40MW BUNDLED SOLAR PROJECT IN TELANGANA, INDIA

Document Prepared by **VKU Certification Pvt. Ltd.**

Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh, India - 452020

URL: http://vkucertification.com

E-mail:info@vkucertification.com

Project Title	40 MW Bundled Solar Project in Telangana, India
Version	02
Report ID	VKU.VER.111.23_VCS_1990

Report Title	40 MW Bundled Solar Project in Telangana, India
Client	Infinite Solutions
Pages	75

Date of Issue	24-November-2023
Prepared By	VKU Certification Pvt. Ltd.
Contact	Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh - 452020 URL: http://vkucertification.com E-mail: info@vkucertification.com
Approved By	Dr. Vikas Kumar Aharwal (Founder and Director) vikas.aharwal@vkucertification.com
Work Carried Out By	Sunil Kathuria- Team Leader cum Technical Expert TA 1.2 (Solar) Sanjay Kumar- Technical Reviewer cum Technical Expert TA 1.2 (Solar) Shivani Chauhan- Validator/Verifier Km Nisha Chauhan- Project Trainee

Summary:

M/s VKU Certification Pvt. Ltd. (here after referred as VKU) was commissioned by M/s Infinite Solutions and has verified the greenhouse gas emission reduction reported for the project activity **"40 MW Bundled Solar Project in Telangana, India." (VCS ID 1990[1])**, covering third monitoring period from **01-January -2021 to 31-December-2022** (Inclusive of both days) under first renewable crediting period from **22-December-2017 to 21-December-2027**(Inclusive of both days) with regard to the relevant requirements for VCS Standard version 4.5/5/. The project activity entails the installation of solar energy projects in Telangana, India. The project involves generation of electricity from solar panels with installation capacity of 40 MW_{AC} which employs solar energy to generate electricity and then distributes the electricity to the Indian National Grid.

Purpose of the Verification: The purpose of the verification is to have an independent review of ex-post determination of the monitored GHG emission reductions. It also includes to verify that the monitoring methodology is implemented according to the monitoring plan and monitoring data used, confirms the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner from **01-January-2021 to 31-December-2022** (Inclusive of both start and end dates) under first renewable crediting period from **22-December-2017 to 21-December-2027** (Inclusive of both start and end dates).

The verification scope of the project is:

- To verify that the project is implemented as described in the registered VCS Joint PD&MR /03/
- To assess the project's compliance with other relevant rules including the Indian legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary carbon units without any double counting /16/.
- 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
- 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.

VKU conducted the verification process in accordance with its own established procedures, aligning with the requirements set forth in the VCS Program Guide version 4.4/4/, VCS Standard version 4.5/5/, VCS Validation and Verification Manual version 3.2/21/, and relevant decisions of the COP/MOP and applying standard auditing techniques.

[1] https://registry.verra.org/app/projectDetail/VCS/1990

The verification process encompassed a desk review, on-site assessment, resolution of any outstanding matters, and the issuance of the final verification report and certification.

VKU diligently followed a rule-based approach during the verification process, ensuring strict adherence to the applicable VCS requirements. The verification encompassed a comprehensive assessment of the project activity's operations, monitoring procedures, and GHG emission reduction calculations. As a result, a total of **08 findings were raised, which includes: 05 Corrective Action Request (CARs); 03 Clarification Requests (CLs) and 00 Forward Action Required (FARs)**. All the raised findings were successfully resolved/closed after necessary corrections/clarifications by the client. The same has been discussed in Appendix B of this verification report.

The verification team ensured that the reported emission reductions are complete and accurate in accordance with applicable VCS requirements to be certified therefore the verification team has detected no further uncertainties.

The GHG emission reductions were calculated on the basis of the approved methodology ACM0002 "Grid Connected Renewable Electricity Generation from renewable sources" Version 19.0/7/ and Tool to calculate the emission factor for an electricity system; Version 07.0/8/ and Tool for the demonstration and assessment of additionality; Version 07 and the monitoring plan included in the registered VCS Joint PD & MR/3/ version 02 dated 18-December-2019.

The project has also referred to following documents.

- Tool to calculate the emission factor for an electricity system - Version 07.0 (EB 100, Annex 04)/8 /
- Methodological Tool- Tool for the demonstration and assessment of additionality Version 07.0.0 (EB 70, Annex 08)/ 9/
- VCS:VCS Standard ,version 4.5 dated 29-August-2023/ 5/
- VCS:VCS Program Guide ,version 4.4 dated 29-August-2023 /4/
- VCS Validation and Verificatio manual version 3.2 dated 19-October-2016/21/
- VCS: Monitoring report template Version 4.2/6 /
- CDM Validation and Verification Standard version 3.0

Summary of the verification conclusion;

In conclusion, it is VKU's opinion that the project activity **"40 MW Bundled Solar Project in Telangana, India."** (**VCS ID 1990**), meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology ACM0002 "Grid Connected Renewable Electricity Generation from renewable sources" **Version 19.0**/7/. The monitoring system is in place and the emission reductions are calculated without material misstatement.

The monitoring system in place is effective and reliable, ensuring reasonable level of measurement and precision level allowed by the methodology and the VCS standards without any significant discrepancies. As a result, VKU is able to objectively state that the project has achieved an emission

reduction of **154,169 tCO_2e** under **first crediting period from 22-December-2017 to 21-December-2027**; (Including both days) during the third verification of the project activity for monitoring period from **01-January -2021 to 31-December-2022 (Inclusive of both days).**

CONTENTS

1 INTRODUCTION

1.1 Objective

M/s Infinite Solutions has commissioned M/s VKU Certification Pvt Ltd. (here after referred as VKU) to carry out the third periodic verification of the project **"40 MW Bundled Solar Project in Telangana, India" (VCS ID 1990)** for the monitoring period from **01-January-2021 to 31-December-2022** (Inclusive of both start and end dates) under first renewable crediting period from **22-December-2017 to 21-December-2027**(Inclusive of both days) for a period of 2 years (730) days. The project activity follows a renewable crediting period] of 10 years, which can be extended a maximum of two times, as outlined in **section 1.6** of VCS Joint Project Description and monitoring report version 2.0 dated 18-December-2019/3/.

The verification will be performed by review of evidences & documents submitted to the VVB by PP, for the registered project activity to establish that:

- To have an independent evaluation of project activity by an accredited validation and verification body against the requirements of the VCS Program Guide Version 4.4/4/, VCS standard version 4.5/5/ and UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting, on the basis of the registered VCS Joint PD&MR /3/
- The bundle project activity has been implemented and operating as per the registered VCS Joint PD&MR/3/ and that all physical features (technology, project equipment, and monitoring) of the project are in place;
- Monitoring report/1/ and other supporting documents submitted by PP 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/16/
- 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

The objectives of this verification exercise are, by review of objective evidence, to establish that the monitoring system is operational and capable of generating Verified Carbon Units (VCUs) without any instances of double counting/16/, and to ensure the accuracy, completeness, consistency, transparency, and absence of significant errors or omissions in the reported data, an examination of the monitoring records and emissions reduction calculations is conducted. This aims to establish the reliability and integrity of the data.

1.2 Scope and Criteria

The scope of this verification is the independent, objective review and ex-post determination of the monitored reductions in GHG emissions from the "40 MW Bundled Solar Project in Telangana, India" (VCS ID 1990) in India for the period from **01-January-2021 to 31-December-2022** (Inclusive of both start and end dates). The verification of this project was based on the validated & registered VCS Joint PD&MR/3/ and monitoring report/1/ along with supporting documents submitted by the project proponent to the VKU Assessment team. The documents thus submitted to the VKU Assessment team were reviewed against the following guidance & protocols:

The steps involved are as follows:

- To verify that the project is implemented as described in the registered VCS Joint PD&MR /03/
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate VCUs without any double counting/16/.
- 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.
- 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 verification method and criteria encompassed several phases, including

i Desk review of VCS Joint Project Description & Monitoring report, registered under version 02 on 18-December-2019/03/and other supporting documents listed in **Table No.-04;**

ii Onsite interviews & Focussed Group Discussions, Stakeholders & PP representatives involved in project's implementation.

iii Resolution of outstanding issues and Completeness/Quality Check and the Final issuance of the verification report and applicable VCS Verification Deed of Representation.

It is important to note that the verification process does not involve providing consultancy to the project proponents. However, requests for clarifications and corrective actions may have contributed to improvements in the monitoring process.

1.3 Level of Assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent VKU's procedure, with a **Reasonable level of assurance,** as per section 04 clause 4.1.2 of the VCS Standard version 4.5/5/

The threshold for quantitative materiality with respect to the aggregate of errors, omissions, and misrepresentations, relative to the total reported GHG emission reductions and/or removals was to 5% percent, as required by clause 4.1.8 of the VCS Standard version 4.5/5/. As the project is small scale project, The materiality of the project activity based on actual emission reduction achieved is **5%** of **154,169 tCO_2e.** which is equal to **7,708.45 tCO_2e.**

The verification report is based on the Monitoring report/1/, VCS Joint Project Description & Monitoring report version 02 dated 18-December-2019/3/ & supporting documents that were made available to the VKU's assessment team are (11//12//13//14//16/22//23//26//28//29//30//31/) to the verification team and information collected through performing interviews /24/ with PP Representatives/Local Stakeholders during on-site visit/19/.

The technical review was performed by a technical reviewer(s) qualified in accordance with VKU's qualification procedure.

The verification team and the technical reviewers consist of the following personnel:

Table No 01: The Assessment Team members are as follows:

Role/Qualification	Last Name	Middle Name	First Name
VCS Team Leader, & Technical Expert T.A. 1.2 (Solar)	Kathuria	NA	Sunil
Validator/Verifier	Chauhan	NA	Shivani
Project Trainee	Chauhan	NA	KM Nisha

Table No 02: The Technical Review members is as follows:

Role/Qualification	Last Name	Middle Name	First Name
Technical Reviewer & Technical Expert T.A. 1.2 (Solar)	Kumar	NA	Sanjay

1.4 Summary Description of the Project

The project activity involves electricity generation by solar panels (renewable source) and supplying the generated electricity to the National Electricity Grid of India. This is a greenfield project activity i.e., there was no renewable energy-based electricity generation facility in the site of this project and equivalent amount of electricity would have been supplied by fossil-fuel dominated grid – which is pre-project scenario as well as baseline scenario for this project activity. The project activity ensures the reduction of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change.

The project activity is grid-connected solar energy generation, located in Village: Mandamarri, District: Mancherial, State: Telangana, Country: India. The project is a bundle project activity by **Greenko Group** and the project is promoted by **Grinibhrit Solar Power Limited.**

The project activity involves total installation of Solar energy generation panels of **40 MW (AC)** and the power produced displaces an equivalent amount of power from the National Indian Grid, which is fed mainly by fossil fuel fired power plants. This project was commissioned on **22-December-2017** and has been running satisfactorily since then. All 4 sites included under this bundled project activity were commissioned on **22-December-2017** out of **40MW; 32MW was commissioned on 22-December-2017** and the rest **8 MW was commissioned on 17-January-2018**. The entire project is in continuous operation since its date of commissioning of the solar power project, as witnessed by the assessment team during our observations of Inverters and transformer, switchgear connectivity during onsite visit. It was further verified against the registered VCS Joint PD&MR/3/ previous verification reports and commissioning certificates/14/. Above documents have been submitted by PP in response to the feedback raised during assessment. This is in line with section **3.26** and clause **3.26.3** of the VCS Standard version 4.5/5/ where it is an obligation for the project proponent to make available to the VVB the required supporting documents.

Hence VKU in adherence to the section 3.1, clause 3.1.8 of the VCS Standard version 4.5/5/ conforms that the capacity of the project has been verified from the commissioning certificates/14/. This is also verified during on site visit, while interviewing the site personnels, and hence declare that the project capacity is in line with the defined methodology ACM0002 version 19.0/7/ & registered VCS joint PD&MR /3/

Table No 03: The details of the SPVs for the project and their location of installation are mentioned

Project Participant	Project Capacity (AC)	Connected with Grid	Project location	State
1. Grinibhrit Solar Power Limited	10 MW	Indian Grid	Village:Mandamarri District: Mancherial Longitude: 18°58'30" N Latitude: 79°25'33.6"E	Telangana
2. Achintya Solar Power Limited I	10 MW			
3. Achintya Solar Power Limited II	10 MW			
4. Suvarchas Solar Power Limited	10 MW			

As per MR/1/, the electricity generated from the project is supplied to the state grid system which is under the purview of the Unified Indian Grid. This is confirmed by means of registered VCS Joint PD & MR version 02 dated 18-December-2019/3/, Joint Meter Reading issued by Telangana State Northern Power Distribution Company Limited (TSNPDCL), previous verification reports and interview with PP. This information was verified during on site assessment and found to be in line with the details provided in the registered VCS Joint PD&MR /3/.

