant is described below:

	Description				
Technical details of the equipment	Avaada Sustainable Energy Pvt. Ltd.(30MW)	Avaada Clean Energy Pvt. Ltd. (5MW)	Avaada Energy Pvt. Ltd. (28MW)	Solarsys non-conventional Energy Pvt. Ltd. (30MW)	Solarsys non-conventional Energy Pvt. Ltd. (60MW)
Main meter & check meter	21001412 (MM) 21001885 (CM)	UPP67363 (MM) UPP67364 (MM) UPP67365 (SM)	028689319 (MM) 02874835 (CM) 028689315 (SM)	21007585 (MM) 21007587 (CM)	23000921 (MM) 23002802 (MM)
Main meter type & make	ABT meters & L&T	ABT meters & Secure	ABT meters & Elester A1800	ABT meters & L&T	ABT meters & L&T
Accuracy class	0.2s	0.2s	0.2s	0.2s	0.2s
Technology used	Solar PV technology (Polycrystalline)	Solar PV technology (Polycrystalline)	Solar PV technology (Polycrystalline)	Solar PV technology (Polycrystalline)	Solar PV technology (Polycrystalline)
Number of module & their model capacity	No. of module- 124,880 Model capacity- 320 Wp & 325 Wp	No. of module- 21,506 Model capacity- 325 Wp	No. of module- 102,774 Model capacity- 300Wp, 310Wp, 315Wp, 320 Wp, 325 Wp & 330 Wp	No. of module- 124,620 Model capacity- 320 Wp, 325 Wp & 330 WP	No. of module- 250,396 Model capacity- 320 Wp & 325 Wp

Number of inverter, inverter make & model	18 inverters ABB PVS800-57B - 1732kW-C - 17 no ABB PVS800-57 - 0630kW - 1 no	2 Inverters TBEA TC2500KF - 2 nos.	16 inverters ABB- PVS800- 57B- - 16 Nos	18 inverters ABB PVS800- 57B-1732kW- C - 17 nos ABB PVS800- 57 - 0630kW- A - 1 no	44 inverters Gamesa E-1.4 MVA - 44
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The verification team noticed that the project is listed under gold Standard (GS11219). However, not registered and has not claimed any emission reductions. PP has provided an undertaking letter to confirm that no emission reductions are or will be claimed under any other carbon program for the current monitoring period /19/. It is to be noted that the project has not applied in any other GHG programme except for VERRA registration. The same was confirmed by crosschecking the publicly available sources for other GHG programmes such as Gold Standard registry, UNFCCC17/. The project started commercial operation on 02/03/2018 /15/ and registered under VERRA-VCS on 29/07/2020 /7/. Therefore, the project has not applied for any other GHG programme or claim other environmental credits.

EPL verification team confirms that all the emission sources within the project boundary have been considered appropriately. Monitoring of all parameters during the monitoring period is followed as per registered monitoring plan. Below table describes the data parameters relevant to the monitoring plan.

Data parameters fixed ex-ante and available at validation are given below:

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
Operating margin CO ₂ emission factor in year y (EF _{grid,OM,y})	Data based on registered PD /2/ and validation report /8/	0.9610 tCO ₂ /MWh	The EF _{grid,OM,y} was calculated and sourced from baseline CO ₂ Emission database, version 14.0 December 2018 published by Central Electricity Authority, government of India. This is consistent in the registered PD /02/.
Build margin CO ₂ emission factor in year y (EF _{grid,BM,y})	Data based on registered PD /2/ and validation report /8/	0.8644 tCO ₂ /MWh	The EF _{grid,BM,y} was calculated and sourced from baseline CO ₂ Emission database, version 14.0 December 2018 published by Central Electricity Authority, government of India. This is consistent in the registered PD /02/.

