



VCS GROUPED PROJECT FOR RENEWABLE POWER GENERATION BY ESSEL MINING AND INDUSTRIES LIMITED



Document Prepared By

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

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Prepared By	LGAI Technological Center, S.A. (Applus+ Certification)
Contact	Campus UAB – Ronda de la Font del Carme, s/n 08193 Bellaterra – Barcelona Spain) Tel: +34 93 567 20 08

	Fax: +34 93 567 20 01 www.appluscertification.com agustin.calle@applus.com carla.debat@applus.com
Approved By	LGAI Technological Center S.A. (Applus+ Certification) VVB Technical Manager – Mr. Agustín Calle de Miguel
Work Carried Out By	Dr. Atul Takarkhede - Lead Auditor / Technical Expert Mr. Ishan Shrivastava – Auditor - in-Trainee

Summary:

Verification purpose: LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed^{2/} by “Essel Mining and Industries Limited” to perform the 4th verification of grouped project activity the “VCS Grouped Project for Renewable Power Generation by Essel Mining and Industries Limited” (VCS ID 1497)^{4/} through various SPVs involves the generation of electricity through solar photovoltaic plant with a combined capacity of 150.4 MW in the state of Telangana, Karnataka, Gujarat, Rajasthan and Maharashtra, India. Solar based activity having 11 project activity instances with 9 small scale project activity and 2 large scale project activity with combined installed capacity of 150.4 MW.

Project instance	Activity	PP (SPV) Name	Location(state)	MW
1		Essel Mining and Industries Limited	Rajasthan	20
2		Essel Mining and Industries Limited	Telangana	5
3		Essel Mining and Industries Limited	Telangana	10
4		Essel Mining and Industries Limited	Telangana	10
5		Essel Mining and Industries Limited	Telangana	10
6		Aditya Birla Renewables Limited	Karnataka	77
7		Aditya Birla Renewables SPV 1 Limited	Karnataka	6.8
8		Aditya Birla Renewables SPV 1 Limited	Maharashtra	0.8
9		Aditya Birla Renewables SPV 1 Limited	Rajasthan	5
10		Aditya Birla Renewables SPV 1 Limited	Gujrat	5
11		Aditya Birla Renewables SPV 1 Limited	Maharashtra	0.8
Total Capacity				150.4

There is no addition of any new project instance during this verification inline with the VCS Standard Version 4.4. The main purpose of this verification activity is to have an independent third party for the assessment of the project design, monitoring report to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements.

The purpose of the project activities to generate energy electricity by the utilization of solar energy and supply the generated energy to the National power grid i.e., Indian Grid. In this process there is no consumption of any fossil fuel and hence it does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

Start date of the project activity is the 12-March-2014 (As per earliest date of commissioning of first SPV's company i.e Essel Mining and Industries Limited of 20 MW solar plant at Bhadla Rajasthan was commissioned under the Project activity)^{/01/}. During current monitoring period 01-April-2021 to 31-August-2022 (including both days) project activity achieved 333,062 tCO_{2e} emission reductions during this monitoring period and supplied 338,522 MWh amount of electricity to the Indian Grid, which is mainly dominated by thermal/fossil fuel-based power plant.

The scope of verification includes confirming the implementation of the monitoring plan in the registered PD (Ver. 04 dated 15-December-2018) and the application of methodology ACM0002: Grid-connected electricity generation from renewable sources, Version 16.0, AMS-I.D. Grid connected renewable electricity generation, Version 18.0 & AMS-I.F.: Renewable electricity generation for captive use and mini-grid --- Version 3.0

The verification was based on the guidance given in the CDM validation and verification standard for project activities, version 03.0/^{16/}, review against registered VCS PD/^{4/} and Final Validation report, VCS program guide Version 4.3 and VCS Standard Version 4.4 /^{10/}.

A risk-based approach has been followed to perform this verification activity. In the course of verification, 06 Corrective Action request (CAR) and 00 Clarification Requests (CLs) were raised and successfully closed. No FAR was raised during this verification. The review of the Monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and PP have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence to verify the fulfilment of the stated criteria of VCS.

The assessment team has employed a risk-based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VERs. The verification is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring report combined.

The only purpose of the verification is its usage during the issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the verification opinion, which will go beyond that purpose.

The verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. The entire documents checked/verification conducted to arrive at positive verification conclusions.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Applus+ Certification) (Hereafter referred as Applus+ Certification) has been appointed by “Essel Mining and Industries Limited” to perform the 4th verification of the “VCS Grouped Project for Renewable Power Generation by Essel Mining and Industries Limited” under guideline Version 4.3 and VCS standard Version 4.4 /^{10/}. The objective of this verification activity is to have an independent third party for the assessment of the project design, Monitoring Report and Final Verification report and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- The project's baseline is assessed against “ACM0002 of version 16.0” & “AMS I.D version 18.0” and “AMS-I. F version 3.0”/^{18/}
- The project’s monitoring plan is assessed against “ACM0002 of version 16.0” & “AMS I.D version 18.0” and “AMS-I. F version 3.0”/^{18/}
- the projects compliance with the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline Version 4.3 and standard Version 4.4/^{10/}
- CDM validation and verification standard for project activities, Version 03.0/^{16/}
- VCS program guideline v. 4.3/^{10/}
- VCS standard v. 4.4/^{10/}

Verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions (VCUs).

1.2 Scope and Criteria

The scope is defined as an independent and objective review of the Monitoring report (MR)/^{6/} prepared as per the registered PD/^{4/} and registered approved methodology: -

- ACM0002: Large Consolidated Methodology-Version 16.0/^{18/}.
- AMS- I.D. Grid connected renewable electricity generation, Version 18.0 /^{18/}.
- AMS-I.F.: Renewable electricity generation for captive use and mini-grid --- Version 3.0/^{18/}.

The MR is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board and VCS standard Version 4.4 and guideline Version 4.3, including the approved baseline and monitoring methodology ACM0002 of version 16.0, AMS I.D version 18.0 and AMS-I. F version 3.0/^{18/}. The verification was based on the requirements in the CDM

validation and verification standard for project activities, Version 03.0/^{16/} and VCS program guide Version 4.3 and VCS Standard Version 4.4

The verification is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the Monitoring report. In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. It follows the paper trail back to the raw data such as meter reading records and invoices. The verification of the project activity is based on the PD and estimated GHG emission reduction calculations. There are no material errors, overestimation of ER, omission or misstatement. The verification team has reviewed all the documents like commissioning certificates/^{14/}, technical specification/^{3/}, O&M practices, JMR/^{11/}, invoices/^{11/}, grievance register/^{15/} etc.

1.3 Level of Assurance

Applus+ Certification has planned and performed the verification by obtaining evidence and other information and explanations that assessment team considers necessary to give reasonable assurance that reported estimated GHG emission reductions are fairly stated. All documentary evidences were checked, a remote audit was conducted by the assessment team and technical details and metering/monitoring arrangement verified through photos/certificate shared by PP to arrive at a verification conclusion by the assessment team. Remote audit for the project activity performed in view of multiple locations which cannot be covered under given time interval during CR conclusion is not sufficient VERRA explicitly does not mandate physical site visit.