The net electricity of **164,571.40 MWh** was generated by the bundled project activity and was evacuated to the grid, during the current monitoring period from **01-January-2021 to 31-December-2022** (Inclusive of both start and end dates) which resulted in total emission reductions of **154,169 tCO_2e** which is **0.48 %** lower than the estimated value of **154,912 tCO_2e** due to low PLF in current monitoring period due to low sunshine hours and some minor breakdown which did not have major impact on generation, hence this low PLF generation is acceptable. This information was verified by document review and interview with PP representative's present onsite of the project activity. The verification team confirms that all the components of installed technology are fully functional and found to be in line with the details provided in the registered VCS Joint PD&MR version 02 dated 18-December-2019/3/.

The project activity follows approved large scale CDM methodology **ACM0002 Version 19.0** /7/ for quantification of GHG emission reductions. The total emission reductions achieved by the project activity under the verification period from **01-January -2021 to 31-December-2022** (Inclusive of both days) amount to **154,169 tCO_2e.**

2 VERIFICATION PROCESS

The registered VCS project is undergoing third verification under VCS, the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Verification was conducted using VKU's procedures in line with the requirements specified in the VCS Requirements, i.e., VCS Program Guide version 4.4/4/, VCS standard version 4.5/5/. The GHG emission reductions are on the basis of the approved Baseline **and monitoring methodology ACM0002: "Grid Connected Renewable Electricity Generation from renewable sources" Version 19.0/7/.**

Scope: 01 Energy Industries (renewable- and non-renewable)

Title: "Grid Connected Renewable Electricity Generation" (version 19.0) /7/.

Tools used for GHG Calculations are as follows as per registered PD&MR /3/:

- Tool to calculate the emission factor for an electricity system, Version 07.0 /8/
- Tool for the demonstration and assessment of additionality --- Version 07.0 /9/

During onsite visit/19/ verification team **reviewed 100% data for all the PV Modules, Inverters and Transformers** involved in this project **and hence no sampling is involved.**

The verification consisted of the following phases:

1. **Planning and Intimation to VERRA about site visit:** The assessment team plans the GHG-programme site visit and starts with a desk review of MR/1/ and ER calculation spreadsheet/2/. Assessment team also shared a NOVS Form 15 business days before the initial meeting with the project proponent.
2. **Strategic Analysis:** The assessment team conducted a strategic analysis to gain insights into the organization's, project activities. This analysis was aimed at determining the scope and scale of the verification activities and will be utilized in the risk assessment process.
3. **Risk Assessment;** The assessment team carried out a risk assessment of the GHG statement to identify the likelihood of a substantial error or noncompliance with the established criteria.
4. **Evidence Gathering Activities;** Using a risk-based approach assessment team prepared the evidence gathering activities to collect sufficient and appropriate evidence upon which to base the conclusion & determine whether the GHG statement conforms to the criteria, taking into account the principles of the standards that apply to the GHG statement.
5. The requirement for a site visit is recognized, and subsequently, the planning for the site visit is undertaken. Decision to take site visit was based on independent risk assessment, as defined in section 4.1.13 of VCS standard version 4.5/5/
6. **Audit and Sampling Plan:** An audit plan is prepared, including all sub-elements required for an integrated verification process aligned with the contract, scope, objectives, level of assurance, and materiality.
7. **Evidence Gathering Plan:** The evidence-gathering plan is formulated in accordance with the risk assessment conducted by VKU Assessment Team. This plan is structured to reduce the

verification risk to a level considered acceptable. As a result, the evidence-gathering plan outlines the specific nature and scope of the evidence collection activities.

8. **Client Confirmation and Approval:** The audit plan for the site visit is shared with the client for their review and confirmation, and it has received their approval,
9. **Document Review:** Relevant documents, such as the verification report, monitoring plan, methodology, VCS Joint PD&MR/3/, and QA/QC procedures, are thoroughly reviewed.
10. **On-Site Assessment:** This includes interviews and evaluation of the actual project scenario and this is line with the VCS standard version 4.5 /5/
11. **Resolution of Discrepancies:** Any non-conformities identified during the assessment are addressed and resolved and documented in Appendix-B of this report.
12. **Independent Review:** A technical reviewer provides an independent assessment of the project.
13. **Final Verification:** After completeness checks, the verification report and certification are issued.

The following sections outline each step involved in verification in more detail.

2.2 Document Review

During the document review, VKU has applied standard auditing techniques to assess the quality of information provided. the verification was performed primarily based on the review of the monitoring report (MR) version **01** dated **06-May-2023**, MR version **02** dated **23-August-2023,** and final MR version **03** dated **09-November-2023**

The emission reduction calculations spreadsheet version **01** dated **06-May-2023**, ER spreadsheet version **02** dated **23-August-2023,** and final ER spreadsheet version **03** dated **09-November-2023** received from PP /2/ were assessed also along with the monitoring reports as part of the verification. In addition, the registered VCS Joint PD & MR/3/ in particular the baseline estimations and the monitoring plan for the project was reviewed. The following table lists the documentation that were reviewed during the verification.

As per section 3.26 and clause 3.26.3 of the VCS Standard version 4.5/5/ it is an obligation for the project proponent to make available to the assessment team the required supporting documents and data needed to support statements and data as documented in the monitoring report/1/. Thus, the assessment team reviewed the following documents during verification:

Table No. 04: Documents referred during the Assessment for the 3rd Verification of VCS 1990

/1/	Infinite: VCS monitoring report for "40 MW Bundled Solar Project in Telangana, India" • Version 1.0 dated 06-May-2023 • Version 2.0 dated 23-August-2023 • Version 3.0 dated 09-November-2023
/2/	Infinite: Emission Reduction Calculation Spreadsheet • Version 1.0 dated 06-May-2023 • Version 2.0 dated 23-August-2023 • Version 3.0 dated 09-November-2023
/3/	Registered VCS Joint PD & MR- "40 MW Bundled Solar Project in Telangana, India" version 02 dated 18-December-2019
/4/	VCS: VCS Program Guide, version 4.4 dated 29-August-2023
/5/	VCS: VCS Standard, version 4.5 dated 29-August-2023

/6/	VCS: Monitoring report Template VCS Version 4.2
/7/	CDM Executive Board: Baseline and Monitoring Methodology ACM0002 "Grid Connected Renewable Electricity Generation from renewable sources" Version 19.0
/8/	Tool to calculate the emission factor for an electricity system - Version 07.0 (EB 100, Annex 04)
/9/	Methodological Tool- Tool for the demonstration and assessment of additionality - Version 07.0.0 (EB 70, Annex 08)
/10/	CO2 Baseline Database for the Indian Power Sector User Guide Version 14.0
/11/	JMRs issued by the state utility (TSNPDCL)
/12/	Certificates of Calibration for all the meters belongs to project activity
/13/	Invoice issued by PP to state utility for the current monitoring period
/14/	Commissioning certificate of all the solar panels of the project activity issued by state electricity authority
/15/	VCS Joint Validation & Verification Report version 02 dated 19-December-2019
/16/	Letter of declaration from PP regarding not having created or sought any other form of environmental credit for the current monitoring period
/17/	Central Electricity Authority (Installation and Operation of Meters) Regulations Notified on 17-March-2006 No. 502/70/CEA/DP&D Amendments Notified on 26-June-2010 No. 502/6/2009/DP&D/D-I
/18/	TÜV SÜD South Asia Pvt. Ltd: previous Verification report "40 MW Bundled Solar Project in Telangana, India" version 2.0 dated 16-April-2021 covering monitoring period 01-January -2021 to 31–December-2022
/19/	Site Visit Photographs videos and attendance sheet dated 11-June-2023
/20/	VERRA: https://registry.verra.org/app/projectDetail/VCS/1990
/21/	VCS Validation and verification manual version 3.2 dated 19-October-2016
/22/	Technical Specifications of solar panels
/23/	Grievance Register present on site
/24/	On site personnel interview dated 11-June-2023
/25/	GPS Google software used for location during onsite visit
/26/	Breakdown details for current verification period
/27/	REC website Renewable Energy Certificate Registry of INDIA https://www.recregistryindia.nic.in/index.php/publics/faqs
/28/	Power Purchase Agreement
/29/	Operation and Maintenance done by Greenko Itself
/30/	Daily generation Log Book
/31/	Training records of Site personnels
/32/	VKU.F64W.Field Assessment Checklist for Onsite Visit_ VKU.VER.111.23_VCS _1990

2.3 Interviews

An on-site inspection has been performed by the assessment team. The representatives of the PP and O&M team were interviewed personally by assessment team on **11-June-2023 in Telangana** i.e., Tables 06 & 07 provide a comprehensive overview of the onsite interview process/24/ conducted during the verification. These tables outline the personnel involved in the interviews, along with their respective roles. The interviews specifically targeted individuals responsible for monitoring of the project activity, data collection and management, as well as those involved in the quality assurance and quality control (QA/QC) procedures. The tables serve to identify the individuals interviewed and provide relevant information regarding their roles within the project.

The details of the people interviewed are mentioned in the table below:

Table No: 05: Details of Personal Interview & /Focussed Group Discussion with Technical Team present Onsite

S No.	Name	Gender	Designation	Topic
1.	G. Radhakrishna	Male	Advisor	• Data archiving, breakdown details. • Maintenance of generation records and Calibration of meters. • Project Implementation and technical details of the Project like breakdown details. • Training requirement of the personnels. • O&M of the plant site and personnel responsible for monitoring of required monitored parameters and implementation of QA/QC Procedure.
2.	Pravan Kumar	Male	Site In-charge Manager	
3.	K.Ravitheja	Male	Deputy Manager	
4.	S. Naveen	Male	Assistant Manager	
5.	B. Venkatram	Male	Assistant Manager	

The topics covered during interview ranges from general features and implementation of project to technical details of the project like Meter calibration details, monitoring and measuring system, data collection, recording, emergency procedures, internal audit, Procedures for handling non-conformances with the validated monitoring plan, personal training and archiving procedures/31/. The assessment was based on the feedback received during onsite interview coupled with the documentation in **VKU.F62W.Field Assessment Checklist for Onsite Visit**.

During Onsite Visit/19/, Assessment team also interviewed the local stakeholders involved in the projects to verify the implementation and process of grievance resolution as claimed and mentioned in the Monitoring report/1/ (refer section 2.2 of MR) by the PP. The assessment team confirmed the sustainable development claims and assessed the socio-economic impact of the project on the local community. Assessment Team also checked the records and observed that

the PP provided opportunities for the locals to express their opinions and grievances, with efforts to resolve any issues through consultation with stakeholders. Assessment team thus verified all the above statements via focussed group discussions and personal interview/24/ with stakeholders and was hence acceptable to VKU that PP has a well-defined procedure for involving local stakeholders in the project implementation and that their grievances are resolved appropriately, although no negative feedback was received during current monitoring period. as tabulated below:

Table No: 06: Details of Personnel Interview/Focussed Group Discussion with Stakeholders

S No.	Name	Gender	Category	Topic of Discussion
1.	J.Mahendar	(Male)	Local Stakeholder	• Implementation of Project activity and its impact on the economic, social and environmental parameters around the located project activity and on the local people of the area. • The employment generation due to project activity implementation. • Salary and other facilities like safety equipment provided on site during
2.	R. Mahesh	(Male)	Local Stakeholder	
3.	Ch. Mallash	(Male)	Local Stakeholder	

VKU Assessment Team documented the information obtained during the interview with site personnel/24/. This data was recorded using VKU's dedicated form, specifically VKU.F46W, known as the Attendance Sheet of Onsite Audit/19/. Similarly, the interviews conducted with local stakeholders. Through a comprehensive process involving documentation, desk review, document verification, and interviews with site personnel the VKU Assessment Team affirms that no negative comments were received during the on-site interviews conducted by the team. For further details, please refer to section 4.2.2 below.

2.4 Site Visits

Site Location Visited:

Location: Village: Mandamarri, District: Mancherial, State: Telangana, Country: India.

Further the location along with longitude and latitude is mentioned in section 4.1 of this report.

An Onsite visit was undertaken by the verification team to the project location identified in the MR at Mancherial District on **11-June-2023** in Telangana state India to carry out the following;

a) A review of the operation and implementation of the registered project activity in accordance with the VCS Joint PD & MR version 02 dated 18-December-2019 /3/ and VCS MR/1/approved documents;
b) An analysis of the information flows used to generate, aggregating and reporting the monitoring parameters;
c) Interviews/24/ with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the registered VCS PD&MR version 02 dated 18-December-2019/3/.
d) A cross check between information provided in the monitoring report and data from other sources such as plant logbooks, online monitoring system,
e) A check of the monitoring equipment including their calibration, performance and records of monitoring practices against the requirements of registered VCS joint PD&MR/3/, applied methodology including applicable tool(s), and, wherever applicable & the applied standardized baseline;
f) A review of calculations and assumptions made in determining the GHG data and emission reductions;
g) An identification of 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 VKU's positive conclusion on the Joint project description & Monitoring Period. 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 situations in 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 previous assessment i.e., in validation or verification report to be cross 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.