Combined margin CO ₂ emission factor in year y (EF _{grid,CM,y}) tCO ₂ e/MWh	Data based on registered PD /2/ and validation report /8/	0.9368 tCO ₂ /MWh	The EF _{grid,CM,y} was calculated and sourced from baseline CO ₂ Emission database, version 14.0 December 2018 published by Central Electricity Authority, government of India. This is consistent in the registered PD /02/.
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Data parameters monitored:

For Karnataka site:

Data/Parameter	Assessment									
Data Unit	EG _{PJ,y} ; MWh/year									
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y									
Source of data to be used	Monthly joint meter reading reports /11/									
Value of monitored parameter for the monitoring period	373,431.255 MWh during the monitoring period. The value is as per monthly electricity generation report which is recorded from energy meters and provided by State electricity board /11/. The value is also cross checked from monthly invoices raised by PP /12/ and found to be consistent.									
Accuracy of the monitoring equipment	The main energy meter is of accuracy class of 0.2s and check meters are of 0.2s which is consistent with registered VCS-PD /2/. The accuracy of the meters are as per industry standard.									
Measuring/Reading/Recording frequency	Continuous monitoring and aggregated monthly basis.									
Calculation method (if applicable)	Direct Continuous Measurement Net electricity supplied to grid by the project plant in a given month = Export, kWh – Import, kWh									
Calibration										
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	The meter is approved, tested & sealed by the state utility. The meter is in custody of state utility. At the time of registration of the project, the national guideline on calibration required a frequency of calibration is at least once in every five years /13/. Therefore, the same has been followed in the monitoring plan.									
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	The monitoring period is from 01/09/2021 to 31/03/2023. The calibration details of energy meters are given below: Avaada Sustainable Energy Private Limited (30 MW) <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>18015390 (Main meter)</td><td>28-02-2018</td><td>27-02-2023</td></tr><tr><td>18015388</td><td>28-02-2018</td><td>27-02-2023</td></tr></table>	Serial Number	Date of calibration	Due date of calibration	18015390 (Main meter)	28-02-2018	27-02-2023	18015388	28-02-2018	27-02-2023
Serial Number	Date of calibration	Due date of calibration								
18015390 (Main meter)	28-02-2018	27-02-2023								
18015388	28-02-2018	27-02-2023								

	<table><tr><td>(Check meter)</td><td></td><td></td></tr></table> Meter changed on 16-03-2022 <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>21001412 (Main meter)</td><td>16-03-2022</td><td>15-03-2023</td></tr><tr><td>21001885 (Check meter)</td><td>16-03-2022</td><td>15-03-2023</td></tr></table> Solarsys Non-Conventional Energy Private Limited (30 MW): <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>18015356 (Main meter)</td><td>14-11-2018</td><td>13-11-2023</td></tr><tr><td>18015439 (Check meter)</td><td>14-11-2018</td><td>13-11-2023</td></tr></table> Meter change on 24-02-2022 <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>21007585 (Main meter)</td><td>24-02-2022</td><td>23-02-2027</td></tr><tr><td>21007587 (Check meter)</td><td>24-02-2022</td><td>23-02-2027</td></tr></table> Solarsys Non-conventional Energy Private Limited (60 MW): <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>18015391 (Main meter)</td><td>28-03-2019</td><td>27-03-2024</td></tr><tr><td>18015392 (Check meter)</td><td>28-03-2019</td><td>27-03-2024</td></tr></table> Meter changed on 27-03-2023 <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>23000921 (Main meter)</td><td>27-03-2023</td><td>26-03-2028</td></tr><tr><td>23002802 (Check meter)</td><td>27-03-2023</td><td>23-03-2028</td></tr></table> The calibration of energy meters covers the monitoring period.	(Check meter)			Serial Number	Date of calibration	Due date of calibration	21001412 (Main meter)	16-03-2022	15-03-2023	21001885 (Check meter)	16-03-2022	15-03-2023	Serial Number	Date of calibration	Due date of calibration	18015356 (Main meter)	14-11-2018	13-11-2023	18015439 (Check meter)	14-11-2018	13-11-2023	Serial Number	Date of calibration	Due date of calibration	21007585 (Main meter)	24-02-2022	23-02-2027	21007587 (Check meter)	24-02-2022	23-02-2027	Serial Number	Date of calibration	Due date of calibration	18015391 (Main meter)	28-03-2019	27-03-2024	18015392 (Check meter)	28-03-2019	27-03-2024	Serial Number	Date of calibration	Due date of calibration	23000921 (Main meter)	27-03-2023	26-03-2028	23002802 (Check meter)	27-03-2023	23-03-2028
(Check meter)																																																	
Serial Number	Date of calibration	Due date of calibration																																															
21001412 (Main meter)	16-03-2022	15-03-2023																																															
21001885 (Check meter)	16-03-2022	15-03-2023																																															
Serial Number	Date of calibration	Due date of calibration																																															
18015356 (Main meter)	14-11-2018	13-11-2023																																															
18015439 (Check meter)	14-11-2018	13-11-2023																																															
Serial Number	Date of calibration	Due date of calibration																																															
21007585 (Main meter)	24-02-2022	23-02-2027																																															
21007587 (Check meter)	24-02-2022	23-02-2027																																															
Serial Number	Date of calibration	Due date of calibration																																															
18015391 (Main meter)	28-03-2019	27-03-2024																																															
18015392 (Check meter)	28-03-2019	27-03-2024																																															
Serial Number	Date of calibration	Due date of calibration																																															
23000921 (Main meter)	27-03-2023	26-03-2028																																															
23002802 (Check meter)	27-03-2023	23-03-2028																																															
	The meters are calibrated by state electricity board.																																																
Whether calibration done by an accredited person or institution?	State electricity board calibrating energy meters and hence credible to calibrate.																																																