Risk analysis has been done during current monitoring period and VVB team checked all supporting to verify continuous operation of project activity.

In our opinion, the estimated GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 of version 16.0, AMS I.D version 18.0" & "AMS-I. F version 3.0" and the VCS Standard Version 4.4/^{10/}

1.4 Summary Description of the Project

The project activity is a solar-based power generation project involves project activity solar based power generation is a grouped project having 11 instances with 9 small scale project activity and 2 large scale project activity with combined installed capacity of 150.4 in the state of Telangana, Gujarat, Karnataka, Rajasthan and Maharashtra, India. This is a greenfield project activity and supply the generated electricity to the National power grid i.e., Indian Grid. The commissioning details of the solar project and their location are mentioned in the table below:

PP (SPV) Name	MW	Commissioning Date	Latitude	Longitude
Essel Mining and Industries Limited	20	12-March-2014	27.561° N	71.929° E
Essel Mining and Industries Limited	5	07-July-2014	16.4° N	78.6° E

Essel Mining and Industries Limited	10	30-June-2014	16.7° N	78.5° E
Essel Mining and Industries Limited	10	17-September-2014	17.89° N	79.05° E
Essel Mining and Industries Limited	10	28-July-2014	17.94° N	77.92° E
Aditya Birla Renewables Limited	20	11-May-2017	15.09° N	75.623° E
	20	12-May-2017	16.021° N	75.127° E
	20	13-October-2017	13° 05' 04.4" N	78° 17' 28.8" E
	17	26-March-2018	17.250426° N	75.660746° E
Aditya Birla Renewables SPV 1 Limited	6.8	26-March-2018	17.250426° N	75.660746° E
Aditya Birla Renewables SPV 1 Limited	0.8	20-June-2018	17.55953712° N	76.00214484° E
Aditya Birla Renewables SPV 1 Limited	5	01-February-2018	26° 36' 25" N	73° 41' 33" E
Aditya Birla Renewables SPV 1 Limited	5	14-August-2018	23° 25' 44.55" N	68° 42' 13.17" E
Aditya Birla Renewables SPV 1 Limited	0.8	01-February-2018	18.494475° N	74.0970218° E

Start date of the project activity is the 12-March-2014 (As per earliest date of commissioning of 1st Solar turbine generator of Project activity). The monitoring period this VCS verification covered from 01-April-2021 to 31-August-2022 (inclusive of both dates) and the project activity achieved 333,062 tCO₂e emission reductions during this monitoring period.

Assessment team checked the Commissioning status of the project activity with the commissioning certificates and found correct. The project is implemented as per the description in the registered PD. No event observed during the current monitoring period which can alter or deviate from the methodology requirement.

Below are the entities involved under project activity: -

PP name	Essel Mining and Industries Limited
Contact person	Mr. Surajit Chanda
Title	Manager
Address	4C, Aditya Birla Centre, SK Ahire Marg, Mumbai – 400 030 (Maharashtra) INDIA
Telephone	+91-9873722454

Email	Surajit.chanda@adityabirla.com
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Other entity name	EKI Energy Services Limited
Role in the Project	Carbon Consultant
Contact person	Mr. Manish Dabkara
Title	Project Consultant
Address	EnKing Embassy, Office No 201, Plot 48, Scheme 78, Part 2, Vijay Nagar, Indore- 452010, Madhya Pradesh, India.
Telephone	+91-731-4289086
Email	manish@enkingint.org , registry@enkingint.org

2 VERIFICATION PROCESS

2.1 Method and Criteria

Verification Process: The project assessment is based on the “CDM validation and verification standard for project activities, Version 03.0/^{16/} and “VCS standard Version 4.4, program guide Version 4.3” and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the VCS project activity are appointed.

Once the project is received by the assessment team, the members of the assessment team carried out: -

1. A desk review of the Monitoring report/^{16/} against the registered PD/^{04/} and final validation report/^{17/};
2. Remote audit and Follow-up interviews with project participant;
3. The resolution of outstanding issues and the issuance of the final verification report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the VCS executive board.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. Applus+ Certification has developed a specific checklist customized for the project. The checklist demonstrates, in a transparent manner, the project

criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification as composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ certification. The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Dr. Atul Takarkhede	LA/TE	YES	YES	NA	YES
Mr. Ishan Shrivastava	AiT	YES	YES	NA	YES
Mr. Denny Xue	TR	YES	YES	NA	NA

The detail regarding the assessment team is provided below in this report as Appendix 3

Document review

The Monitoring report version 01/06/ submitted by the PP was reviewed against the approved methodology/^{18/}, registered PD /^{04/}, final validation report and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in this report below in Appendix 1.

Follow-up Interviews

A remote audit is conducted by LGAI Technological Center S.A. (Applus+ Certification) assessment team who performed interviews, telephone conferences, and remote inspection with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report in the below sections.

Resolution of Clarification and Corrective Action Request

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ Certification positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the Appendix 2.

The final MR Version 02/06/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality control

As final step of a verification of the final documentation including the verification report and the checklist have to undergo an internal quality control by the technical review committee, i.e., each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the positive verification opinion and relevant documents are submitted to the VCS board through the VCS web-platform.

2.2 Document Review

The details of the document observed during the verification process are listed below in Appendix 1 of this report

2.3 Interviews

A remote audit was conducted on 14-December-2022 through Skype video call which covers all the sites (includes all the locations) in the state of Karnataka, Telangana, Gujarat, Rajasthan & Maharashtra in India. No sampling procedures were adopted either in document verification and all the documents were cross checked to ensure conservative estimation of emission reduction.

The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.4).

During the remote audit, the PP representatives were questioned about the implementation of the project activity. Several topics like the verification of commissioning date of meters, the generation, recording, and monitoring of the data and the error accountability were discussed.