A forward action request (FAR) is also raised in cases where any required deviation/information is not fulfilled in current verification and thus needs to be taken up in consequent verification for better transparency thus holding the applicability of the methodology eligible to the project

activity and there is no impact of the same on additionality, baseline scenario & emission reduction calculation of project.

In summary, **03 CL and 05 CARs and 00 FAR** were raised during this verification which were closed successfully and details are provided under **Appendix B** of this report.

2.5.1 Forward Action Requests

Based on the review of the registered Joint PD & MR and Previous VCS Verification Report, no FAR was raised during previous verification/18/ which needs to be closed during this verification and no FAR has been raised during current verification.

2.6 Eligibility for Validation Activities

VKU has not undertaken any validation activities as part of the verification and does not hold accreditation for validation of any relevant sectoral scope, hence this section is not applicable. It is to further conclude that during current verification there is no validation assessment undertaken either by VKU itself or parallelly by other certification bodies, as the same was confirmed with focussed group discussions and interview with the PP /24/ during site visit.

Assessment team assessed the VERRA's website on **24-November-2023**: https://verra.org/validation-verification/vku-certification-pvt-ltd/#vcs wherein the scope of services of VKU certification Pvt. Ltd. is mentioned as verification and not validation. Thus, ensuring that the accreditation details mentioned in FVR is consistent and correct.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project has not applied under any other GHG program except VCS for current monitoring period, **01-January -2021 to 31-December-2022 (inclusive of both dates).** The project is registered under VCS only with project ID 1990[2]. This was confirmed by checking VERRA registry website and it was found that the project was registered with VCS. Simultaneously other registry websites were also checked such as CDM, GS, CR-I, UCR and GCC registries with similar project title/capacity and Project Proponents but the assessment team could not find any such project registered on these registries thus it was confirmed that the project does not claim any emission reduction from other registries. This was supported from the declaration submitted by PP/16/ in which they have mentioned that they will not claim same GHG emission reductions of the project from any other GHG program except VCS thus ensuring emission reduction generated from the project activity for current monitoring period from **01-January-2021 to 31-December-2022** (Inclusive of both start and end dates) will not be double counted hence accepted by the assessment. Assessment team also did the exercise of independently searching for such project registration or claim for current monitoring period was performed for other GHG related benefits such as REC/27/ and I-REC/27/ benefits and based on both independent assessment and declaration submitted by PP/16/, the assessment team accepted the claim that there is no double counting from this project activity for current monitoring period from **01-January -2021 to 31-December-2022** (Inclusive of both days).

Assessment team has also verified the issuance of VCUs claimed in previous verification against the VCU issuance record registry. Thus, ensuring emission reduction generated from the project activity will not be double counted hence accepted by the assessment team.

The details of the registries checked are as follows:

a. https://www.recregistryindia.nic.in/
b. http://cdm.unfccc.int/
c. http://www.goldstandard.org/
d. I-REC Standard - The International REC Standard Foundation (irecstandard.org)
e. https://cri.nccf.in/
f. International Carbon Registry - International Carbon Registry
g. GCC PROJECTS PORTAL (globalcarboncouncil.com)
h. https://verra.org/verra-standards-and-programs/
i. https://www.ucarbonregistry.io/
j. Bio Carbon registry (https://biocarbonregistry.com/en/projects/)

[2] https://registry.verra.org/app/projectDetail/VCS/1990

k. Social Carbon registry (https://wilder.earth/social_carbon)
l. Cercarbono registry (https://www.ecoregistry.io/)
m. VCU Issuance Records

Rejection by other GHG programs

The Project is not rejected by other GHG programs. A declaration/16/ for the same is checked and found correct by the assessment team. Also, assessment team independently verified with the following registries and checked projects from the PP matching the same project design and found that no such project either exists or were rejected by the registries. The details of the registries checked are as follows:

a. https://www.recregistryindia.nic.in/
b. http://cdm.unfccc.int/
c. http://www.goldstandard.org/
d. I-REC Standard - The International REC Standard Foundation (irecstandard.org)
e. https://cri.nccf.in/
f. International Carbon Registry - International Carbon Registry
g. GCC PROJECTS PORTAL (globalcarboncouncil.com) https://www.ucarbonregistry.io/
h. https://www.ucarbonregistry.io/
i. Bio Carbon registry (https://biocarbonregistry.com/en/projects/)
j. Social Carbon registry (https://wilder.earth/social_carbon)
k. Cercarbono registry (https://www.ecoregistry.io/)

In conclusion, the project's exclusive registration under VCS for the current monitoring period, along with its absence from rejection lists of other GHG programs, has been comprehensively verified, ensuring the integrity and credibility of its GHG benefits claims.

3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period 01-January -2021 to 31-December-2022 (Inclusive of both days). Also, no methodology deviation was identified during the validation& Verification/15/ previous verification/18/.

3.3 Project Description Deviations

There is no Project Description deviation identified during the current monitoring period 01-January -2021 to 31-December-2022 (Inclusive of both days). Also, no Project Description deviation was identified during the validation& verification/15/ previous verification/18/.

3.4 Grouped Project

The project does not involve any addition of new project activity and thus the project do not fall under grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Based on the onsite audit conducted with the project proponent (PP) representative, it was determined that the project has been implemented in accordance with the requirements outlined in the registered VCS Joint Project Description & Monitoring Report (PD&MR) version 02 dated 18-December-2019/03/ and the approved monitoring plan/03/. The project activity is a bundle project of 40 MW_{AC} in the state of Telangana by four investors listed in **Table No.- 04** above. As described in section 1.4 of this report this is a greenfield renewable project which generates electricity from solar PV modules hence reduces the emissions from the coal based Indian grid. After commissioning on 22-December-2017, the plant is satisfactorily working and below Table No. 08 presents the breakdown and operational hours percentage of the plant site for the current monitoring period.

Table No. 07: Breakdown Details of the project activity divided into Scheduled and Unscheduled hours

Plant Site	Total Operational Hours for all four sites	Net Operational Hours	Scheduled and Unscheduled Breakdown hours	% decrease
Village: Mandamarri; District: Mancherial; State: Telangana, India.	100%= 70,080Hrs	99.88%= 69,999.6Hrs	0.12%= 84:40 Hrs	0.12 %

Table No. 08: Breakdown Details for Achintya-I plant site

Date	Fault Description	Operational Hours	Scheduled and Unscheduled Breakdown hours [HH:MM]	Net Operational Hours	% decrease
17-February-2021	Grid Failure in Bay Extension	100%= 17,520Hrs	0:56	17,520:00-21:10= 17,499:90 hours (99.88%)	0.12%
21-March-2021	Manual shutdown For Energy Meter Calibration		1:32		
29-April-2021	Manual Shutdown Taken for New CT, PT Testing & Erection Work at Bay Extension		11:00		
20-February-2022	LC taken for Mandamarri bay extension		3:20		

	maintenance by Govt. officials				
23-March-2022	Grid Failure in Bay Extension		0:45		
29-March-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		1:15		
25-September-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		2:22		
Total Breakdown hours			**21:10**		

Table No. 09: Breakdown Details for Achintya-II plant site

Date	Fault Description	Operational Hours	Shut down time [HH:MM]	Net Operational Hours	% decrease
17-February-2021	Grid Failure in Bay Extension	100%= 17,520Hrs	0:56	17,520:00-21:10= 17,499:90 hours (99.88%)	0.12%
21-March-2021	Manual shutdown For Energy Meter Calibration		1:32		
29-April-2021	Manual Shutdown Taken for New CT, PT Testing & Erection Work at Bay Extension		11:00		
20-February-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		3:20		
23-March-2022	Grid Failure in Bay Extension		0:45		
29-March-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		1:15		
25-September-2022	LC taken for Mandamarri bay extension		2:22		

	maintenance by Govt. officials				
Total Breakdown hours			**21:10**		

Table No. 10: Breakdown Details for Grinibhrit plant site

Date	Fault Description	Operational Hours	Shut down time [HH:MM]	Net Operational Hours	% decrease
17-February-2021	Grid Failure in Bay Extension	100%= 17,520Hrs	0:56	17,520:00-21:10= 17,499:90 hours (99.88%)	0.12%
21-March-2021	Manual shutdown For Energy Meter Calibration		1:32		
29-April-2021	Manual Shutdown Taken for New CT, PT Testing & Erection Work at Bay Extension		11:00		
20-February-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		3:20		
23-March-2022	Grid Failure in Bay Extension		0:45		
29-March-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		1:15		
25-September-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		2:22		
Total Breakdown hours			**21:10**		

Table No. 11: Breakdown Details for Suvarchas plant site

Date	Fault Description	Operational Hours	Shut down time [HH:MM]	Net Operational Hours	% decrease
17-February-2021	Grid Failure in Bay Extension	100%= 17,520Hrs	0:56	17,520:00-21:10=	0.12%

21-March-2021	Manual shutdown For Energy Meter Calibration		1:32	17,499:90 hours (99.88%)	
29-April-2021			11:00		
20-February-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		3:20		
23-March-2022	Grid Failure in Bay Extension		0:45		
29-March-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		1:15		
25-September-2022	LC taken for Mandamarri bay extension maintenance by Govt. officials		2:22		
Total Breakdown hours			**21:10**		

The SPVs are under operation for 99.88% of the total hours during the current monitoring period. The breakdown occurred only for a total of 0.12% for this plant site and it is beyond the control of PP. Therefore, due to this minor percentage variations of breakdown identified in the current monitoring period it does not have major impact on the GHG emissions reductions. The summary of breakdown details in the current monitoring period has been described in detail in Appendix 02 of MR/1/. These were assessed by assessment during site visit with the help of interviews of site personnel and checking the records at the site and desk review of the MR/1/ and breakdown sheet/26/ submitted by PP for the four sites.

Assessment team observed through breakdown details provided by PP /26/and Appendix 02 section of MR/1/ that no unforeseen incident/event evolved which can impact the operation of the project activity. The project underwent continuous operation and only scheduled maintenance as per the manufacture's specification happened which is acceptable to the assessment team as verified during the interview with PP personnel/24/ Senior engineers/Junior engineer/Assistant manager present at site during onsite visit. Moreover, there is no unforeseen incident which can affect the applicability of the methodology and thus the same is acceptable to the assessment team.

During the current monitoring period, the solar modules generated 164,571.40 MWh electricity. The electricity is supplied to a Sub-Station transformer, which further steps up the voltage to 33KV from 405V_{AC} generated at the SPV end. It is further stepped up to 132KV within the plant boundary from 33KV. The electricity is then evacuated through Grid Sub-station, at the Village: Mandamarri; District: Mancherial; State: Telangana, India. This electricity is subsequently supplied to the Indian Grid.

This information has been verified and confirmed through the registered VCS Joint PD&MR/3/, VCS Joint Validation and Verification report/15/, the last Verification report/18/ as well as through onsite interviews conducted with the site personnel/24/.

The breakdowns were attributed to various minor reasons, which may include:

- Manual shutdown For Energy Meter Calibration
- Grid Failure in Bay Extension
- Manual Shutdown Taken for New CT, PT Testing & Erection
- LC taken for Mandamarri bay extension maintenance by Govt. officials

The project activity was operational for a total of 70,080 hours (99.88%), representing 730 days. However, during the monitoring period from 01-January-2021 to 30-December-2022, the project experienced breakdowns for a duration of 84.40 hours (0.12%), as detailed in section 3.1 of the monitoring report (MR). It is important to note that the plant was not entirely shut down during these breakdown hours/26/; only the affected parts were temporarily taken out of operation.

The verification process involved review of generation log book records/30/ and breakdown excel sheet/26/ provided by the project proponent (PP). Additionally, an onsite visit to the project site/24/ was conducted, where it was confirmed that only the affected parts were shut down while the rest of the plant remained operational. This information is consistent with the details mentioned in Section 3.1 and Appendix 2 of the MR/1/. The assessment team also conducted interviews with key personnel from the PP, including site in charge manager, deputy manager, and an assistant manager/24/. These interviews took place on 11-June-2023 during the onsite visit conducted by the verification team/19/.

During the current monitoring period, all the solar power plants were operational and the project activity has supplied **164,571.40 MWh** of electricity, and thus contributing to **154,169 tCO_2e** GHG emission reductions. The ex-ante emission reduction for this monitoring period as per registered VCS Joint PD & MR/3/ were **154,912 tCO_2e,** whereas actual emission reductions achieved are **154,169 tCO_2e**, which is **0.48%** lower than the estimated emission reductions due to lower sunshine hours, low PLF and minor breakdowns during this monitoring period. Further explanation is provided section 4.5 of this report.