For Kanpur (Uttar Pradesh) site:

Data/Parameter	Assessment
Data Unit	EG _{PJ,y} ; MWh/year

Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y												
Source of data to be used	Monthly joint meter reading reports												
Value of monitored parameter for the monitoring period	14,794.32 MWh during the monitoring period. The value is as per monthly electricity generation report which is recorded from energy meters and provided by State electricity board /11/. The value is also cross checked from monthly invoices raised by PP /12/ and found to be consistent.												
Accuracy of the monitoring equipment	The main energy meter is of accuracy class of 0.2s and check meters are of 0.2s which is consistent with registered VCS-PD /2/. The accuracy of the meters are as per industry standard.												
Measuring/Reading/Recording frequency	Continuous monitoring and aggregated monthly basis.												
Calculation method (if applicable)	Direct Continuous Measurement Net electricity supplied to grid by the project plant in a given month = Export, kWh – Import, kWh												
Calibration													
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	The meter is approved, tested & sealed by the state utility. The meter is in custody of state utility. At the time of registration of the project, the national guideline on calibration required a frequency of calibration is at least once in every five years /13/. Therefore, the same has been followed in the monitoring plan.												
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	The monitoring period is from 01/09/2021 to 31/03/2023. The calibration details of energy meters are given below: Avaada Clean Energy Private Limited (5 MW) <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>UPP67363 (Main meter)</td><td>21-07-2018</td><td>20-07-2023</td></tr><tr><td>UPP67364 (Check meter)</td><td>21-07-2018</td><td>20-07-2023</td></tr><tr><td>UPP67365 (Standby meter)</td><td>21-07-2018</td><td>20-07-2023</td></tr></table> The calibration of energy meters covers the monitoring period.	Serial Number	Date of calibration	Due date of calibration	UPP67363 (Main meter)	21-07-2018	20-07-2023	UPP67364 (Check meter)	21-07-2018	20-07-2023	UPP67365 (Standby meter)	21-07-2018	20-07-2023
Serial Number	Date of calibration	Due date of calibration											
UPP67363 (Main meter)	21-07-2018	20-07-2023											
UPP67364 (Check meter)	21-07-2018	20-07-2023											
UPP67365 (Standby meter)	21-07-2018	20-07-2023											
Calibration certificate	The meters are calibrated by state electricity board.												
Whether calibration done by an accredited person or institution?	State electricity board calibrating energy meters and hence credible to calibrate.												

For Maharashtra site:

Data/Parameter	Assessment
Data Unit	EG _{PJ,y} ; MWh/year

Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y												
Source of data to be used	Monthly joint meter reading reports												
Value of monitored parameter for the monitoring period	18,612.729 MWh during the monitoring period. The value is as per monthly electricity generation report which is recorded from energy meters and provided by State electricity board /11/. The value is also cross checked from monthly invoices raised by PP /12 / and found to be consistent.												
Accuracy of the monitoring equipment	The main energy meter is of accuracy class of 0.2s and check meters are of 0.2s which is consistent with registered VCS-PD /2/. The accuracy of the meters are as per industry standard.												
Measuring/Reading/Recording frequency	Continuous monitoring and aggregated monthly basis.												
Calculation method (if applicable)	Direct Continuous Measurement Net electricity supplied to grid by the project plant in a given month = Export, kWh – Import, kWh												
Calibration													
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PD?	The meter is approved, tested & sealed by the state utility. The meter is in custody of state utility. At the time of registration of the project, the national guideline on calibration required a frequency of calibration is at least once in every five years /13/. Therefore, the same has been followed in the monitoring plan.												
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	The monitoring period is from 01/09/2021 to 31/03/2023. The calibration details of energy meters are given below: Avaada Energy Private Limited (28 MW) <table><tr><th>Serial Number</th><th>Date of calibration</th><th>Due date of calibration</th></tr><tr><td>028689319 (Main meter)</td><td>28-11-2019</td><td>27-11-2024</td></tr><tr><td>02874835 (Check meter)</td><td>28-11-2019</td><td>27-11-2024</td></tr><tr><td>028689315 (Standby meter)</td><td>28-11-2019</td><td>27-11-2024</td></tr></table> The calibration of energy meters covers the monitoring period.	Serial Number	Date of calibration	Due date of calibration	028689319 (Main meter)	28-11-2019	27-11-2024	02874835 (Check meter)	28-11-2019	27-11-2024	028689315 (Standby meter)	28-11-2019	27-11-2024
Serial Number	Date of calibration	Due date of calibration											
028689319 (Main meter)	28-11-2019	27-11-2024											
02874835 (Check meter)	28-11-2019	27-11-2024											
028689315 (Standby meter)	28-11-2019	27-11-2024											
Calibration certificate	The meters are calibrated by state electricity board.												
Whether calibration done by an accredited person or institution?	State electricity board calibrating energy meters and hence credible to calibrate.												

Based on document review and onsite verification, it is confirmed that all the emission sources within the boundary have been considered appropriately. Monitoring of all parameters during the monitoring period is followed as per registered monitoring plan.

4.2 Safeguards

4.2.1 No Net Harm

No potential environmental or socio-economic impacts were found during the documents review of VCS PD, interactions with the stakeholders and grievance register. The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013 /20/ was reviewed and the verification team confirm that solar PV project activity operations do not result in direct air pollution, noise pollution and water pollution.

The project location is away from the villages based on the interviews with local people who confirmed the project is away from the nearest village and does not cause any impacts to the environment. Also, the project does not have any negative socio-economic impacts. In addition, the project provided many job opportunities to local people (as a full time and part time). Therefore, the project has positive socio-economic impacts, which was further confirmed by local stakeholders during interview.

In conclusion, there were no negative environmental impacts during the operation phase. The project positively contributes to below SDGs:

SDG/target	Project's contribution during the MP	VVB's Assessment
4.4 (4.4.1 Proportion of youth and adults with information and communications technology (ICT) skill, by type of skill)	During this monitoring period no contribution.	The project during the monitoring period from 02/03/2018 to 30/09/2020, supported 875 students /21/, although during this monitoring period, no new contributions are made.
7.2 (7.2.1 Renewable energy share in the total final energy consumption)	During the third monitoring period from 01/09/2021 – 31/03/2023, the project activity generated 473,838.098 MWh of renewable energy, which displaced part of the electricity otherwise supplied by grid connected fossil fuel fired power plants	VVB checked the generation records from monthly reports /11/ and confirm PP's reported value to be correct.
13.0 (Tonnes of greenhouse gas emissions avoided or removed)	The project activity has prevented the release of 443,891 tCO ₂ e into the atmosphere during the second reporting period	This report certifies the achieved emission reductions during the monitoring period which is 443,891 tCO ₂ . Hence, reported value is correct.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. For on-going stakeholder's communication, PP have placed a grievance register at the project site where stakeholders can register his/her complaints.

Assessment team checked the grievance register provided by the PP and found that local stakeholders can anytime lodge their grievances if any in the register over the operational lifetime of the project. During current monitoring period no grievance was received. Thus, the assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.

4.3 AFOLU-Specific Safeguards

The project is a non-AFOLU projects, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

GHG According to the applied methodology "ACM0002", "Consolidated baseline methodology for grid connected electricity generation from renewable sources", version 19 /6/, the emission reductions have been calculated based on the following formula:

Baseline Emission:

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

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

Where,

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

$EF_{grid,CM,y}$: Combined margin CO₂ emissions factor in year y (tCO₂/MWh)

And

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

Where,

$EG_{facility,y}$: Quantity of net electricity generation supplied by the project plant/unit to the grid in year 'y'

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

$$EG_{PJ,y} = EG_{facility,y} = 473,838.098 \text{ MWh}$$

Combined margin emission factor was fixed ex-ante at the time of validation. The value was cross checked with the registered VCS-PD and found to be consistent.