To cross check the information provided by PP, various documents like technical specifications, commissioning certificates/^{1/}, PPA/^{9/}, JMR sheets/^{11/}, invoice/^{11/}, calibration certificates/^{5/}, etc. were also verified. metering arrangements/specification of solar power Plants, monthly generation data/ photographs/^{18/}and name plates of solar power plants, calibration certificates of meters, validation and verification report/ / of various issuance. The names of the persons interviewed during remote audit through Skype & telephonic interview is given below;

Interview date: - 14-December-2022						
No.	Interviewee				Subject	Team member
	Last name	First name	Affiliation			
1.	Sharma	Mr. Deepak	Essel Mining and Industries Limited (Site-in-Charge)	14-December-2022 (Through video conference call)	Project Implementation, JMR & invoicing procedure, calibration, grievance mechanism, Management practices, data storage, QA/QC	Dr. Atul Takarkhede & Mr. Ishan Shrivastava (Auditor in trainee)
2.	Shaik	Mr. Irfan				
3.	Raju	Mr. Venkatapathi				
4.	Varanasi	Mr. Naveen				
5.	Rao	Mr. Eswara				
6.	Janardhanan	Mr. KN	Aditya Birla Solar Limited (Site-in-Charge)			
	Belavi	Mr. Santosh				
	Damodaran	Mr. V				
	Patil	Mr. Anil	Aditya Birla Renewables Limited (Site-in-Charge)			
7.	Patil	Mr. Anil	Aditya Birla Renewables SPV 1 Limited (Site-in-Charge)			
8.	Ghurghure	Mr. Mahadev				
9.	Dadhich	Mr. Vishal				
10.	Thanki	Mr. Sagar				
11.	Ghurghure	Mr. Mahadev				
12.	Nimonkar	Mr. R. K	EKI Energy Services Limited			

Interview date: - 14-December-2022						
No.	Interviewee				Subject	Team member
	Last name	First name	Affiliation			
13.	Kurmi	Mr. Sandeep Kurmi	EKI Energy Services Limited		data storage, QA/QC	
14.	Gaikwad	Mr. Sujit	Aditya Birla Renewables SPV 1 Limited (Pune site) (labour)		local stakeholder	
15.	Dhorale	Mr. Shekar				

During the remote audit, the PP representatives, O&M personals were questioned about the implementation of the project activity. Several topics like the verification of commissioning date of meters, the generation, recording, and monitoring of the data and the error accountability were discussed. Various documents like the generation records, Invoices, on-site Photographs includes name plates, meter specifications, key technical specifications of the major equipment etc. provided to assessment team were verified to establish the current status and the implementation of the Project Activity. Also, stakeholders' interviews were carried out to conform grievance mechanism and output during this monitoring period.

2.4 Site Inspections

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

No physical verification was conducted by the VVB for this verification. The VCS program does not explicitly mandate site visits as part of the validation and verification process during such circumstances, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per section 4.1.2 of the VCS Standard, v4.4).

The DOE has taken alternative measures to reach reasonable level of assurance and conducted Remote audit through video call on 14-December-2022 (refer section 2.3) with the representative of PP and consultants. Further, during interview with PPs, the implementation of project activity and monitoring procedure and systems in place was confirmed. Technical specifications of the plant verified through the photographs of power plant shared by PP and the same was cross checked with the previous verification report

After teleconference with PP representatives and verifying the photographs of WTGs & meters and Calibration Certificates of meters, verification team confirmed that monitoring procedure is followed as per registered VCS PD and there is no change in technical specifications of plants

since installation and all the meters are calibrated in accordance with VCS PD and host country metering guidelines.

2.5 Resolution of Findings

The objective of this phase of the Verification was to resolve the requests for corrective actions and clarification and any other outstanding issues from verification which need to be clarified for Applus+ Certification's positive conclusion on the Monitoring report. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the verification process, the concerns raised and responses given are summarized below in the Appendix 2.

The final MR Version 02/06/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	02	00
Description of project activity	00	00	00
Application of selected baseline and monitoring methodology and selected standardized baseline			
Applicability of methodology and standardized baseline	00	00	00
Deviation from methodology	00	00	00
Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
Project boundary	00	00	00
Establishment and description of baseline scenario	00	00	00
Demonstration of additionality	00	00	00
Emission reductions	00	01	00
Calibration details	00	01	00
Monitoring plan	00	00	00
No Net harm assessment	00	00	00
Local stakeholder consultation	00	01	00
Others (double counting)	00	01	00
Total	00	06	00

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

2.5.1 Forward Action Requests

This is 4th verification of the project activity and no FAR was raised from validation and previous verification. Same has been verified from validation report and previous verification report.

2.6 Eligibility for Validation Activities

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

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity has not availed GHG emission reduction from any other GHG program and there will not be any double counting for the same. Moreover, PP has also submitted an officially attested declaration letter/^{12/} to assessment team regarding no participation in other GHG program for the concerned monitoring period. Found acceptable.

3.2 Methodology Deviations

This section is not applicable for present verification as no methodology deviation sought during this verification

3.3 Project Description Deviations

During this current verification, one deviation has been sought by project participant during current monitoring period, in section 3.2.3 of monitoring report version 02.

Apportioning procedure applied for mis-match between dates of the JMRs of first & last months and start & end dates of this monitoring period. The apportioning has been applied on the basis of generation ratio (Generation ratio: DGR's generation for the period covered in the monitoring period/ DGR's Total generation for the month, the ratio is then multiplied with the export value). detailed description related to the same, provided in section 4.3 of final monitoring report.

Assessment team observed above deviation does not affect the project's technology, methodology. Scale, and additionality. Thus, accepted by VVB.

3.4 Grouped Project

This is a grouped project. However, there is no addition of any new project instance during this verification inline with the VCS Standard Version 4.4.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During remote audit, it was concluded that the project is implemented as per the requirement of the registered VCS PD and approved monitoring plan, during the current monitoring period; it was observed that no unforeseen incident/event evolved which can impact the operation of the project activity which was verified from breakdown records.

The project activity is a 150.4 MW solar power project. grouped project having 11 instances with 9 small scale project activity and 2 large scale project activity. implemented by Essel Mining and Industries Limited & SPVs, in Kutch district of Gujrat state in India.

The Details of project location:

Verification team confirmed from the registered PD/^{4/} and from previous verification reports/^{17/} that the location of the project activity including the coordinates is same as mentioned in the registered VCS PD/^{4/}.

Assessment team checked the commissioning certificates/^{1/} of each instance and confirmed that the dates of Commission for each Solar plants are correct. Assessment team also conform during remote audit with the PPs representatives that there is no change in project design and the project is implemented as per the description provided in the VCS PD except one deviation request by PP during current monitoring period related to addition of apportioning procedure under monitoring plan of the grouped project activity. The project boundary includes the electricity generation equipment at the project site, substation and the regional grid (now Indian grid).