GHG Emission Reductions,

Table No. 12: PP present the months wise calculation in monitoring report /01/

Month Wise	Generation MWh (SDG 7)	Emission Reduction tCO_2 (SDG 13)
01-January-2021 to 28-January-2021	6,215.91	5,823.06
29-January-2021 to 28-February-2021	8,006.60	7,500.58
29-February-2021 to 28-March2021	7,207.70	6,752.17
29-March-2021 to 28-April-2021	7,857.30	7,360.72
29-April-2021 to 28-May-2021	5,404.65	5,063.07
29-May-2021 to 28-June-2021	6,686.60	6,264.01
29-June-2021 to 28-July-2021	5,659.60	5,301.91
29-July-2021 to 28-August-2021	5,701.40	5,341.07
29-August-2021 to 28-September-2021	5,822.60	5,454.61
29-September-2021 to 28-October-2021	7,380.80	6,914.33
29-October-2021 to 28-November-2021	6,635.60	6,216.23
29-November-2021 to 31-December-2021	6,955.60	6,516.01
01-January-2022 to 28-January-2022	6,705.10	6,281.34
29-January-2022 to 28-February-2022	8,499.70	7,962.52
29-February-2022 to 28-March-2022	7,141.70	6,690.34

29-March-2022 to 28-April-2022	7,991.70	7,486.62
29-April-2022 to 28-May-2022	7,963.30	7,460.02
29-May-2022 to 28-June-2022	6,901.80	6,465.61
29-June-2022 to 28-July-2022	4,296.50	4,024.96
29-July-2022 to 28-August-2022	6,154.10	5,765.16
29-August-2022 to 28-September-2022	6,306.20	5,907.65
29-September-2022 to 28-October-2022	7,226.90	6,770.16
29-October-2022 to 28-November-2022	8,026.60	7,519.32
29-November-2022 to 28-December-2022	7,121.10	6,671.04
29-December-2022 to 31-December-2022	702.35	657.96
Total	**164,571.40 MWh**	**154,169 tCO_2e (Round down)**

The assessment team has concluded that the breakdowns and the resulting partial shutdown of the project activity do not have a significant impact on the calculation of emission reductions (ER). The project underwent continuous operation, with only the affected parts being temporarily shut down. This approach is deemed acceptable by the assessment team and is verified to align with the methodology. Furthermore, no unforeseen incidents were identified that would affect the applicability of the methodology.

During the onsite audit/19/, the assessment team confirmed that there were no changes in the project design. The capacity of the solar panels remained the same, and the project was implemented in accordance with the details provided in the registered VCS PD&MR/03/, which was verified by the assessment team during onsite visit/19/ Thus this confirmation was further supported by reviewing the registered Validation report/04/ and previous verification reports/18/.

The assessment team also conducted a verification of the project location. This was accomplished through a desk review using google earth/25/ and during the onsite visit using GPS map camera software/25/. The latitude and longitude coordinates specified in the registered VCS PD&MR/03/, VCS Validation Report/04/, and VCS MR/01/ were confirmed to be accurate. **Figure 01** below from the google earth pro software/23/ shows the entire location of SPVs installed at the site.

Figure 01: : Location of the project as verified through Google Earth

The commissioning dates of 40MW (AC) solar project along with the longitude and latitude are mentioned in below table:

Table No: 13; The commissioning dates along with the longitude and latitude

Project Proponents	Capacity (AC)	Date of commissioning	Project location	Geo coordinates
1. Grinibhrit Solar Power Limited 2. Suvarchas Solar Power Limited	32 MW	22-December-2017	Village: Mandamarri District: Mancherial State: Telangana Country: India	18°58' 30" N 79°25'33.6" E
3. Achintya Solar Power Limited-II 4. Achintya Solar Power Limited I	08 MW	17-January-2017		

Assessment team checked the commissioning certificates of all 4 sites/14/ and confirmed that the dates of commissioning for the Project are correct. Assessment team also confirmed during the onsite audit that there is no change in project design viz., capacity of the solar panels remained the same and the project is implemented as per the description provided in the registered VCS Joint PD&MR /3/. This has been further verified from the registered VCS Joint Validation & Verification report/15/ and previous verification reports/18/. For commissioning dates/31 /, see **Table No.-13** of this report.

The verification team conducted a thorough assessment of the implementation status of the project activity and the installed instrumentation. This evaluation included an onsite visit/19/ to

verify the technical specifications/22/. The team examined the nameplates and confirmed that the installed modules matched the provided specifications. Additionally, the project proponent (PP) submitted supporting documents detailing the salient features of the solar technology. The relevant information from these documents has been compiled and presented in the **Table No. 14** below:

Solar Power Project Technology Details

The adopted technology for the project activity involves the conversion of solar energy into electrical energy. It is important to note that this technology is environmentally friendly, as it does not generate any greenhouse gas (GHG) emissions during the electricity generation process. Furthermore, there is no transfer of technology associated with the implementation of the project activity.

The technical specification for 40 MW solar project is provided below:

Table No: 14 The major technical specifications of the project activity

The technical specification of 40 MW Bundled Solar Project in Telangana, India are as follows			
Solar PV modules:			
Module Supplier	Module Model	Capacity (p)	Number
Renesola	Poly-crystalline	315	72,702
	Poly-crystalline	320	98,826
Mounting Structure Type of PV modules:			
S. No.	Type	Fixed tilt	
1.	Tilt	13^0 South direction	
2.	Pitch(m)	06	
3.	Number of modules per string	21	
4.	Typical mounting unit (rows x columns)	2 x 21	
5.	Orientation of modules (East-West)	Portrait	
Inverters:			
1.	Make	SMA	
2.	Model	Sunny Central 1000CP XT	
3.	Rated Capacity	900 kWp	
4.	No. of Inverters	11	
5.	Rated Input Voltage	405 V	
Auxiliary Transformer:			
1.	Make	VMC	

2.	Rating	160KVA,33KV/415V
3.	S.No	ODUZT-12/VMCL/C/3123
Power Transformer:		
1.	Make	PRIME MEIDEN
2.	Rating	50/60MVA,132/33KV, ONAN/ONAF, WITH OLTC
3.	S.No	WOI-102170129-01/12/17/00177

Based on the interviews conducted with site personnel and the verification team's onsite visit, it has been confirmed that all quality assurance and quality control (QA/QC) procedures specified in the registered VCS joint PD&MR version 02 /3/ have been followed during the operation of the project activity. The monitoring plan outlined in the registered VCS Joint PD&MR version 02/3/ and the applied methodology have been effectively implemented, mentioned all the specified parameters in the current monitoring report.

During the onsite visit and discussions with the project proponent (PP) representative. It was observed that the monitoring plan was implemented as per the registered VCS Joint PD&MR /3/and applied methodology ACM0002, Version 19.0/7/. The organizational role and responsibility as mentioned in the registered VCS Joint PD&MR /3/ is followed onsite. Meters are calibrated as per calibration frequency mentioned in registered VCS Joint PD&MR /3/.

The baseline emission parameters specified in the registered VCS Joint PD&MR version 02 /3/ have been verified, ensuring their accuracy and compliance. The PP has provided a declaration/16/ as an evidence requirement defined under **section 3.24 clause 3.24.3** of VCS Standard version 4.5/5/ stating that they will not claim credits under any other GHG emission reduction scheme, including the Clean Development Mechanism (CDM), for the present monitoring period under VCS. This declaration ensures that there is no possibility of double counting.

Overall, based on the interviews, onsite visit, and verification of documents, it can be concluded that the project activity has adhered to the necessary procedures, monitoring parameters, emergency preparedness, and baseline emission parameters outlined in the registered VCS Joint PD&MR version 02/3/.

Assessment team concludes the following:

a) There are no material discrepancies between project implementation and the project description provided in the registered VCS Joint PD&MR version 02 dated 18-December-2019/3/.
b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and

parameters) is appropriate as per the registered monitoring plan in VCS Joint PD&MR /3/ and MR/1/.

c) There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the Joint project description& Monitoring Report and the applied methodology/7/.

d) Materiality threshold applied is 5% as per 4.1.10 of VCS Standard v4.5/5/, It was concluded that the materiality threshold applicable to the project activity based on the type of project i.e., Project is 5%. This effectively means that there is uncertainty inherent in the estimation of emission reduction of 5%. This is consistent with the section 4.1.10 of VCS standard v4.5 which is equal to 7,708.45 tCO_2e.

e) The GHG emission reductions or removals generated by the project have not been included in any emissions trading program or any other mechanism that includes GHG allowance trading.

f) The project has not received or sought any other form of environmental credit, or has become eligible to do so since Joint validation and verification /15/ and previous verification/18/.

g) The project is registered under VCS [3] only, however PP has submitted the declaration/16/stating, they will not claim same GHG emission reductions of the project from CDM or any other GHG programme for the current monitoring period when project is seeking to get GHG emission reduction from VCS. Assessment team also checked the REC/27/ Mechanism database of India and I-REC/27/ mechanism database found that the project activity is not accredited / registered under REC or I-REC mechanism which was verified from the (Renewable Energy Certificate Registry of India [4] /27/REC)/(International-Renewable Energy Certificate Standard Standard) I-REC[5]/27/ website and same was verified by checking in other GHG programs including GS Registry, CDM, GCC, UCR & CR-I, however PP has submitted the declaration/16/ for the same which is in line with set guidelines of section 3.24 clause 3.24.4 of VCS Standard version 4.5/5/.

h) The project activity complies with indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under section 1.11 of MR/1/. Assessment team has verified the same during on site visit/19/ and found all the indicators to be effective and applicable for the project activity.

i) As per the VCS Standard Version 4.5/5/ clause 3.24.7, specific guidelines are applicable when the producer(s) or retailer(s) of the impacted good or service are identified but not involved in the project or do not possess a website. The project Activity is a solar power project and does not involve any supply chain in the project such as manufacturers, wholesalers, distributers and retailers. So, no indirect upstream and downstream GHG emissions are involved in the project activity. Thus, the Scope 3 emissions are not applicable in this project activity.

[3] https://registry.verra.org/app/projectDetail/VCS/1990

[4] https://www.recregistryindia.nic.in/

[5] I-REC Standard - The International REC Standard Foundation (irecstandard.org)

j) The project activity complies with 2 indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under section 1.11 of MR /1/. Assessment team has verified the same during on site visit and found all the indicators to be effective and applicable for the project activity.

The Project activity has implemented activities that results in 2 SDG Contributions; 7.2 and 13.0.

1. **7.2 i.e. (Renewable energy share in the total final energy consumption)**
   As a part of this project activity lifetime, a total of **403,619.4 MWh** (135,697 MWh[6] in Joint validation and verification + 103,351 MWh in 2nd verification[7] + 164,571.40 MWh) of renewable electricity, has been supplied to the Indian grid by the project activity till the end of the current monitoring period.
   VVB has referred previous verification reports approved by VERRA /18/, JMRs/11/, Invoices/13/ and thus VKU found the above claimed renewable electricity supplied to Indian grid is correct and deemed satisfactory.

2. **13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)**
   Due to installation of this project activity PP has prevented the release of the emission of **378,107 tCO_2e** (127,119 tCO_2e in 1st validation and verification + 96,819 tCO_2e in 2nd verification + 154,169 tCO_2e during current MP) in the atmosphere till the end of the current monitoring period. Thus, proving that the project generates eco-friendly, GHG free power which contributes to sustainable development of the region. VVB has referred previous verification reports /18/, JMRs/11/, Invoices/13/ and thus VKU found the above claimed **Tonnes of greenhouse gas emissions avoided or removed** correct.

All the above stated information was verified by VKU assessment team during onsite visit at the project site by interviewing the site personnel and by conducting focussed group discussion with them /24/. There are no potential harmful socio-economic and environmental effects in the project activities. The project activity does not have any major adverse impacts on environment during its construction or operational phase. VKU assessment team has assessed the project activity on site and confirms that there were no negative environmental and socio-economic impacts observed during current monitoring period as this is a solar power project and all necessary measures were found in place which was confirmed during site visit.