Combined margin CO₂ emission factor in year y (tCO₂/MWh)

EF_{grid,CM,y}: Combined margin emission factor for grid connected power generation fixed ex- ante, as 0.9368 tCO₂ /MWh /2/

Therefore,

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

$$BE_y = 473,838.098 \times 0.9368$$

$$BE_y = 443,891 \text{ tCO}_{2e}$$

As per the methodology and the registered PDD, the project does not need consider **project and leakage emissions**.

VVB confirms that GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology during the monitoring period from 01/09/2021 to 31/03/2023.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

During the verification, 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. No significant, lack of evidence and missing data were detected during verification. 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.

Energy meters calibrated by State Electricity board. Monthly generation data is recorded by Maharashtra State Electricity Distribution Co. Ltd for Avaada Energy Pvt. Ltd. (28 MW), Uttar Pradesh Power Co. Ltd for Avaada Clean Energy Pvt. Ltd.(5 MW) and Karnataka Power Transmission Co. Ltd for Avaada Sustainable Energy Pvt. Ltd. (30 MW), Solarsys Non-Conventional Energy Pvt. Ltd.(30 MW) & Solarsys Non-Conventional Energy Pvt. Ltd. (60 MW) and accordingly invoices are raised by project proponent. The net export of electricity is directly taken from monthly generation records.

Therefore, EPL is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is line with the applicable VCS requirements.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk rating determined by the project proponent.

5 VERIFICATION OPINION

EcoLance Pvt. Ltd. (EPL), appointed by Emergent Ventures India Pvt Ltd., has verified the greenhouse gas emission reductions reported for the project activity “Solar Photovoltaic Project by Giriraj Renewables Private Limited” in India, VCS Registry Project ID 1786, for the period 01/09/2021 to 31/03/2023, with regard to the relevant requirements for VCS activities. The project participants of the “Solar Photovoltaic Project by Giriraj Renewables Private Limited” project are responsible for:

- the preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered project design document version 3.0 of 15/05/2020.
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of EcoLance Pvt. Ltd. to express an independent verification opinion about the project’s conformity with the requirements of VCS Standard version 4.4, ISO 14064-3: 2019 and GHG program applied, on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment, EPL can confirm that:

- the project has been implemented and operated as per the registered VCS-PD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.4 requirements;
- the monitoring is in place as per the applied baseline and monitoring methodology;
- the monitoring plan in the registered VCS-PD is as per the applied baseline and monitoring methodology. /2//6/

It is EcoLance Pvt. Ltd. opinion that the GHG emission reduction stated in the monitoring report version 1.2 of 01/09/2023 for the “Solar Photovoltaic Project by Giriraj Renewables Pvt. Ltd.” in India for the period 01/09/2021 to 31/03/2023 are fairly stated. The GHG emission reductions are calculated on the basis of approved methodology ACM0002 version 19 and the monitoring plan included in the registered Project Document, version 3.0 of 15/05/2020.

Hence EcoLance Pvt Ltd. is able to certify that the emission reduction from the project duration the monitoring period 01/09/2021 to 31/03/2023 is amount to 443,891 tCO_{2e}.

Verification period: From 01/09/2021 to 31/03/2023

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)
01/09/2021 to 31/12/2022	84,328	0	0	84,328
01/01/2022 to 31/12/2022	2,77,289	0	0	2,77,289
01/01/2023 to 31/03/2023	82,274	0	0	82,274
<i>Total</i>	443,891	0	0	443,891

As per the registered PD the annual estimated VER = 329,720 tCO₂/year for total install capacity of 225 MW. However, as per the approved deviation, the revised installed capacity is 153 MW.

The annual estimated VER for the 153 MW Project capacity = 234,677 tCO₂/year

The corresponding estimated VERs during current monitoring period

$$= (234,677 \times 577)/365$$

$$= 370,983 \text{ tCO}_2$$

Year	Ex-ante emissions reduction s/removals	Achieved emissions reductions /removals	Percent difference	Justification for the difference
01-09-2021 to 31-03-2023	370,983	443,891	19.65%	This monitoring period the actual emission achieved is 19.65% which is higher than the estimated emission reductions as per the registered PD.
<i>Total</i>	370,983	443,891	19.65%	

In this monitoring period, the achieved emission reduction is 443,891 tCO₂ which is 19.65% higher than the ex-ante estimates. Even though the generation is higher by 19.65% over the ex-ante estimated for the current monitoring period. Cumulatively, the project has generated 14.11% higher average annual emission reductions and the benchmark will be breached only when PLF crosses beyond 15.51% consistently throughout the project lifetime.