Project activity instances	Project Capacity	Commissioning Date	PV Modules	Inverters
Instance – 1 Bhadla	20 MW	12-March- 2014	36,288 nos. (245 Wpeach) 52,488 nos. (250 Wp each) Manufactured by CSun	30 nos. (680 kVA each) Manufactured by Schneider
Instance – 2 Achampet	5 MW	07-July-2014	18,340 nos. (300 Wp each) Manufactured by CSun	7 nos, (860 kVA each) Manufactured by Schneider Electric
Instance – 3 Kalwakurth y	10 MW	30-June-2014	37,940 nos. (290 Wp each) Manufactured by CSun	14 nos, (680 kVA each) Manufactured by Schneider Electric
Instance–4 Salakpur	10 MW	17-September- 2014	36,680 nos. (300 Wp each) Manufactured by YINGLI	14 nos, Manufactured by Schneider Electric of capacity 680 kVA each
Instance–5 Alladurg	10 MW	28-July-2014	36,680 nos. (300 Wp each) Manufactured by CSUN	14 nos, (680 KVA) Manufactured by Schneider Electric

Instance-6 Karnataka	20 MW	11-May-2017	69,800 nos. (320/315 Wp each) Make Seraphim	30 nos. Schnidler make (680KVA)
	20 MW	12-May-2017	69,760 nos. (320/315 Wp each) Make Seraphim	30 nos. Schnidler make (680VA)
	20 MW	13-October- 2017	70,040 nos. (320/315 Wp each) Make Seraphim	30 nos. Schnidler make (680KVA)
	17 MW	26-March- 2018	87,120 nos. (78,360 -320 Wp)	20 nos. Schnidler make (680KVA)
Instance-7 Bijapur	6.8 MW	26-March- 2018	8,760-315 Wp each, Make Znshine Solar	10 nos. Schnidler make (680KVA)
Instance-9 Gotan	5 MW	01-February- 2018	3,000 nos. (320 Wp each) Make Canadian solar	10 invertors, Deltaww
Instance-10 Sevagram	5 MW	14-August- 2018	Total 18,340, 8090-325Wp/10250- 330 Wp), Make- Canadian Solar	5 Invertors (Make- ABB Ltd) 1 MW each
Instance-11 Pune	0.8 MW	01-February- 2018	15,520 nos. (320 Wp each) Make Emmvee	4 Invertors, TMEIC make

The assessment team interviewed remotely with the plant site personals in order to verify the status of the project implementation of the monitoring plan. It has also been verified as per the guidelines in ACM0002: Grid-connected electricity generation from renewable sources, Version 16.0, AMS I.D. Grid connected renewable electricity generation, Version 18 & AMS-I.F. Renewable electricity generation for captive use and mini-grid --- Version 3.0 that the calculations for the GHG emission reductions are done in accordance with the aforesaid methodology.

Project activity instances	Title of the project activity	Location	Project Owner	Geo Coordinates
Instance - 1 Bhadla	VCS Project for Solar Power Plant at Bhadla, Rajasthan	Bhadla Solar Park, Village -Bhadla, Tehsil - Bap, District - Jodhpur, Rajasthan India		Latitude: 27.561 ⁰ N Longitude: 71.929 ⁰ E
Instance - 2 Achampet	VCS Project for Solar Power plant at Achampet, Telagana	5 MW Solar Power Plant, Achampet Village and Mandal, Dist. Mehaboobnagar, Telangana, India.		Latitude: 16.4 ⁰ N Longitude: 78.6 ⁰ E

Instance – 3 Kalwakurthy	VCS Project for Solar Power Plant at Kalwakurthy, Dist. Mehabubnagar , Telangana	Ternikal Village, KalwakurthyMandal , Dist. Mehaboobnagar, Telangana, India.	Essel Mining and Industries Ltd.	Latitude: 16.7 ⁰ N Longitude: 78.5 ⁰ E
Instance – 4 Salakpur	VCS Project for Solar Power Plant at Salakpur, Telangana	Village: Salakpur District: Warangal State: Telangana, India		Latitude: 17.89 ⁰ N Longitude: 79.05 ⁰ E
Instance – 5 Alladurg	VCS Project for Solar Power Plant at Alladurg, Telangana	Village: Bhiaramdhibba District: Medak State: Telangana, India		Latitude: 17.94 ⁰ N Longitude: 77.92 ⁰ E
Instance – 6 Karnataka	VCS Project for Solar Power Plant at Karnataka	Village: Bellatti, Shirahatti District: Gadag State: Karnataka, India	Aditya Birla Solar Limited	Latitude 15.09 ⁰ N , Longitude: 75.623 ⁰ E
		Village: Chandargi, Kaktol, Ramadurg Taluk District: Belagavi State: Karnataka, India	Aditya Birla Solar Limited	Latitude: 16.021 ⁰ N, Longitude: 75.127 ⁰ E
		Village: Mulbangal, District: Kolar State: Karnataka, India		Latitude:13°05'04.4" N, Longitude:78°17'28 .8" E
		Village: Devar Nimbargi, District: Vijayapura State: Karnataka, India	Aditya Birla Renewable s Limited	Latitude:17.250426 0N, Longitude:75.660746 ⁰ E
Instance – 7 Bijapur	VCS Project for Solar Power Plant at Vijaypur	Village: DevarNimbargi, District: Vijayapura State: Karnataka,India	Aditya Birla Renewable s SPV1 Limited	Latitude:17.250426 ⁰ Longitude: 75.660746 ⁰ E
Instance – 8 Hotgi	VCS Project for Solar Power Plant at Hotgi, Maharashtra	Village: Hotgi, Tal South Solapur District: Solapur State: Maharashtra, India		Latitude:17.55953712 0 N Longitude: 76.0021 4484 ⁰ E

Instance – 9 Gotan	VCS Project for Solar Power Plant at Gotan, Rajasthan, India	Village: KhariaKhangar, Tehsil: Bhopalgarh District: Jodhpur State: Rajasthan, India		Latitude:26° 36' 25" N, Longitude:73° 41' 33"E
Instance– 10 Sevagram	VCS Project for Solar Power Plant at Sevagram, Gujrat	Village: Sevagram, Tal- Abdasa District: Kutch State: Gujarat, India	Aditya Birla Renewable s SPV1 Limited	Latitude:23° 25' 44.55" N, Longitude:68° 42' 13.17"
Instance– 11 Pune	VCS Project for Solar Power Plant at Pune, Maharashtra	Village: Peth, Tal Haveli, Dist Pune, Maharashtra, India		Latitude: 18.494475 ⁰ N, Longitude:74.0970 218 ⁰ E

The organisational role and responsibility as mentioned in the registered PD/4/ is followed onsite confirmed during remote audit through interview with PPs. All the emergency preparedness as mentioned in the registered PD/4/ is followed onsite and no discrepancies were found regarding the same. Meters are calibrated as per calibration frequency in registered VCS PD/4/. All the emergency preparedness as mentioned in the registered VCS PD is followed onsite and no discrepancies were found regarding the same. Thus, completeness of the monitoring plan confirmed and there are no any material discrepancies between the actual monitoring system and the plan provided in the registered PD.

CAR 01 & CAR 02 were raised and successfully closed. Please refer Appendix 2 for more information.

Assessment team confirms following during the verification remote audit:

1. Start date of the project activity is 12-March-2014 as mentioned in the registered VCS PD/4/. Below is the issuance of project history: -

S. no	Monitoring period	Verification
1	12-March-2014 to 20-October-2018	1 st Verification
2	21- October -2018 to 20- February - 2020	2 nd Verification
3	21-February-2020 to 31-March-2021	3 rd verification
4	01-April-2021 to 31-August-2022	4 th verification (undergoing)

2. An undertaking letter dated 13-October-2022 has been submitted by PP for no double counting with any other GHG program. PP also has given a written declaration that project has not claimed other form of GHG credit.