- As per the section 1.1 of the MR/1/, PP has provided the audit history as below

[6] file:///C:/Users/hp/Downloads/FVR-13319%20(3).pdf

[7] file:///C:/Users/hp/Downloads/VCS-Verification-Report-Grinibhrit%20(1).pdf

Table No: 15 Audit History Table

Audit Type	Monitoring Period Dates (Inclusive of both start and end dates)	Program	Numbers of Years	VVB Name	VCUs Issued	Conclusion
Validation + Verification	First Monitoring Period from 22-December-2017 to 28-September-2019 (Inclusive of both days)	VCS	01 Year 09 months 07 days	LGAI Technological Center S.A. (Applus + Certification)	127,119 tCO_2e	VKU's assessment team has conducted a cross-verification of the emission reductions reported in the monitoring report for MP 1 with the Joint Validation and Verification Report for MP 1. Additionally, the issuance of VCUs was cross-verified with the VCU's issuance record on the project's web page/18/
Verification	Second Monitoring Period from 29-September-2019 to 31- December-2020 (Inclusive of both days)	VCS	01 Year 03 months 03 days	TÜV SÜD South Asia Pvt Ltd.	96,819 tCO_2e	VKU's assessment team has cross verified the emission reductions reported in the monitoring report for MP 2 with the verification report for MP 2 and VCU's issued were cross verified from the VCU's issuance record on the project webpage/18/
Verification	Current Monitoring Period from 01-January -2021 to	VCS	02 Year 00 months 00 days	VKU CERTIFICATION PVT. LTD.	154,169 tCO_2e	VKU assessment team conducted the verification for current monitoring period (3rd MP) and verified the emission reductions

	31–December-2022 (Inclusive of both days)					reported in the ER Sheet and MR via supporting documents.
Total	22-December-2017 to 31-December-2022 (Inclusive of both days)	**VCS**	**05 Year 00 Months 10 days**	-	**378,810 tCO_2e**	The Total emission Reduction prevented by the project activity since commissioning was verified by VKU's Assessment team via previous verification reports and other supporting documents.

The project has demonstrated a positive impact on various aspects of sustainable development, aligning with the criteria set by the Ministry of Environment and Forests. These impacts include economic, social, environmental, and technological benefits.

In terms of social well-being, they contribute to local economic development and improves the livelihoods of individuals in the surrounding communities. Additionally, the project may have facilitated the improvement of local infrastructure, further enhancing the social well-being of the area.

In terms of environmental impact, the project's utilization of solar energy as a renewable source of power has significant advantages. By eliminating reliance on fossil fuels, the project reduces greenhouse gas (GHG) emissions, helping to mitigate climate change. It also contributes to the reduction of specific pollutants such as sulphur oxides (SOx), nitrogen oxides (NOx), and suspended particulate matter (SPM), which are commonly associated with traditional thermal power generation facilities. The use of solar energy conserves limited resources and promotes sustainable energy practices.

In summary, the project's positive impact on economic development, social well-being, environmental preservation, and technological advancement aligns with the key components of sustainable development as identified by the Ministry of Environment and Forests.

The project has implemented comprehensive training programs to ensure that staff members are equipped with the necessary skills and knowledge to carry out their roles effectively and ensure the proper monitoring of emission reductions. The training activities have been conducted in accordance with the monitoring plan and have been organized for the current monitoring period. The training programs cover a range of topics to address various aspects of the project's operations/31/. Plant helpers have received training in equipment operation, data recording, report writing, operation and maintenance, and emergency procedures, aligning with the requirements outlined in the monitoring plan/29/.

In addition to the core training, additional programs have been organized during the monitoring period. These include Environment Awareness, First-Aid Box items Awareness, Information

Security Management System, Grievance Management, Defensive Driving, and road safety training. These programs aim to raise awareness among employees regarding environmental concerns, ensure preparedness for emergencies, and promote safety practices. Furthermore, technical trainings such as electrical safety, workplace risk management, and fire and safety training have been conducted/31/. These trainings address specific technical aspects related to the project's operations and contribute to the overall safety and risk management protocols.

In view of the information as verified above the assessment team is able to conclude that the project has been implemented as described in the Joint project description & monitoring report/3/, All the above stated information was verified by VVB during onsite visit and site personnel interviews/24/.

4.2 Safeguards

4.2.1 No Net Harm

The renewable solar energy project has demonstrated numerous positive impacts on both socioeconomic and environmental aspects. By utilizing solar energy, the project contributes to sustainable development by providing clean and environmentally friendly power, According to Indian regulations, solar power generation through photovoltaic cells falls under the White category of industries, which are considered practically non-polluting. As a result, the project does not require an Environmental Impact Assessment (EIA) or the consent to operate. Exemptions granted to solar power projects from environmental clearance requirements further support this fact, as per the relevant EIA notifications and Ministry of Environment & Forests OM. Moreover, renewable SPVs-based power generation projects are promoted by Indian government. According to Final Document on Revised Classification of Industrial Sectors Under Red, Orange, Green and White Categories (29-February-2016), the solar power projects come under White category of industries which are practically non-polluting. Therefore, does not require an Environmental Impact Assessment (EIA) and there is no necessity of obtaining the Consent to Operate.

As per section 04 page 31 of the report published by Ministry of New and Renewable Energy (MNRE) on September 2013 (Developmental Impacts and Sustainable Governance Aspects of Renewable Energy), “As established by life-cycle assessment, RE projects have comparatively low environmental externalities that too are limited to project development phase. The RE projects don’t generate solid or liquid effluents during operations and thereby pollution of land, surface water or ground water resources is not anticipated from such projects. During the operations phase the impacts on the surrounding environment are negligible and are reversible in nature and can be mitigated by proper Environmental Management plan.”

Thus, there is no harm identified from the project and hence no mitigations measures are applicable.

VKU conclude that the project has contributed to the region's labour force by creating job opportunities, resulting in improved socio-economic conditions in adherence to the section 3.19, clause 3.19.1 of VCS Standard version 4.5/5/ Overall, the project has demonstrated a net positive impact on both the socio-economic and environmental aspects of the project region.

4.2.2 Local Stakeholder Consultation

The Project is already registered with VCS and registered VCS Joint PD & MR section 2.2 describe the Local Stakeholder Consultation Process as in-line with VCS requirement and the Stakeholder Meetings took place on **28-April-2016** at the project site in Telangana. Meeting with local stakeholder and continuous grievance is a part of stakeholder engagement. In case of grievances/23/, the nature of probable resolution is discussed with the plant head office and implemented by the site Manager. When conducting physical meeting, a prior information to concerned authorities, public display of invitation letters and extract maximum engagement. The overall responsibility lies with Site Manager under the supervision from the Head Office team. The responsibilities include invitations, follow ups, organizing meeting, feedbacks, documentation and successful grievance redressal, if any. The contact information is shared with local stakeholders in case they wish to register any grievance/23/ those suggestions and grievances can be submitted in the grievance register present on site. During the current monitoring period got some of comments related to CSR activity like road work, bridge work and school development work. There is no grievance related to project activity.

Table No. 16: The details of the Stakeholders Meeting are:

Sr. No.	Name of Investor	Place/Location of the project activity	Meeting Date	Date of Invitation
1.	Achintya Solar Power Limited- I	Village: Mandamarri; District: Mancherial; State: Telangana	28-April-2016	25-April-2016
2.	Achintya Solar Power Limited-II		28-April-2016	25-April-2016
3.	Suvarchas Solar Power Limited		28-April-2016	25-April-2016
4.	Grinibhrit Solar Power Limited		28-April-2016	25-April-2016

The Project Proponent maintains an open line of communication with stakeholders throughout the project's crediting period. A stakeholder feedback register and a suggestion box are available at the project site, allowing stakeholders to submit comments, complaints, or suggestions thus complying to the set guidelines stated in to section 3.18, clause 3.18.4 of VCS Standard version 4.5/5/. These will be promptly addressed if found to be legitimate. However, no feedback or grievances were reported during the current monitoring period, as the renewable solar power generated by the project does not result in negative impacts.

The verification team, during the on-site assessment, interacted with local stakeholders and recorded no negative comments or feedback from them. The ongoing stakeholder inclusivity and communication mechanism were verified by the VKU assessment team during the on-site visit, and the presence of the grievance register placed by the Project Proponent at the project site was also confirmed.

Overall, the project has demonstrated a commitment to continuous interaction with stakeholders and maintaining transparency throughout the project's implementation. Hereby VKU conforms that PP has a seamless process of recording the stakeholder feedback and grievance mechanisms that ensure that local stakeholders' concerns are considered and addressed

appropriately with respect to the set guidelines defined in section 3.18, clause 3.18.5 VCS Standard version 4.5/5/.

4.3 AFOLU-Specific Safeguards

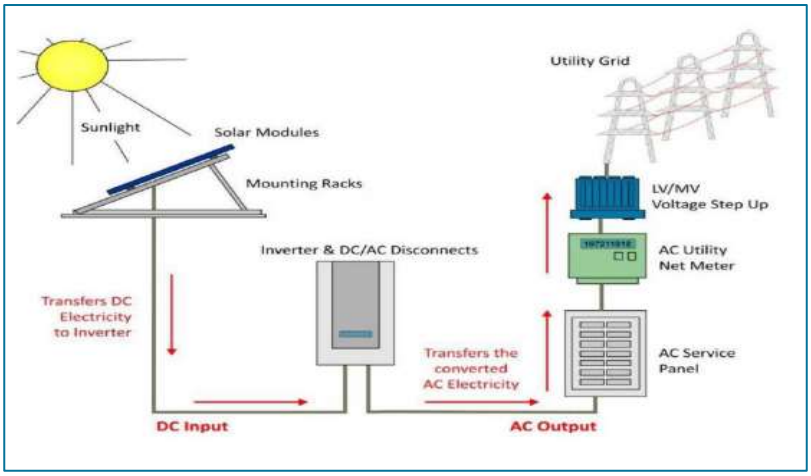
As the project comes under the category of NON-AFOLU projects therefore this section does not apply for this verification. Hence Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The project monitoring has been carried in accordance with the registered VCS Joint PD & MR/3/ and the monitoring report/1/. The monitoring plan laid in the registered VCS Joint PD & MR/3/ is being followed at the site. The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR/01/. The emission reductions are purely based on the net electricity generated and exported from the Solar Modules. PP has provided all the sufficient data for current monitoring period. The values of the parameter net electricity generation supplied to the grid by each phase used in deriving the GHG emission reduction could be very well correlated between the data sets and ER spreadsheet/02/ provided by PP. The verification of each monitoring parameter has been discussed later in section 4.5.

The only monitoring parameter in the project activity is "Quantity of net electricity supplied to the project (Solar) plant/unit to the grid in year y", $EG_{PJ,y}$ (MWh). This parameter is monitored through the reading of bulk energy meters installed.

The import and export value, which is recorded monthly in JMRs by authorized officer of SEB in the presence of PP or representative of PP, is properly monitored by installed, calibrated metres of 0.2s accuracy class. The evaluation team has carefully analysed ER sheet /2/ that was provided by PP by cross-checking the values from the JMRs and invoices that PP submitted and it has determined that all of the equations, conversions, and aggregations are correct. The metering arrangement for all the four solar sites are the same. Each solar plant has theirown dedicated metering arrangement at the substation end at 132kV. There are three meters i.e., main and check and standby meter is there at the metering location site.



The project activity metering is done at the PSS {input (132kV) and output (220kV)}.

All the electricity received at the Sub-Station transformer, which further steps up the voltage to 33KV from 405VAC generated at the SPV end. It is further stepped up to 132KV within the plant boundary from 33KV.

The Net Electricity generation is calculated after deducting the Imports from the Export i.e., Net Electricity supplied to the grid = Export–Import.

In the state of Telangana, the current value for assessment is calculated based on the actual assessed each month and the value is sourced from the JMRs. Further the import value is also sourced from JMRs and Invoices. These values (import) are regulated by PSSPDCL and may be revised upon discretion of the PSSPDCL. Thus, they shall be revised considering the latest applicable guideline at the time of monitoring.

The assessment team has conducted a thorough verification of the entire information flow, starting from data generation and aggregation to recording, calculation, and reporting of the relevant parameters in the Monitoring Report /1/. The emission reductions are based on the net electricity generated and exported from the project.

The assessment team has verified the information flow (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) in the MR/1/. The emission reductions are purely based on the net electricity generated and exported from the solar panels. PP has provided all the sufficient data for current monitoring period. The values of the parameter of net electricity generation supplied to the grid by each unit in deriving the GHG emission reductions. Exported values of electricity could be very well correlated between the data sets and ER spreadsheet/2/ provided by PP. The verification of each monitoring parameter has been discussed later in section 4.5.

Table No: 17 Data and Parameters Available at Validation or Ex-ante parameters

Parameter	Unit	Description	Value	MOV

$EF_{grid,OM,y}$	tCO_2/MWh	Operating Margin CO_2 Emission Factor in year y	0.9610 tCO_2/MWh is consistent with the registered VCS Joint PD&MR /03/ and calculated from CEA database, Version 14, June 2018[8]	The values are verified through desk review of the MR submitted /01/ and registered VCS Joint PD&MR /03/ which is found acceptable
$EF_{grid,BM,y;}$	tCO_2/MWh	Build Margin CO_2 Emission Factor in year y	0.8644 tCO_2/MWh is consistent with the registered VCS Joint PD&MR /03/ Calculated from CEA database, Version 14, June 2018[9]	The values are verified through desk review of the MR submitted /01/ and registered VCS Joint PD&MR /03/ which is found acceptable
$EF_{grid,CM,y}$	tCO_2/MWh	Combined Margin CO_2 Emission Factor in year y	0.9368 tCO_2/MWh is consistent with the registered VCS Joint PD&MR /03/ Calculated from CEA database, Version 14, June 2018[10]	The values are verified through desk review of the MR submitted /01/ and registered VCS Joint PD&MR /03/ which is found acceptable.