Comparison of cumulative ER(Issued or verified)	Start	End	VCUs	Days
02/03/2018-31/03/2019	02-03-2018	31-03-2019	2,48,528	395
01/04/2019-30/09/2020	01-04-2019	30-09-2020	4,10,120	549
01/10/2020-31/12/2020	01-10-2020	31-12-2020	67,591	92
01/01/2021-31/08/2021	01-01-2021	31-08-2021	1,91,567	243
01/09/2021-31/03/2023	01-09-2021	31-03-2023	4,43,891	577
Cumulative ER			13,61,697	1856
Average for 365 days			2,67,791	
Diff (actual-estimated)			14.11%	

APPENDIX A: ABBREVIATION

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
EPL	EcoLance Pvt. Ltd.
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MWh	Mega Watt Hour
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance

PDD	Project Design Document
VVB	Validation Verification Body
MM	Main Meter
CM	Check Meter
SM	Standby Meter

APPENDIX B: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARDS ACTION REQUEST

Table 1. Remaining FAR from Previous verification

FAR ID	01	Section no.	FAR from previous verification	Date: 07/08/2023
Description of FAR				
During verification of ER data for current monitoring period (01-01-2021 – 31-08-2021), it was observed that there was increase in emission reductions achieved as compared to the estimated emission reductions stated in the registered PD. The project participant has provided justification for the increase in the generation by the project activity. It was noted that the emission reduction data verified was for only 8 months and the estimate provided in the registered PD was 12 months. Hence during the next verification, verifying VVB should check for the generation for the entire year 2021 and confirm if the project has outperformed generation or is within the limit of sensitivity analysis.				
Project participant response				Date: 17/08/2023
Over the entire year of 2021, cumulative ER = 275,895 Ex-ante estimated ER for full year = 234,677 Diff (actual - estimated) =17.56% Even though the generation is higher by 17.56% over the ex-ante estimate for the period of year 2021, cumulatively, the project has generated average annual emission reductions in excess of only 11.25% till end of year 2021. As per the registered PD, the project remains additional even with an upside change of 15.51% over base PLF which is an indicator for electricity generation.				
Documentation provided by project participant				

N/A	
VVB's assessment	Date: 23/08/2023
In the year of 2021, the achieved emission reduction is 275,895 tCO₂ which are 17.56% higher than the ex-ante estimates. Even though the generation is higher by 17.56% over the ex-ante estimated for the monitoring period of 2021. Cumulatively, the project has generated average annual emission reductions is excess only 11.25% and the benchmark will be breached only when PLF crosses beyond 15.51% consistently throughout the project lifetime. VVB assessment team also cross checked the value and found consistent. Hence FAR is closed.	

Table 2. CL from this verification

CL ID	01	Section no.	1.11	Date: 07/08/2023
1. Section 1.11 of the MR, for SDG 4.4: PP is requested to provide the document/evidence of any SDG contribution from the project occurred during this monitoring period. 2. Kindly clarify the replacement date of meters in the MR and does it has any impact in the ER calculation for the monitoring period. 3. It is noted the energy meters for Solarsys Non-conventional Energy Pvt. Ltd. (60 MW) is changed as seen during site visit. PP is requested to clarify if the change took place during the current monitoring period and provide the details.				
Project participant response				Date: 17/08/2023
1. There was no contribution towards SDG 4.4 from the project during this monitoring period. 2. Meter replacement date is provided in appendix 1. It has no impact in the ER calculations as meters were replaced for SCADA compatibility and accuracy of replaced meters was within the accuracy limits. 3. Energy meters were changed for the purpose of SCADA integration on 27/03/2023. Calibration certificates are provided to verifier. MR is updated accordingly. There is no change in ER as replaced meters were within accuracy limit.				
Documentation provided by project participant				
• Revised ER sheet • Revised MR • Calibration certificate for meters for Solarsys Non-conventional Energy Pvt. Ltd. (60 MW)				
VVB's assessment				Date: 23/08/2023
1. PP has confirm that the in this monitoring period there is not any SDG 4.4 contribution occurred. Hence, CL is closed. 2. In the revised MR, PP has updated the replacement date of the energy meter and clarified that the replacement of the energy meter has no impact in the ER calculation. VVB also checked the dates provided by the PP found correct. Hence CL is closed. 3. PP has provided the calibration certificate of the energy meter and confirm that the change in energy meter does not impact in the ER calculation. Also, PP has confirm that the on the purpose of SCADA integration energy meter were changed. Hence, CL is closed.				