3. Assessment team confirms that this is the 4th monitoring under VCS and covers the activity from 01-April-2021 to 31-August-2022 (inclusive of both dates). The project activity adopts renewable crediting period of 10 years period and can be renewed for maximum 2 times. 12-March-2014 is the start date and 11-March-2024 will be end date of the first crediting period^{6/}.

The GHG credits from 01-April-2021 to 31-August-2022 will be claimed under VCS only. At any point of time during the crediting period, the project proponent will abide by the “No Double Counting”^{12/}.

4. Assessment team checked and found that the Project proponent of the project activity mentioned in Section 1.3 of monitoring report is correct^{6/}:
5. Assessment team also checked the details of other entity mentioned in Section 1.3 of monitoring report and found correct^{6/}.
6. The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared overall achieved VCUs with the estimated VCUs and found that the actual VCUs is 333,062 tCO₂e by whole grouped project, which is 5.03% lower than the estimated emission reductions 350,706 tCO₂e (247,123 tCO₂e/365 days x 518 days) during this monitoring period.

However, PP has compared individual ER (achieved by each project instance) with individual estimated ER for current monitoring period in Emission reduction sheet. Through which VVB's assessment team observed that few instance i.e., 1,2 3, 4 and 6 (17 MW) has higher generation than estimate.

Therefore, PP has demonstrated effect on additionality due to higher generation or higher PLF achieved by instance no. 6 in ER sheet, because other instances i.e., 1,2 3, & 4 are auto additional.

Assessment team found that, in Instance no. 06, there is no any adverse impact on additionality due to this higher PLF of project activity for current monitoring period as the achieved PLF is within the breaching value of 15.43%. Further no design change in the project activity has taken place and even with an increased PLF which is achieved during this monitoring period, the equity IRR of the project is well below the benchmark. During the current monitoring period the project witnessed a PLF of 19.295% for 17 MW (Instance No. 06) unit against the estimated PLF of 18.10%, which is same for both units. which was considered at the validation of the project activity. However, it is to be noted here that even with actual PLF of 19.295% (achieved during present verification) the equity IRR of the project activity is 5.24% against the benchmark value of 15.43%. Further it was being analysed by the VVB that even after increase of 10% values in PLF than compared to actual PLF value, the IRR of the project is 5.24% which is well below the benchmark value and thus the project activity still remains additional.

SPV /PP	PLF at the time of Registration	PLF of current monitoring period	Equity IRR with respect to current MP	Benchmark	Result
Aditya Birla Renewables	18.10%	19.295%	5.24%	15.43%	Not breaching

limited (Bijapur 17 MW) Instance - 6					
Essel Mining and Industries Limited (Instance 1- Bhadla)	17.10%	19.92%	As project is auto additional as per section 2.5 of VCS PD. No requirement of IRR breaching calculation require.		

Thus, it is concluded that the project activity is still additional though 5.03% lower emission reductions achieved.

Further, in line with para with VCS Standard, “The project proponent must demonstrate that a project contributes to at least three SDGs by the end of the first monitoring period, and in each subsequent monitoring period.” As per the provision of implementation deadline, “Projects registered before 20 January 2023 shall demonstrate contributions to at least three SDGs by 20 January 2025”. However, PP does not provide achieved SDG contribution data in respective table:1 of MR and same has been accepted as not being mandatory till 20 January 2025.

4.2 Safeguards

4.2.1 No Net Harm

No potential environment or socio-economic matter was found during the documents review of VCS PD and grievance register etc. The project is renewable energy project and thus no negative impact observed due to project activity.

The project activity promotes environmental and socio-economic well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation. The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013¹. This report clearly mentioned that solar/Solar power project activity operations do not result in direct air pollution, noise pollution. Moreover, also as per the Central Pollution Control Board of India notification² solar/solar project falls under White Category and are practically non-polluting.

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 maintained grievance register/^{15/} at the site office. All the stakeholders are happy with the implementation and operation of the project activity and no negative comments envisaged for the project activity. Complaint/suggestion/feedback register is maintained at site as a part of ongoing communication with stakeholders in line with clause 3.18.19 of VCS Standard, ver. 4.4 and appropriate actions taken time to time by PP.

¹ <https://smarnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf>

² <https://cpcb.nic.in/openpdf.php?id=TGF0ZXN0RmlsZS9MYXRlc3RfMTE4X0ZpbmFsX0RpcmVjdGlbnMucGRm>

Assessment team checked the grievance register/^{15/} provided by PP and found that local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project. During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate. Assessment team during the remote observed that, Grievance register is maintained at project location. Thus, no discrepancies were observed in this section. CAR 03 was raised. please refer Appendix 02

4.3 AFOLU-Specific Safeguards

This section is not applicable as this project activity is a non-AFOLU project activity.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the VCS PD. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS PD.
Findings	CAR 04 and CAR 05 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	Baseline Emissions: The baseline Emissions for a given year is calculated by multiplying the energy baseline with the grid emission factor. The grid in this case is 'Indian Grid' Formula Used: - $BE_y = EG_{PJ,y} \times EF_{grid,y}$ Where, BE_y = Baseline Emissions in year y, tCO₂ $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr) $EF_{grid,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO₂/MWh) Ex-ante parameters: $EF_{Grid,CM,y}$: Combined margin emission factor for National Grid in year y for the proposed grouped project activity. where Combined margin emission factor are 0.9770 tCO₂/MWh for NEWNE grid and 0.9817 tCO₂/MWh for Southern grid (both are now Indian grid) fixed for entire crediting period. Verification team found same was used in the ER calculations.