In section 4.5 of this report and section 5.4 of MR /1/ calculations have been stated which can be further compiled in ER/2/. Values data has been verified by the assessment team from JMRs issued to PP by State utility /13/& further cross checked from the invoices issued by PP to state electricity authority /13/. Hence VKU states that the calculation method and formulae used in calculating baseline emission is in compliance to the methodology used/7/. The calculation method and formulae used in calculating baseline emission is in compliance to the methodology used i.e., ACM0002 Version 19.0 /7/. Since project activity is a solar power project, leakage emission and project emission have been considered as zero.

[8] CDM - CO2 Baseline Database - Central Electricity Authority (cea.nic.in)

[9] CDM - CO2 Baseline Database - Central Electricity Authority (cea.nic.in)

[10] CDM - CO2 Baseline Database - Central Electricity Authority (cea.nic.in)

According to applicable methodology ACM0002; Version 19.0[11] page 13 under section 5.4 and page 20 under section 5.6 page of Baseline Methodology. Procedure with further description under paragraph about Project emissions & Leakage emissions confirms that Since project activity is a Solar power project and no other kind of fossil fuel has been used in the current monitoring period on site thus no project emissions are considered according to the methodology used.

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

Where:

BE_y: Baseline emissions in year y (tCO_2e/yr)

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

$EF_{grid,CM,y}$: Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool 07: Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

Calculation of $EG_{PJ,y}$

If the project activity is the installation of a Greenfield power plant, then:

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

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

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

Plant was in operation throughout the current monitoring period, and the project activity generated 164,571.40 MWh of net electricity, resulting in 154,169 tCO_2e GHG reductions

Estimated Emission Reduction as in VCS PD&MR /2/ for the equivalent period of the current Monitoring period, 01-January -2021 to 31-December-2022(Inclusive of both the days):	
Monitoring Period Start Date	01-January-2021
Monitoring Period End Date	31-December-2022

[11] 58IAGB7SZUDEO2VN6LYM30K41HFPRQ (unfccc.int)

Days in Current Monitoring period	730
Annual estimated VCUs as per year over the 10 years of crediting period	77,456 (tCO_2e)
Estimated Emission Reduction as in Registered VCS PD& MR for the equivalent period of the current Monitoring period	= (Annual Estimated GHG emission reductions as per revised VCS PD&MR/Total days in a year) *days in current monitoring period **(77,456/365) * 730 = 154,912 tCO_2e**
Actual Emission Reduction as per MR and ER during current Monitoring period	**154,169**
Percent difference	**-0.48% Lower that the estimated**

PP has submitted all the evidences like JMRs/11/and Invoices/13/ to VKU Assessment team for verification and assessment of ER Sheet/2/

Hence VKU Assessment team states that the calculation method and formulae used in calculating baseline emission is following the methodology used i.e., ACM0002: "Grid-connected electricity generation from renewable sources- version 19.0"/7/. The applied default values, emission factors, and assumptions in the calculations are all reasonable. The assumptions, emission factors and default values that were applied in the calculations are justified.

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.

The verification team reviewed the records required for monitoring, ensuring that they were archived in accordance with the registered monitoring plan. The purpose of this review was to confirm that the project had followed the prescribed procedures for data collection, storage, and reporting. No significant issues, lack of evidence, or missing data were identified during the verification process. This indicates that the project's monitoring system is effective in ensuring the quality of the monitored data. The verification team also confirmed that the project had implemented appropriate quality assurance and quality control measures for its internal data.

By conducting a comprehensive review of the relevant documents and data, the verification team ensures the integrity and accuracy of the project's monitoring system, providing confidence in the reported emission reductions.

The only monitoring parameter in the project activity is "Quantity of net electricity supplied to the grid as a result of the implementation of the VCS project activity in year y, **$EG_{PJ,y}$** (MWh**)**. This parameter is monitored through controlled reading of meters installed at 33KV Substation and the reading of bulk energy meters installed at substation.

The table below describes how the parameter **$EG_{PJ,y}$**, is to be measured according to the monitoring plan and how the same has been verified to confirm, that the actual monitoring

complies with the monitoring plan. It also details how monitored data has been thoroughly assessed and meeting of calibration requirements.: -

Table No: 18 Assessment of Parameter $EG_{PJ,y}$ (Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y) (MWh), that is to be measured: -

Parameter	$EG_{PJ,y}$ (Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y) (MWh)	
Means of verification	**Criteria/Requirements**	**Assessment/Observation**
	Measuring /Reading /Recording frequency	Continuous monitoring and at least monthly recording for net electricity generation. The quantity of net electricity generation supplied by the solar power plant to the grid is measured in megawatt-hours (MWh). The calculation of net electricity supplied to the grid is based on the measured values of "export" and "import" of electricity, which are obtained through the dedicated TSNPDC energy meter installed at the delivery point (i.e., the connected sub-station at Mancherial). To determine the net electricity supplied, Monthly meter readings are taken from the main and check meter installed at the substation and certified by the representatives of TSNPDC Officials and the representatives of the project proponent. Net electricity supplied to the grid by each Solar project is estimated as below Net electricity = $EG_{Export} - EG_{Import}$
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the registered VCS Joint PD & MR /3/ and monitoring methodology/7/. This was verified by assessment

			team during desk review and by Assessment Team during onsite visit and interviews with site personnel. /24/.
		Monitoring equipment	Energy Meters (EMs) of 0.2s accuracy class are used to monitor the electricity to the grid specifically the values of export" and "import" of electricity through the dedicated KPTCL energy meter installed at 33 KV Substation & 220/132kV GSS (Grid Substation) located at Mancherial, Telangana. Yes, Energy meters are used as monitoring equipment to measure the net electricity supplied to the grid. The export and import values are calculated using measured values, which are continuously measured, and recorded monthly by three sets of meters (main, check and standby meters) used for measuring the electricity exported to the grid, electricity imported from the grid and electricity exported to the grid. The details of meters and calibration details are provided in APPENDIX 1 of MR/1/
		Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Yes, the accuracy of the monitoring equipment (Energy Meters (EMs)) used to measure the input values such as import and export to calculate net electricity generation value is of **0.2s accuracy class** as stated in section 4.2 of the registered VCS PD&MR version 02 dated 18-December-2019/03/ and now, the energy meters used to measure the input values such as import and export to calculate

			net electricity generation value which is stated in section 4.2 of MR Version 03 dated 09-November-2023/1/ and it is consistent as per the Power Purchase Agreement/28/. Also, the same was verified from the energy meters installed at the site during onsite visit/19/ to the Grid Sub Station. The assessment team also checked the calibration records under the Description of equipment that confirms the accuracy class as 0.2s.
		Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. The accuracy of monitoring equipment's is valid for the entire range which is as per registered VCS Joint PD & MR /3/. This was assessed by checking the calibration certificates of the energy meters /12/. Thus, the assessment team based on the calibration certificates/12/ states that the accuracy is valid for the entire measuring range. The calibration was carried out by Ganga Calibration Services Private Limited which is NABL accredited with accreditation number (CC-2127). Hence, assessment team accepted the calibration certificates/12/ submitted by the PP issued by Ganga Calibration Services Private Limited which mentioned the accuracy is within the entire measuring range.
		Calibration frequency /interval:	The calibration frequency of the meters used for the monitoring of export, import **shall be once in every five years** as per section 4.2 & 4.3 of registered VCS joint PD&MR/03/

			The assessment team confirmed the frequency while interviewing /24/ the site personnel during onsite visit/24/.
		Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency of the meters used in the project activity is in accordance with the requirements specified in section 4.2 & 4.3 of the registered VCS joint PD&MR version 02 dated 18-December-2019/3/ is in accordance with the national standards/17/ i.e. para 1 (b), Clause 18 of Central Electricity Authority (Installation and Operation of Meters [12]) Regulations, 2006, all interface meters, including those used in the project activity, are required to be tested at least once every five years. This was also confirmed during interview with onsite personnel /24/, which is in line with VCS Standard version 4.5/5/ calibrations requirements as well as the registered monitoring plan.
		Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes. Calibration of the measuring equipment's is carried out by 3rd party- Ganga Calibration Services Private Limited in presence of officials of State Electricity Board Same has been verified through calibration records & onsite personnel interviews/24/. The periodic calibration of both the main meters and check meters ensures the accuracy of the measurements is in compliance with the clause

[12] Regulations Notified on 17-March-2006 No. 502/70/CEA/DP&D Amendments Notified on 26-June-2010 No. In presence 502/6/2009/DP&D/D-I

			3.16.5 of VCS Standard version 4.5/07/ In accordance with the emergency procedure outlined in the registered VCS PD&MR version 02/03/ and MR/01/, If an error is found in both meters (Main and Check) to be beyond the permissible limits, then standby meter will be used.
		Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibration frequency mentioned in VCS Joint PD&MR version 02 dated 18-December-2019/03/ once in five years is valid for the whole reporting period i.e., 01-January -2021 to 31-December-2022(Inclusive of both the dates) and as per the selected frequency there are no delays in the calibration. Hence deemed satisfactory to the VVB.
		Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. As per the calibration certificates, error variation observed is lesser than the error variation specified. Hence, it is within the measurable range (Range 63.5V 1-1.2A at 50Hz). The calibration is carried out appropriately as per the registered monitoring plan and VCS standard version 4.5/5/. The Project Proponent (PP) adheres to the national standards for meter calibration, as per the Central Electricity Authority (CEA) order dated 17-March-2006, which requires testing of meters every five years. The calibration is carried out appropriately by Ganga Calibration Services Private Limited which is a 3rd party.

	How were the values in the monitoring report verified?	Cumulative value of Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y $EG_{PJ,y}$ for entire monitoring period is reported in the monitoring report/1/, and monthly values in the ER calculation sheet/2/. The monthly values were verified by VKU's assessment team from the JMRs/11/ issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as **164,571.40 MWh**.	
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y $EG_{PJ,y}$ is recorded in an ER Sheet and were further checked from the JMRs and cross verified with the DGR (Daily Generation Report) and monthly invoices raised by the PP/13/ to state utility and third party and was found to be consistent.	
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site personnel interview/24/ with the project stakeholder of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable for the net electricity supplied by the project plant/unit to the grid in year y. The desk review of O&M agreement and register monitoring plan and its implementation in the current monitoring period is done to satisfactorily verify that the system is in place.	

	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues were observed during current monitoring period.	
Findings	CAR#03, CAR#04 were raised and resolved		
Conclusion	**$EG_{PJ,y}$(MWh)** parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The emission reduction calculation for the project activity is estimated based on the electricity supplied by the Project activity. Since 100% data was verified, the team can ascertain that the values adopted for emission reduction calculation have minimum material errors.		

Calibration of meters /12/: During the verification assessment of project activity, accuracy of all the metering equipment have been checked and found appropriate. The installation and working conditions of the meters were checked during the site inspection and were found to be satisfactory. Details of meters are provided in below table:

Meter and Calibration details for 40 MW Bundled Solar Project in Telangana, India Solar Power Plant Project are as follows-

Table No: 19 Calibration details of meters

Project	Meter	Meter number	Accuracy class	Latest CalibrationDate	Calibration Validity
Achintya Solar Power Limited I	Main Meter	0017250984	0.2s	23-December-2019	22-December-2024
	Check Meter	0017250985	0.2s	23-December-2019	22-December-2024
	Standby	0017250986	0.2s	23-December-2019	22-December-2024
Achintya Solar Power Limited-II	Main Meter	0017250981	0.2s	23-December-2019	22-December-2024
	Check Meter	0017250982	0.2s	23-December-2019	22-December-2024
	Standby	0017250983	0.2s	23-December-2019	22-December-2024
	Main	0017250990	0.2s		

Suvarchas Solar Power Limited	Meter			23-December-2019	22-December-2024
	Check Meter	0017250991	0.2s	23-December-2019	22-December-2024
	Standby	0017250992	0.2s	23-December-2019	22-December-2024
Grinibhrit Solar Power Limited	Main Meter	0017250987	0.2s	23-December-2019	22-December-2024
	Check Meter	0017250988	0.2s	23-December-2019	22-December-2024
	Standby	0017250989	0.2s	23-December-2019	22-December-2024

Assessment on calibration:

The energy meter calibration certificates/12/ are checked and found that the calibration details provided in the MR /1/ are correct. From the verification of above table, verification team also confirms that the energy meter calibrations are valid for the complete monitoring period i.e., from 01-January -2021 to 31-December-2022 (inclusive of both the dates).

The verification team has checked all the meters and confirmed that the meters were working satisfactorily. Also, the calibration of meters is completely under purview of state utility and PP has no control over the same as confirmed through interviews of site personnel and Power Purchase agreement signed by the PP with state utility/28/.

Hence it can be concluded that the approach followed by the PP is conservative and in line with the guidelines provided under paragraph **3.4.2** of VCS Validation and Verification Manual version 3.2/21/.