CL ID	02	Section no.	1.11	Date: 07/08/2023
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Description of CL	
PP is requested to clarify whether there is any impact on additionality of the project with the year wise projected and actual generation/emission reductions and provided the details for the same.	
Project participant response	Date: 17/08/2023
over the cumulative verified period i.e. 02-Mar-2018 to 31-Mar-2023, cumulative ER = 1,361,698 in 1,856 days Average ER for 365 days = 267,791 Ex-ante estimated ER for full year = 234,677 Diff (actual - estimated) =14.11% Even though the generation is higher by 19.65% over the ex-ante estimate for the current monitoring period, cumulatively, the project has generated average annual emission reductions in excess of only 14.11%. As per the registered PD, the project remains additional even with an upside change of 15.51% over base PLF which is an indicator for electricity generation.	
Documentation provided by project participant	
VVB's assessment	Date: 23/08/2023
PP has confirmed that there is not any impact on the additionality. From the date of the commissioning i.e. 02/03/2018 to 31/03/2023, the ex-ante estimated ER for full year is 234,677 tCO₂ and the achieved average ER for 365 days is 267,791 tCO₂, which is 14.11% higher than the ex-ante estimated. As per the registered PD, the benchmark will be breached only when PLF crosses beyond 15.51% consistently throughout the project lifetime. Hence, VVB checked in the registered PD and found consistent. CL is closed.	

Table 3.CAR from this verification

CAR ID	01	Section no.	General	Date: 07/08/2023
Description of CAR				
- As per registered PD, the entity for 28 MW project is Giriraj Renewables Pvt Ltd. This is not consistent. - The VVB name for current verification is not stated in section 1.1 of the table.				
Project participant response				Date: 17/08/2023
- On 1-Jan-2019, the name of company 'Giriraj Renewables Private Limited' has been changed to 'Avaada Energy Private Limited'. The name change certificate was provided in Appendix 3 of previous MR 4 (for monitoring period - 01-January-2021 to 31-August-2021) - VVB name for current verification is now stated in section 1.1 of the table				

Documentation provided by project participant	
Revised MR	
VVB's assessment	Date: 23/08/2023
1. VVB cross-checked the name change certificate in previous MR 4 and found incorporated. Hence, CAR is closed. 2. PP has updated in the revised MR. CAR is closed.	

CAR ID	02	Section no.	3.1	Date: 07/08/2023
Description of CAR				
Section 3.1 of the MR, during the on-site audit of the project it was observed, 1. For Avaada Sustainable Energy Pvt. Ltd. (30 MW), the actual details (Number of modules, Number of inverters, etc.) of the equipment on the site are not consistent with the details provided in the MR. 2. For Avaada Clean Energy Pvt. Ltd., (5 MW), the actual details (Number of modules, Number of inverters, etc.) of the equipment on the site are not consistent with the details provided in the MR. 3. For Avaada Energy Pvt. Ltd. (28 MW), the actual details of the equipment: module numbers, model capacity, no. of inverters, inverter make & model observed on the site are not consistent with that of MR. 4. For Solarsys Non-conventional Energy Pvt. Ltd. (30MW), the actual details (Number of modules, Number of inverters, etc.) of the equipment on the site is not in line with the project site technical equipment details mentioned in the MR. 5. For Solarsys Non-conventional Energy Pvt. Ltd. (60 MW), the actual details (Number of modules, Number of inverters, etc.) of the equipment on the site is not in line with the project site technical equipment details mentioned in the MR. PP is requested to provide the evidence and accurate details of the technical equipment in the project site.				
Project participant response				Date: 17/08/2023
1. For Avaada Sustainable Energy Pvt. Ltd. (30 MW), details of equipment (Number of modules, Number of inverters, etc.) provided in the MR are updated to be consistent with the actual implemented at site 2. For Avaada Clean Energy Pvt. Ltd., (5 MW), details of equipment (Number of modules, Number of inverters, etc.) provided in the MR are updated to be consistent with the actual implemented at site 3. For Avaada Energy Pvt. Ltd. (28 MW), details of the equipment: module numbers, model capacity, no. of inverters, inverter make & model provided in the MR are updated to be consistent with the actual implemented at site. 4. For Solarsys Non-conventional Energy Pvt. Ltd. (30MW), details of equipment (Number of modules, Number of inverters, etc.) provided in the MR are updated to be consistent with the actual implemented at site 5. For Solarsys Non-conventional Energy Pvt. Ltd. (60 MW), details of equipment (Number of modules, Number of inverters, etc.) provided in the MR are updated to be consistent with the actual implemented at site.				