	Ex ante value of emission factor is taken from CEA database, Ver. 10, December, 2014 used to use Tool to calculate the emission factor for an electricity system (version 05.0). Verification team checked the EF value and found in consistent with registered PD/^{1/}. Ex-post parameter: EG_{PJ, facility, y} = Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y = 338,522 MWh The verification team has checked the entire monthly JMR reports/^{11/} for net electricity generated & supplied to the grid and crosschecked same with the invoices/^{11/} raised by PP towards State Utilities for the monitoring period. All values are found correct in ER sheet/^{7/}. All the parameters are monitored and recorded as per the monitoring plan in the MR/^{6/}. However, PPs have apportioned the values for the first and last month of the monitoring period where dates are not matching with JMR cycle. Apportioning found appropriate and conservative. The calculations/measurement of net electricity supplied to grid is under purview of state electricity board and the PP/Project activity Instance owner has no role on it. PP/Project activity Instance owner gets value of net electricity supplied to grid and hence this parameter is mentioned as a part of monitoring plan. Leakage: As per approved PD, para 39 of the small-scale methodology AMS.I. D (version 18.0), para 24 of AMS I.F Version 03 and para 35 of the large-scale methodology ACM0002 (version 16.0), Leakage emissions are not considered The net electricity supplied the grid by the project activity during the monitoring period is 338,522 MWh. The generation values have been cross checked with the invoices and were found to be consistent. All relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation/^{7/}, the accuracy, and applied QA/QC measures. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. BE_y (baseline emissions), tCO₂e BE_y = 333,062 tCO₂e (round down values) As per applied methodology ACM0002, version 19.0, the VCS PD, project emission is considered zero as the project activity involved Solar power generation/^{4/}.
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	PE_y = As per – AMS.I. D (version 18.0), ACM0002 (version 16.0) and AMS I.F (Version 03), all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected. As the project activity involved solar power project emissions (PE_y) are taken as zero. Leakage: – AMS.I. D (version 18.0), ACM0002 (version 16.0) and AMS I.F (Version 03), Leakage emissions are not considered for the project activity^{/18/}. Hence, ER_y = BE_y – PE_y = 333,062 – 0 = 333,062 tCO₂e (round down values) Verification team confirms that the monitoring has been carried out in accordance with the monitoring plan contained in the registered VCS PD^{/4/}. Assessment team confirmed that the GHG emission reductions and removals have been quantified correctly in line with the registered VCS PD^{/4/}.
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4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the Calibration details of the monitoring meters with the calibration certificates.
Findings	CAR 06 was raised during the verification process and closed successfully. Please refer Appendix 2 of this report for the detail closure of the CAR.
Conclusion	The verification team checked the break down log for the monitoring period^{/13/}. During the remote interview, the feeder wise location of the solar plants is confirmed. The metering arrangement is bi-directional energy meters (Main and Check) of accuracy class 0.2s at the State Electricity Board (SEBI) sub-station. These electricity meters are being used by state electricity board for Share certificate statements. This meter also measures electricity exported/supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid. These electricity meters are being used by state electricity board for monthly generation reports^{/11/}. The details like make, Serial number, Calibration dates etc.^{/5/}. are provided in appendix 05 of this report. Calibration of all the meters is done by state electricity board officials as per the industry standards. Verification team confirms that all the energy meters (main and check meter) installed at the substation are of accuracy class of 0.2s and are calibrated as per the calibration frequency mentioned in monitoring plan in VCS PD i.e. The calibration frequency of meters is once in 5 years^{/5/}. During current monitoring period in month of July 2022 due to some technical issue in old check meter i.e., 13194947 found was replaced by new pre calibrated check meter i.e 13194944 for instance 1 Bhadla state of Rajasthan same has been verified from JMR and MOM.

	No delayed calibrations were observed in the project activity for this monitoring period. All the meters are of same accuracy class i.e., 0.2s as per the requirement of the registered PD. Interview during remote audit with O&M personnel also confirms the same. The calculation of net electricity supplied to grid is under purview of state electricity board and PP does not have control on it. Calibration details of the monitoring meters checked with calibration certificates submitted by PP and found that calibration frequency of 5 years is complied^{5/}. Thus, no delayed calibration is observed and thus the same is found appropriate. The break down log is checked & details of same was provided in the monitoring report. and there is no major breakdown during the monitoring period except two months of overhauling in last two month of monitoring period. No unforced error observed. No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. The monitoring meters were calibrated in line with the registered monitoring plan and there was no delay in calibration observed. Thus, assessment team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals. The quantified emission reduction calculation for the monitoring period is correct and conservative. Assessment team also compared actual VCU (333,062 tCO₂e) with the estimated VCU (350,706 tCO₂e) and found that the actual VCU is 5.03% Lower than the estimated emission reduction which is due to variations in solar flow pattern, grid availability and other parameters which are not in the control of PP. However, PP has compared individual ER (achieved by each project instance) with individual estimated ER for current monitoring period in Emission reduction sheet. Through which VVB's assessment team observed that few instance i.e., 1,2 3, 4 and 6 (17 MW) has higher generation than estimate. Therefore, PP has demonstrated effect on additionality due to higher generation or higher PLF achieved by instance no. 6 in ER sheet, because other instances i.e., 1,2 3, & 4 are auto additional. Assessment team found that, in Instance no. 06, there is no any adverse impact on additionality due to this higher PLF of project activity for current monitoring period as the achieved PLF is within the breaching value of 15.43%. Further no design change in the project activity has taken place and even with an increased PLF which is achieved during this monitoring period, the equity IRR of the project is well below the benchmark. During the current monitoring period the project witnessed a PLF of 19.295% for 17 MW (Instance No. 06) unit against the estimated PLF of 18.10%, which is same for both units. which was considered at the validation of the project activity. However, it is to be noted here that even
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with actual PLF of 19.295% (achieved during present verification) the equity IRR of the project activity is 5.24% against the benchmark value of 15.43%. Further it was being analysed by the VVB that even after increase of 10% values in PLF than compared to actual PLF value, the IRR of the project is 5.24% which is well below the benchmark value and thus the project activity still remains additional.

SPV /PP	PLF at the time of Registration	PLF of current monitoring period	Equity IRR with respect to current MP	Benchmark	Result
Aditya Birla Renewables limited (Bijapur 17 MW) Instance - 6	18.10%	19.295%	5.24%	15.43%	Not breaching
Essel Mining and Industries Limited (Instance 1- Bhadla)	17.10%	19.92%	As project is auto additional as per section 2.5 of VCS PD. No requirement of IRR breaching calculation require.		

From the above data in table, it was observed that the PLF achieved by Aditya Birla Renewables limited for instance 6, during this monitoring period is 19.29% which is lower than estimated PLF i.e., 18.10%. As per the VCS approved PD, project becomes non additional if it achieves IRR 15.43%, however for current monitoring period IRR is below breaching value. further PP have also submitted IRR sheet with actual PLF achieved during this monitoring period. Thus, it is concluded that the project activity is still additional though 6.59% higher emission reductions achieved. For SPV Essel Mining and Industries Limited instance 1 achieved ER is 16.48% higher than estimated, however it happens due to high PLF achieved during current monitoring period further project is auto additional.

4.6 Non-Permanence Risk Analysis

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
NA	NA	NA	NA	NA

5 VERIFICATION CONCLUSION

Applus+ Certification has been engaged^{02/} by Essel Mining and Industries Limited to perform the 4th verification of the “VCS Grouped Project for Renewable Power Generation by Essel Mining and Industries Limited”.

The project participants are responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project’s monitoring plan in the registered VCS PD/^{4/} and the applied methodology ACM0002 of version 16.0, AMS I.D version 18.0 and AMS-I. F version 3.0/^{18/}

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Further, the verification has been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS. No sampling procedure applied for document verifications. The entire documents checked/Power plant verification conducted to arrive at positive verification conclusions. The verification team can confirm that:

- the project is operated as planned and described in the project document;
- the monitoring plan is as per the applied methodology;
- the monitoring process in Monitoring Report is as per the registered PD/^{4/};
- the development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.
- A Reasonable Level of assurance was achieved as planned, during verification process.
- Verification period: 01-April-2021 to 31-August-2022 (inclusive of both days).