The meters are installed at 220/132/33kV KPTGL substation at TSNPDCL; the substation activity metering is done at the PSS {input (132kV) and output (220kV)}. Further the metering arrangement is explained in section 4.4 above of this report which was confirmed by assessment team during site visit and it is consistent with the MR/1/ submitted by PP and registered VCS Joint PD&MR/3/

The registered VCS Joint PD & MR/3/ & MR /1/ and site audit observations confirm that the metering equipment are sealed and maintained by the state utility.

Further the Monitoring of the project activity is performed by PP as per the following established procedure:

Data Measurement

The export and import energy is measured continuously using Main & Check meters. Authorized officer of TSNPDCL in the presence of PP or representative of PP is take Export & Import readings of Main & Check meters installed at the substation on monthly basis. The meter reading is taken jointly and signed by the representatives of the TSNPDCL and project investors. Based on the readings, invoices are raised by project investors. These invoices can be used for cross checking

the meter readings taken for the project activity. It is to be noted though PP or PP representative is available during meter reading, the electricity exported and imported by the Solar Project is completely under purview of TSNPDCL officer and PP do not have any control on it. In addition, accuracy class of meters and calibration frequency is under purview of TSNPDCL officer and PP do not have any control on it. PP get the monthly JMR report from where electricity export and import values are obtained to calculate net electricity supplied to grid and used for emission reduction calculations.

Data Collection and Archiving:

Export & Import readings from the meters is collected under the supervision of the authorized representatives of PP. The net electricity supplied to grid would be calculated based on export & import readings. Export and Import data would be recorded and stored in electronic &/or Paper format. The records are checked periodically by the Head (Operations) and discussed thoroughly with the O&M Team. The period of storage of the monitored data will be 2 years after the end of crediting period.

In accordance with **section 6 paragraph 67 of ACM0002, version 19.0,** all monitoring-related data is electronically archived and retained for a minimum of two years following the conclusion of the last crediting period. Site personnel are primarily responsible for collecting, collating, and aggregating this data. They achieve this through the use of centrally through the Supervisory Control and Data Acquisition (SCADA) system at the Central Monitoring Station maintained at project implemented site.

Emergency Preparedness:

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized. In the unlikely event of failure of all Main, Check as well as Standby meter installed at Substation, where all the faulty meters are required to be repaired or replaced simultaneously, the export & import readings from Main, Check & Standby Meters installed at the inter-connection point at the project site will be used for monitoring of net electricity exported to the grid. In the current monitoring period, there is no delay in calibration and in case of the absence or delay in the meter calibration appropriate Guidelines will be applied appropriately to confirm the conservativeness of metering.

Personnel training

In order to ensure a proper functioning of the project activity and a proper monitoring of emission reductions, the staff is trained. The plant helpers are trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan/29/.

QA/QC Procedure:

The energy meters at the feeders are maintained and owned by Telangana State Northern Power Distribution Company Limited (TSNPDCL). Neither the project proponent nor the site personnel

have any control over it. The records are cross-checked with the records of sold electricity TSNPDCL. The meters are calibrated by TSNPDCL at-least once in five years[13].

The assessment team has verified the monthly JMRs issued by the state utility TSNPDC (Northern Power Distribution Company Limited) confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid consequently for ER calculations recorded in ER sheet /2/.

In view of the above discussion the assessment team is able to confirm that evidence used to determine the GHG reductions and removals are sufficient and appropriate with respect to quality and quantity.

GHG Calculations:

The emission reduction as per the applied methodology equals the baseline emissions (project emissions and leakage emissions for such project activities is considered zero). The formula provided for the calculation of baseline emissions is:

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

Where:

BE_y: Baseline emissions in year y (tCO_2e/yr)

$EG_{PJ,y}$: 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 CO_2emission 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" (tCO_2e/MWh)

Table No. 20; The site and Vintage wise generation of ERs for the current monitoring period is presented below

Vintage-wise calculation Year	Generation in MWh for the plant site
2021 (01-January-2021 to 31-December-2021	80,183.23
2022 (01-January-2022 to 31-December-2022)	84,388.26
Total	164,571.40

Table No. 21 shows the calculation ER generation during current monitoring period out of net electricity supplied to grid.

[13] CEA Metering Regulations_Summarydocx.pdf (cbip.org)

Parameter	Unit	Value
$EG_{PJ, y}$	MWh	164,571.40
$EF_{grid,CM,y}$	tCO_2e/MWh	0.9368
BE_y	tCO_2e/yr	164,571.40*0.9368
	=	**154,169 tCO_2e** (Round down value)

As per registered VCS Joint PD&MR, project activity is expected to reduce emissions by **154,912 tCO_2e** for the current monitoring period, whereas the actual emission reductions achieved are **154,169 tCO_2e**, i.e., **0.48%** lower due to low PLF achieved in the current monitoring period which is due to the lower number of sunshine hours. The generation of electricity depends upon many other climatic conditions. The actual PLF achieved for the generated energy in this monitoring period is **23.48%** whereas as per registered VCS Joint PD & MR the estimated PLF is **24.14%**/3/ which is lower than the estimated PLF value in registered VCS Joint PD&MR/3/, however the breaching value of PLF is **30.76%** which is still within the benchmark value. Assessment team has assessed the PLF independently and calculated the value for current monitoring period and its variation as presented in **Table No. 22 below;**

Monitoring Period (Inclusive of both start and end dates)	Actual Generation (MWh)	Achieved PLF	Variation in PLF with the estimated PLF of 24.14%	Breaching value
01-January-2021 to 31-December-2022	164,571.40	23.48%	2.81%	30.76%

Assessment team verified the same via PLF analysis mentioned in ER sheet/2/ and an independent assessment of the PLF as stated in table above, this is evident from the calculation that the achieved PLF is lower than the estimated PLF but it is within the benchmark value of **30.76%,** hence the lower generation is accepted by VKU assessment team.

In section 4.4 and 4.5 of this report, section 5.4 of MR /1/ and in ER sheet/2/ calculations has been stated which has been verified by the assessment team from JMRs issued to PP/28/ & Invoices issued by PP to state electricity authority submitted to VVB by PP as evidence. Hence VVB verified that the calculation method and formulae used in calculating baseline emissions is in compliance with the methodology used i.e., ACM0002 Version 19.0 /7/.

The verification team attests to the correctness of the formulas and methodologies used to compute baseline emissions. The applied default values, emission factors, and assumptions in the calculations are all reasonable. The verification team attests to the correctness of the formulas and methodologies used to calculate baseline emissions.

The assumptions, emission factors and default values that were applied in the calculations are justified. The estimated emission reduction as per registered VCS Joint PD&MR/3/ for the current monitoring period **01-January-2021 to 31-December-2022** is **154,912 tCO_2e**, but the actual emissions achieved is 154,169 tCO_2e. The actual emission reduction achieved during the current monitoring period are 0.48% lower than what was anticipated. We as VVB accepted this as this is mainly due to the generation of electricity that depends upon the number of annual days of sunshine availability and many other climatic conditions, and are not within the control of the project participant. However as mentioned in 3.1 of the monitoring report/1/, the breakdown that took place during the current monitoring period was for a total of 84:40 Hours.

The generation of electricity depends upon many other climatic conditions, which are not within the control of the project proponent. The higher generation during the current verification period is due to certain climatic variations due to change in season. Hence, it is acceptable to the VVB

All the data were made available and have been monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above.

VKU is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is in line with the applicable VCS requirements set out in **section 3.15** of VCS Standard version 4.5/5/ and that the verification of the GHG statement was conducted in in accordance with ISO 14064-3; 2019.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk that could lead to material errors, omissions or misstatements rating determined by the project proponent for the project activity and no risk was identified in the audit/verification plan hence not applicable.

5 VERIFICATION OPINION

M/s VKU Certification Pvt. Ltd. has performed the third verification of the first renewable crediting period (**22-December-2017 to 21-December-2027** which is inclusive of both dates) reported for the project activity "**40 MW Bundled Solar Project in Telangana, India**". VCS Registry Project ID 1990, for the period **01-January -2021 to 31-December-2022 (Inclusive of both days),** amount to **154,169 tCO_2e**. These reported reductions have been assessed in accordance with the relevant requirements outlined in the VCS Standard, version 4.5/5/ and the opinion are in accordance with clause 4.1.24 of section 4.1 of VCS Standard version 4.5/5/. The project participants of the "40 MW Bundled Solar Project in Telangana, India" is responsible for:

- Preparation of greenhouses gas emissions data and the reporting of greenhouse gas emission reductions from the project on the basis set out in the monitoring, contained in the registered VCS Joint PD & MR version 2.0 dated 18-December-2019/3/.
- Development and maintenance of records and reporting procedures in accordance with that plan, including calculation and determination of greenhouse gas emission reductions of the project.
- It is the responsibility of VKU to express an independent verification opinion about the project's conformity with the requirements of VCS Standard version 4.5/05/ 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, VKU can confirm that:

- The project has been implemented and operated as per the registered VCS Joint PD & MR /3/.
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.5/5/ requirements;
- The monitoring is in place as per the applied baseline and monitoring methodology
- The monitoring plan in the registered VCS Joint PD & MR version 02 dated 18-December-2019 /3/ is as per the applied baseline and monitoring methodology.

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

Table No.- 23: The verification opinion is stated below

Opinion	Final Documents	Monitoring Period	Emission Reductions achieved	Remarks

☒Positive opinion ☐Negative Opinion Adverse Opinion ☐ Unmodified Opinion ☒ Modified Opinion ☐	Monitoring Report Version 3.0 dated 09-November-2023 Emission Reduction Sheet Version 3.0 dated 09-November-2023	**01-January-2021 to 31-December-2022** (Inclusive of both start and end dates)	**154,169 tCO2e**	The GHG emission reductions are calculated on the basis of approved methodology ACM0002 I.D. version 19.0 /7/ and the monitoring plan included in the registered VCS Joint PD & MR version 02 dated 18-December-2019/3/
Hence VKU is able to certify that the emission reduction from the project during the monitoring period **01-January-2021 to 31-December-2022** (Inclusive of both start and end dates) amounts to **154,169 tCO_2e** is in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5/5/ and that the verification of the GHG statement was conducted in in accordance with ISO 14064-3; 2019. The VVB hereby issues a positive and unmodified opinion in accordance with ISO 14064-3:2019, and **ISO 14065:2020 Section 09- Clause 9.7.1.6 & 9.7.2**. This opinion also meets the requirement stipulated under ISO/IEC 17029:2019, Section 9.7 with a reasonable level of assurance for the reported GHG emission reduction data which is free from any material misstatement and is sufficiently supported by evidences provided to VVB by PP tabulated in **Table No.-04** of this report.				

Verification period: From 01-January-2021 to 31-December-2022 (Inclusive of both start and end dates)

Table No. 24: Verified GHG emission reductions and removals in the above verification period: broken down by calendar year:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2021 01-January-2021 to 31-December-2021	75,115	0	0	75,115
Year 2022	79,054	0	0	79,054

01-January-2022 to 31-December-2022				
Total	154,169	0	0	154,169

Difference in Ex-ante and achieved emissions:

Year	Ex-ante emissions reductions/ removals	Achieved emissions reductions/ removals	Percent difference	Justification for the difference
Year 2021 01-January-2021 to 31-December-2021	77,456	75,115	-3.02%	During assessment it was observed that the estimated emission reduction to be achieved from the project activity for the current monitoring period was 154,912 tCO_2e, whereas actual emission reductions achieved are 154,169 tCO_2e, which is due to low PLF achieved in the current monitoring period and found acceptable.
Year 2022 01-January-2022 to 31-December-2022	77,456	79,054	+2.06%	
Total	154,912	154,169	-0.48%	

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CER(s)	Certified Emission Reduction(s)
CL	Clarification Request
CO_2	Carbon dioxide
CO2e	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
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PD	Project Description
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit
VKU	VKU Certification Ltd.
VCS	Verified Carbon Standard
VVS	Validation and Verification Standard
VVB	Validation and verification body

APPENDIX B: AUDIT FINDINGS

CAR: Corrective Action Request; (05)

CL: Clarification Request; (03)

FAR: Forward Action Request; (00)

Type	**Date**	28-June-2023
CAR#01	**Reference**	Section of Ver protocol: Cover MR and Section 1
Description of the Non-Conformance		
1. Content Page; 1.1 Verification Team finds that page numbers are not mentioned in footer section of entire MR as per requirement of VCS MR template version 4.2. 1.2 Verification team finds during desk review that the" font size and font style" used are inconsistent in MR with respect to the VCS MR template version 4.2 **2. Section 1.1 of MR;** 2.1 Verification team found during desk review that the entire MR has many futuristic sentences, which raises questions on the implementation of the project activity. 2.2 Verification team finds that in the "Number of years" column values mentioned are inconsistent with all previous verification conducted so far. **3. Section 1.6 of MR;** 3.1: First crediting period is valid for the current monitoring period. **4. Section 1.11 of MR;** 4.1 Verification team finds during desk review that the "filling guidelines" are not removed which is not in accordance with guidelines available in VCS MR template version 4.2. 4.2 PP to provide the reference for the values mention in the column of "Contribution over Project lifetime" 4.3 Verification Team finds the target number is not mentioned correctly. Also, there is inconsistency between the definition of mentioned SDG indicator in MR version01 under the table 01 and SDG link provided in MR template version 4.2 under section 1.11.		
1st Response from PP	**Date**	23-August-2023
1. Content Page; 1.1: The page number is added in the footer of the entire MR as per the VCS MR template, Version 4.2.		