Documentation provided by project participant	
Revised MR	
VVB's assessment	Date: 23/08/2023
Section 3.2 of the MR, PP has now updated all the technical information in the revised MR. VVB also cross-checked and confirm that the technical specification of the project activity do not change any project capacity. There is a typo error in the registered PD. PP has now revised the MR and found consistent. Hence, CAR is closed.	

CAR ID	03	Section no.	ER (Generation)	Date: 07/08/2023
Description of CAR				
In the ER calculation (Generation sheet), the comment on replace meter in ASEPL-30 column displays the date/month as 16/02/2022 (February); however, the highlighted cell is "April" month. PP is requested to put the comment and highlights in the appropriate cell (February).				
Project participant response				Date: 17/08/2023
It was typo error. Correct replacement date is put in respective cell.				
Documentation provided by project participant				
Revised ER sheet				
VVB's assessment				Date: 23/08/2023
The date is incorporated in the revised ER. CAR is closed.				

APPENDIX C: CERTIFICATE OF COMPETENCE



Champok Buragohain

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert
	☒	☒	☒	☒	☒

Scopes Granted:

- Power Generation and Electric Power Transactions (Fossil fuel thermal/ Renewable energy non thermal)
- Energy Industries (Renewable/Non renewable sources)
- Energy Demand
- Waste handling and disposal

Version	DATE OF APPROVAL	VALIDITY
1	10 November 2021	09 November 2022
2	09 November 2022	08 November 2023

Authorized Signatory



Rekha Menon
Director- Technical

EPL/FR/5

ECOLANCE PRIVATE LIMITED

Version 1

Issued: 27-10-2021



Biswajit Lahan

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☐	☐	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert	Trainee Auditor
	☒	☒	☐	☐	☒	☐

Scopes Granted:

- Scope 1 -Energy Industries (Renewable/Non renewable sources)

Version	DATE OF APPROVAL	VALIDITY
1	02 December 2022	01 December 2023
2	13 July 2023	12 July 2024

Authorized Signatory



Rekha Menon
Director- Technical



Prem Kumar Pokhrel

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☐	☐	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert	Trainee Auditor
	☒	☒	☐	☐	☒	☐

Scopes Granted:

- Energy Industries (Renewable/Non renewable sources)
- Energy Demand

Version	DATE OF APPROVAL	VALIDITY
1	09 November 2022	08 November 2023
2	13 July 2023	12 July 2024

Authorized Signatory



Rekha Menon
Director- Technical

EPL/FR/5

ECOLANCE PRIVATE LIMITED

Version 1

Issued: 27-10-2021



Mr.Himolin Basumatary

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert	Trainee Auditor
	☐	☐	☐	☐	☒	☒

Scopes Granted:

- Forestry and other land use
- Agriculture

Version	DATE OF APPROVAL	VALIDITY
1	01 September 2022	31 August 2023
2	30 August 2023	29 August 2024

Authorized Signatory



Rekha Menon
Director- Technical

EPL/FR/5

ECOLANCE PRIVATE LIMITED

Version 1

Issued: 27-10-2021



Rekha Menon

has been qualified for below schemes & Sectoral Scopes as per the requirements of ECOLANCE Private Limited to participate in validation/verification audits:

Standard	ISO 14064-1	ISO-14064-2	VCS
Qualified	☒	☒	☒

Role	Validator	Verifier	TL	Technical Reviewer	Technical Expert
	☒	☒	☒	☒	☒

Scopes Granted:

- *Power Generation and Electric Power Transactions (Fossil fuel thermal/ Renewable energy non thermal)*
- *Energy Industries (Renewable/Non renewable sources)*
- *Energy Demand*
- *Waste handling and disposal*
- *Forestry and other land use*

Version	DATE OF APPROVAL	VALIDITY
1	10 November 2021	09 November 2022
2	09 November 2022	08 November 2023

Authorized Signatory



Rekha Menon
Director- Technical

EPL/FR/5

ECOLANCE PRIVATE LIMITED

Version 1

Issued: 27-10-2021