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

Year	Baseline emissions or removals (tCO ₂ e) ³	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01-April-2021 to 31-December-2021	173,206	0	0	173,206
01-January-2022 to 31-August-2022	159,856	0	0	159,856
Total	333,062	0	0	333,062 ³

³Rounddown values

APPENDIX 1: DOCUMENTS REVIEWED OR REFERENCED (VERIFICATION)

No.	Author	Title	References to the document	Provider
1.	Respective State Utility	Commissioning certificates of the all-solar plant installed in different States of India.	-	PP
2.	Applus	Contract of the project participant with the DOE. Ref. No. A+SH_SYST_TQC_VCS_VER_45522	11-October-2022	PP
3.	Manufacturer(s)	The operational lifetime of the project activity from the manufacturer (Technical specifications)	Manufacturer technical specifications	PP
4.	VERRA	Registered PD https://registry.terra.org/app/projectDetail/VCS/1497	15-December-2018	PP
5.	Respective state authority	Calibration Certificates of energy meters	-	PP
6.	NA	MR version 01 MR version 02	12-October-2022 26-December-2022	PP
7.	NA	Emission reduction sheet version 01 Emission reduction sheet version 02	12-October-2022 26-December-2022	PP
8.	PP	O & M Agreements	-	PP
9.	SPVs and state board	Power Purchase Agreements	-	PP
10.	NA	Tools/ guidelines used in the project activity - Glossary of CDM terms version 11 - VCS standard Version 4.4 - VCS Program Guide 4.3 - VCS verification report template Version 4.1	UNFCCC CDM/VCS web site	UNFCCC
11.	State Utility for JMR, PP for invoice	Monthly statement- JMR & invoices for the complete monitoring period	-	PP
12.	PP	Declaration regarding no participation in other GHG program for the concerned monitoring period.	13-October-2022	PP
13.	PP	Breakdown details for the monitoring period	-	PP
14.	PP	Employment records for plant persons	-	PP
15.	PP	Grievance Register maintained at site	-	PP
16.	UNFCCC	CDM validation and verification standard for project activities, Version 03.0	-	UNFCCC

No.	Author	Title	References to the document	Provider
17.	Applus	Previous Verification Report, Report ID: VCS.VER 21.31	19-August-2021	PP
18.	UNFCCC	ACM0002 of version 16.0, AMS I.D version 18.0 and AMS-I. F version 3.0	-	UNFCCC

APPENDIX 2: CORRECTIVE ACTION REQUESTS, CLARIFICATION REQUESTS AND FORWARD ACTION REQUESTS (CAR/CL/FAR)

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

FAR ID	XX	Section no.	E.2	Date : DD/MM/YYYY
Description of FAR				
There is no FAR from the validation/previous verification of the project activity				
Project participant response				Date : DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this verification

CL ID	01	Section no.	4.1	Date: 16-December-2022
Description of CL				
NA				
Project participant response				Date: DD-Month-2022
NA.				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD-Month-2022
NA				

Table 3. CAR from this verification:
Project Implementation Status

CAR ID	01	Section no.	4.1	Date: 20-December-2022
Description of CAR				
During review of monitoring report following inconsistencies observed:				
1. Section 1.1 of monitoring report is not inline with VCS MR template guideline version 4.1. 2. PP requested to revise the language throughout the monitoring report as project is already implemented and contributing towards emission reduction. 3. Reference Link provided for REC registry of India in section 1.10 of monitoring report is not working. 4. Content page not inline with VCS MR template guideline and Appendix information missing in content page of monitoring report. Thus, corrective action sought.				
Project participant response				Date: 26-December-2022
1. Section 1.1 of monitoring report is now inlined with VCS MR template guideline version 4.1. 2. the language throughout the monitoring report is now corrected. 3. Reference Link provided for REC registry of India in section 1.10 of monitoring report is now working. 4. Content page now inlined with VCS MR template guideline and Appendix information is now updated in content page of monitoring report. 5. Content page now inline with VCS MR template guideline and Appendix information also included in monitoring report.				
Documentation provided by project participant				
Monitoring report version 2 dated 26-Decemeb-2022				
DOE assessment				Date: 29- December-2022
1. Section 1.1 updated in revised monitoring report is as per requirement of VCS MR template guideline version 4.1. 2. PP has revised the language throughout the revised monitoring report and now found correct as project is already implemented. 3. Reference Link provided for REC registry of India in section 1.10 of revised monitoring report. 4. Content page now inline with VCS MR template guideline and Appendix information is now updated in content page of monitoring report 5. PP has updated content page found inline with VCS MR template guideline and Appendix information also included in revised monitoring report. Thus, CAR is closed				

CAR ID	02	Section no.	4.1	Date: 20-December-2022
Description of CAR				
PP requested to submit declaration letter regarding avoidance of double counting of emission reductions in the other GHG trading programmes and REC mechanism of India.				
Project participant response				Date: 26-December-2022
declaration letter regarding avoidance of double counting of emission reductions in the other GHG trading programmes and REC mechanism of India is now provided to assessment team.				
Documentation provided by project participant				
Declaration letter regarding avoidance of double counting				

DOE assessment			Date: DD-Month-2022		
PP has submitted the No double counting declaration letter dated regarding avoidance of double counting of emission reductions in the other GHG trading programmes and REC mechanism of India					
CAR ID	03	Section no.	4.2.2	Date: 20-December-2022	
Description of CAR					
In Section 2.2, PP has mentioned about process of ongoing mechanism for communication with local stakeholder as per the requirement of Para 3.17.3 and 3.17.4 of the VCS standard V.4.3. However, to verify, PP is requested to provide the supporting for the same.					
Project participant response				Date: 26-December-2022	
To monitoring the communication with local stakeholders' grievance, register copy has now been submitted					
Documentation provided by project participant					
Grievance Register					
DOE assessment				Date: 29- December-2022	
PP has submitted the grievance register to VVB team maintained at site during current monitoring period. During review of same found no major grievances registered by stakeholders during current monitoring period. minor grievances recorded and action also taken to resolve those, Thus, accepted to VVB team. CAR is closed.					

CAR ID	04	Section no.	4.4	Date: 20-December-2022
Description of CAR				
During review of MR and ER sheet submitted by PP, Verification team observed the followings: - - Data and parameter provided in Section 4.1 and Section 4.2 of monitoring report is not consistent with the registered VCS project Description. - Data of electricity provided in ER calculation spread sheet is not in line with submitted evidence. PP is requested to provide the data as per JMRs to verify the same.				
Corrective action sought.				
Project participant response				Date: 26-December-2022
Data and parameter provided in Section 4.1 and Section 4.2 of monitoring report is now consistent with the registered VCS project Description.				
Data of electricity provided in ER calculation spread sheet is now in lined with submitted evidence				
Documentation provided by project participant				
DOE assessment				Date: 29- December-2022
- Data and parameter now updated in section 4.1 and section 4.2 of revised monitoring report consistent with registered VCS PD. - PP has revised emission reduction sheet and now values are now inline with submitted evidence thus accepted to VVB team. Thus, CAR is closed.				

CAR ID	05	Section no.	4.4	Date: 20-December-2022
Description of CAR				

PP has submitted emission reduction sheet to VVB team, during review of same monitored parameters found not inline with VCS PD (refer commented ER sheet). Further, apportioning found missing in ER sheet for mismatch in start & end date of monitoring period and billing cycle. Moreover, for instance 4 _sakalpur data missing in ER sheet and supporting for same. Corrective action sought.	
Project participant response	Date: 26-December-2022
All monitored parameters are now consistent and in lined with the registered PDD Apportioning procedure now applied in ER sheet for mismatch in start & end date of monitoring period and billing cycle. instance 4 _sakalpur is also known as mutsyal and data for this instance is now provided.	
Documentation provided by project participant	
instance 4 _sakalpur / mutsyal data ER sheet version 2 dated 26-December-2022 MR version 2 dated 26-December-2022	
DOE assessment	Date: 29- December-2022
PP has provided revised emission reduction sheet to VVB team and now parameter is updated in emission reduction sheet, apportioning also updated in revised ER sheet for mismatch in start & end date of monitoring period and billing cycle. for instance, 4 _sakalpur data now included in ER sheet values checked with JMR and Invoice found values consistent. Thus, CAR is closed.	

CAR ID	06	Section no.	4.5	Date: 20-December-2022
Description of CAR				
PP requested to provide information of monitoring equipment accuracy class, make, meter serial number, calibration date and validity in monitoring report and submit copy of calibration certificates to assessment team relevant to current monitoring period of project activity. Corrective action sought. Corrective action sought.				
Project participant response				Date: 26-December-2022
Complete meter details and calibration details are now provided to assessment team, Calibration sheet is now provided in appendix section of MR, calibration documents are now provided.				
Documentation provided by project participant				
Calibration documents covering the monitoring period. MR version 2 dated 26-December-2022				
DOE assessment				Date: 29- December-2022
PP has provide information of monitoring equipment accuracy class, make, meter serial number, calibration date and validity in revised monitoring report and also submit copy of calibration certificates to assessment team relevant to current monitoring period of project activity, VVB team found calibration certificate date is consistent with monitoring report. Thus, CAR is closed				

Table 4. FAR from this verification

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

DOE assessment	Date: DD-Month-YYYY
NA	

APPENDIX 3: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor/Technical Expert	OR	Takarkhede	Atul	TQC-Outsourced entity	Yes	No	Yes	Yes
2.	Auditor in Trainee	OR	Shrivastava	Ishan	TQC-Outsourced entity	Yes	No	Yes	Yes

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g., name of central or other office of DOE or outsourced entity)
1.	Technical reviewer (TR) / Technical Expert (TE)	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustin	Applus+ Certification

Short CVs of the Team:

- Dr. Atul Takarkhede** is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 11 years of experience in field of Environmental Auditing, consulting and accreditation. He is an expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management reporting for organizations' environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; conducting environmental/water audits; NABET requirements appliance, functional area expert in Water Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. Currently he is associated with True Quality Certifications Private

Limited and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes.

2. **Mr. Ishan Shrivastava**, has done bachelor of engineering in Mechanical Engineering from Rajiv Gandhi Proudhyogiki Vishwavidyalaya, India. He has a year of working experience in India's one of the Maharatna Company i.e., GAIL (India) Limited in the area of Natural Gas, Energy & Environment. Currently, he is working in True Quality Certifications Pvt. Ltd. (An outsource entity for LGAI Technological Center, S.A. (Spain) "Applus+ Certification") since 2019 and has been involved in supporting Audit teams for Verifications of Project Activities (Renewable and non-Renewable projects) under CDM/VCS/GS4GG programs.
3. **Mr. Denny Xue** (Master's Degree in Environmental Engineering, Bachelor's Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and technical review with Applus+. Before he joined Applus+ LGAI, he has been working for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. Mr. Denny Xue is based in Shanghai, China. Mr. Denny Xue participates in the project's technical review team.

APPENDIX 4: ABBREVIATIONS

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming potential
JMR	Joint Meter Reading Report
PP	Project Participant
VCS	Verified Carbon Standards
VCU	Verified Carbon Unit(s)

APPENDIX 5: CALIBRATION DETAILS

During Current Monitoring period, no delay in scheduled calibration has been observed and found all energy meters are calibrated in accordance with the VCS approved PD. The details of the energy meters and their calibration details are provided in the table below: -

PP/SPVs	Project activity instances	Project site	Main Meter	Check Meter	Make	Accuracy class	Calibration Date	Validity
Essel Mining and Industries Limited	Instance – 1: Bhadla	Bhadla, Rajasthan	13194946	13194947/ 13194944 ⁴	L&T	0.2s	31-July-2019	30-July- 2024
	Instance – 2: Achampet	Achampet Telangana	2781573	2781574	Elster	0.2s	5 –August-2020	4 -August -2025
	Instance – 3: Kalwakurthy	Kalwakurthy, Telangana	2781577	2781578	Elster	0.2s	5 –August-2020	4 -August -2025
	Instance – 4: Salakpur/mtsyal	Mutsyal, Telangana	13194257	13193555	L&T	0.2s	4 -July -2019	3- July -2024
	Instance – 5: Alladurg	Alladurg, Telangana	2781621	2781631	Elster	0.2s	15- April -2019	14 -April -2024

⁴ During month July 2022 due to some technical issue in old check meter i.e. 13194947 was replaced by new pre calibrated check meter i.e 13194944. Same has been verified with Meter Change MoM and respective month JMR issued by respective state utility.

Aditya Birla Solar Limited	Instance - 6: Karnataka	Shirahatti, Karnataka	16102125	16102130	L&T	0.2s	03 -October - 2020	02- October - 2025
		Ramadurg	16102135	16102133	L&T	0.2s	16 -May- 2020	15- May -2025
		Karnataka						
		Mulbangal Karnataka	14194780	14194782	L&T	0.2s	27- February - 2019	26- February - 2024
Aditya Birla Renewables limited		Vijaypur, Karnataka	X0488422	X0488423	Secure	0.2s	4- November - 2019	3- November - 2024
Aditya Birla Renewables SPV 1 Limited	Instance - 7: Vijaypur	Vijaypur, Karnataka	X0488419	X0488421	Secure	0.2s	4- November - 2019	3-November - 2024
	Instance - 8: Hotgi	Hotgi, Maharastra	XD434209	XD434210	Secure	0.2s	18- April-2018	17- April -2023
	Instance - 9: Gotan	Gotan, Jodhpur	RJB 90318	RJB 90317	Secure	0.2s	17- January- 2018	16 -January - 2023
Aditya Birla Renewables SPV 1 Limited	Instance - 10: Sevagram	Sevagram	HT 01180175	HT 01180176	EDMI	0.2s	17- July- 2018	16- July -2023
		Gujarat						
	Instance - 11: Pune	Pune, Maharastra	Y 0355612	Y 0355568	Secure	0.2s	31- January - 2018	30 - January - 2023