1.2: Font size and font style are revised as per VCS MR template, Version 4.2. **2. Section 1.1 of MR;** 2.1: All the futuristic sentences are reframed and revised in the MR, Version 4.2. 2.2: "Number of years" corrected in the table provided in Section 1.1 of the MR. **3. Section 1.6 of MR;** 3.1 The current monitoring period is considered under the 1st Crediting Period. **4. Section 1.11 of MR;** 4.1 It is now revised and corrected as per MR guidelines for VCS template, Version 4.2. 4.2: The reference is added in footnote. The values have been taken from previous Monitoring reports. 4.3: The SDG target number is now corrected in the Table 01 under Section 1.11 and also updated the SDG link provided in the footnote of the revised MR, Version 4.2.				
1st Assessment by Audit Team	**Status**	Open	**Date**	29-August-2023
1. Content Page; 1.1 Assessment team verify that PP has update page no. in footer according to VCS MR template Version 4.2 but not completed the content table as per the MR headings. #CLOSED 1.2 Assessment team verified that PP has updated size and font style as per VCS MR template version 4.2 #CLOSED **2. Section 1.1 of MR;** 2.1 PP has updated, futuristic sentence in the entire monitoring period. #CLOSED 2.2 PP has updated the no. of days in validation & verification row of the table. #CLOSED **3. Section 1.6 of MR;** 3.1 PP has mentioned the period of crediting and monitoring period. #CLOSED **4. Section 1.11 of MR;** 4.1 PP has removed the instruction as per MR template version 4.2. #CLOSED 4.2 Assessment team verified that PP has update energy generation value of all previous verification as well as current monitoring period. #CLOSED 4.3 Assessment Team verified that PP has updated SDG target no. #CLOSED **Hence CAR#01 is Closed**				

Type	Date	28-June-2023
CAR#02	Reference	Section of Ver protocol: Section 2 and 3

Description of the Non-Conformance

1. Section 2.2 of MR;

1.1 As per the requirements of VCS MR template version 4.2 "The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought). The procedures or methods used for documenting the outcomes of the local stakeholder communication."
The above information is not provided in this section.

1.2 During site visit, team has identified some issues in the grievance register kept at site applicable for current monitoring period. However, MR states that that no negative comments were received during this period.

2. Section 3.1 of MR;

2.1 What type of breakdown occurred during the said monitoring period and did such breakdowns have any impact on the GHG emission reduction removals of the project. Also substantiate the same with the breakdown records for the plant sites.

3. Section 3.2.1 & 3.2.2 of MR;

3.1 Is there any methodology deviation/project description deviation applicable in current monitoring period or previous monitoring periods as per the VCS MR template guidelines.

1st Response from PP	Date	23-August-2023

1. Section 2.2 of MR;

1.1: Local stakeholder section is updated in line with VCS MR template version 4.2 guidelines. For ongoing stakeholder outcomes kindly refer Grievance register. Scan copy of Grievance register is submitted with the responses.

1.2: The issues were already solved by the responsible team for any comment found in Grievance register however currently there is no negative comments pending for the monitoring period.

2. Section 3.1 of MR;

2.1: Breakdowns details are incorporated in appendix II of MR and submitted with the responses.

3. Section 3.2.1 & 3.2.2 of MR;

3.1: There is no methodology deviation applicable in current as well as previous monitoring periods as per VCS MR template guidelines.				
1st Assessment by Audit Team	**Status**	Closed	**Date**	29-August-2023
1. Section 2.2 of MR; 1.1 Assessment team verified that PP has mentioned all information regarding engaging local stakeholders *(e.g., dates of announcements or meetings, periods during which input was sought).* and PP has also provided grievance register so please provide for the same. #CLOSED 1.2 PP has given justified reason of issues were already solved by the responsible team for any comment found in Grievance register any comment received in this monitoring period. #CLOSED **2. Section 3.1 of MR;** 2.1 Assessment team verified that PP has mentioned the any impact on GHG Emission from breakdown details and also mentioned about breakdown details in appendix 03 of the MR. #CLOSED **3. Section 3.2.1 & 3.2.2 of MR;** 3.1 During assessment, AT found that there is no methodology deviation and no Project Description Deviation in previous verification as well as current verification. #CLOSED **Hence CAR#02 is Closed**				

Type	**Date**	28-June-2023
CAR#03	**Reference**	Section of Ver protocol: Section 4
Description of the Non-Conformance		
1. Section 4.2 of MR; 1.1 Assessment team finds during site visit that the requisite meters are being calibrated at six months interval while the MR states the frequency of 5 years. 1.2 Monitored data for period Aug 22 to October 22 & December 22 are found to be inconsistent with the Joint Monitoring Report (JMR). Please review and ensure that all monitored data is consistent with JMR **2. Section 4.3 of MR;** 2.1 PP is requested to explain the role and responsibility of organisation's person i.e., Site In-charge, O&M representative, Shift in charge etc.as per the project site scenario.		
1st Response from PP	**Date**	23-August-2023

1. Section 4.2 of MR; 1.1 As per registered VCS Joint PDMR Version 3.0, calibration frequency is once in 5 years, and it is valid throughout the crediting period hence the frequency of 5 years is applied. However, the calibration is carried out by HESCOM in every six months which is a conservative approach, but it is to be noted that calibration of meters is not in control of PP. 1.2 Monitored data for period Aug 22 to October 22 & December 22 are correct in line with JMR for the mentioned months. **2. Section 4.3 of MR;** 2.1: PP explained the role and responsibilities of organization persons mentioned in the revised MR, Version 4.2.

1st Assessment by Audit Team	**Status**	Closed	**Date**	29-August-2023
1. Section 4.2 of MR; **1.1** Assessment team verified that PP has mentioned calibration frequency is once in 5 years which is accepted by AT as per provided Calibration Certificate. #CLOSED 1.2 Assessment team verified that PP has corrected the data for months of Aug 22 to October 22 & December 22 in ER Sheet which is found consistent with Joint Meter Repot (JMR) and Invoices. #CLOSED **2. Section 4.3 of MR;** 2.1 Assessment team verified during assessment; PP has mentioned the Role & Responsibility of Organisation. #CLOSED **Hence CAR#03 is Closed**				

Type	**Date**	28-June-2023
CAR#04	**Reference**	Section of Ver protocol: Section 5
Description of the Non-Conformance		
1. Appendix 01 of MR; 1.1 During site visit it is observed that the serial number of meter available at the site and presented in MR have many inconsistencies, PP is requested to clarify the same.		

1.2 During site visit, assessment team observed that the calibration of meters is being done every six months, and complete trail is available at the site, kindly provide the complete trail of calibration as per the documents available.			
1st Response from PP		**Date**	23-August-2023
1. Appendix 01 of MR; 1.1: This is due to meter change in 2023, but meter details mentioned is valid for the current monitoring period. Meter replacement certificate is submitted with the responses. 1.2: As per registered VCS Joint PDMR Version 3.0, calibration frequency is once in 5 years, and it is valid throughout the crediting period hence the frequency of 5 years is applied. However, the calibration is carried out by HESCOM in every six months which is a conservative approach, but it is to be noted that calibration of meters is not in control of PP.			
1st Assessment by Audit Team	**Status**	Closed	**Date**	29-August-2023
1. Appendix 01 of MR; 1.1 During assessment, AT found that those calibration certificates PP has provided that certificate is year 2019-2020 which is cover entire current monitoring period. #CLOSED 1.2 Assessment team verified that PP has mentioned calibration frequency is once in 5 years which is accepted by AT as per provided Calibration Certificate. #CLOSED **Hence CAR#04 is Closed**			

Type	**Date**	30-October-2023
CAR#05	**Reference**	Section of Ver protocol: Section 1, Section 2 and Section 4
Description of the Non-Conformance		
1. Section 1.5 of MR; 1.1 Please list the project name in order cross check the claims. **2. Section 1.10 of MR;** 2.1 Reference to ICR, CERCARBANO, social carbon are not mentioned as part of non-participation of the project under these voluntary mechanisms		

3. Section 3.1 of MR; 3.1 The technical specifications lack information regarding the incomer outgoer panels, internal meters used for measurement (are they used for monitoring?). Also, no information is provided regarding the monitoring meters. 3.2 What is the direction of this tilt. 3.3 It is not clear whether the project activity is string type or SMB type solar power plant. 3.4 What is the voltage (AC or DC) generated at the solar panels. 3.5 What is the number of inverter control rooms present at site 3.6 What is the insulation used in order to prevent electric arc induced fire accidents. **4. Section 4.3 of MR;** 4.1 The difference between plant and project boundary is not clear as per ACM0002 methodology.				
1st Response from PP			**Date**	09-November-2023
1. **In Section 1.5 of MR;** **1.1** The particular section has been revised **as** the commissioned part is not for any particular SPV. 2. **In section 1.10 of MR;** **2.1** The project activity is not availing any benefits from any carbon mechanism apart from VCS and the same is mentioned along with the supporting weblinks. 3. **In section 3.1 of MR;** **3.1** All the information has been incorporated and internal meters are not a part of monitoring plan and the information of monitoring meters are already provided in APPENDIX I of MR. **3.2** The direction of tilt is 13° South direction and the same has been described. **3.3** The project activity is string type solar power plant. **3.4** The voltage generated at solar panels are in DC capacity **3.5** The number of inverters are mentioned in the revised MR version 3.0 **3.6** Cellulose insulation with mineral oil has played a major role as the main insulation system for transformers for a very long time and the same has been replied. 4. **In section 4.3 of MR;** **4.1** It has been updated and made in line with the methodology ACM002 version 19.0				
1st Assessment by Audit Team	**Status**	Closed	**Date**	24-November-2023
1. Section 1.5 of MR; 1.1 PP has updated the MR section and clarified that the project name is correct and no particular SPV is involved, hence accepted. **2. Section 1.10 of MR;**				

2.1 PP has updated the MR and reference to ICR, CERCARBANO, social carbon is mentioned as part of non-participation of the project under these voluntary mechanisms, which is verified by assessment team and found to be correct, hence accepted.

3. Section 3.1 of MR;

3.1 PP has updated the technical specifications in revised MR as per comments, which is verified by assessment team and found to be correct, hence accepted.

3.2 PP has updated the direction of this tilt in revised MR, hence accepted.

3.3 PP has updated the string type in revised MR, hence accepted.

3.4 PP has updated the voltage (AC or DC) in revised MR, hence accepted.

3.5 Inverter numbers were already mentioned, hence accepted.

3.6 PP has provided the response to prevent electric arc induced fire accidents.

4. Section 4.3 of MR;

4.1 PP has clarified that the plant and project boundary is as per ACM0002 methodology and registered VCS joint PD&MR, hence accepted.

Hence CAR#05 is Closed

Type			**Date**	28-June-2023
CL#01			**Reference**	Section of Ver protocol: Section 4 and 5
Description of the Non-Conformance				
1. Section 1.9 & 1.10 of MR; 1.1 PP to provide evidence to confirm this statement about not participating in any other GHG program/environmental credit and emission trading program.				
1st Response from PP			**Date**	23-August-2023
1. Section 1.9 & 1.10 of MR; 1.1: The PP provide undertaking to confirm about not participating in any other GHG program/environmental credit and emission trading program.				
1st Assessment by Audit Team	**Status**	Closed	**Date**	29-August-2023
1. Section 1.9 & 1.10 of MR; 1.1 PP has submitted document about not participating in any other GHG program/ environmental credit and emission trading program. #CLOSED				

Hence CL#01 is Closed

Type	**Date**	28-June-2023
CL#02	**Reference**	Section of Ver protocol: Section 4
Description of the Non-Conformance		
PP is requested to provide the following documents to verify the MR and project completely: 1. SLD of the Plant site 2. PPA agreement 3. O&M Agreement 4. Undertaking for not claiming credits from other GHG Program and other form of credits. 5. JMRs and Invoices for the current monitoring period. 6. Breakdown details		
1st Response from PP	**Date**	23-August-2023
1. SLD of the Plant site is submitted with the responses. 2. PPAs are is submitted with the responses. 3. O&M Agreements are submitted with the responses. 4. Undertaking for not claiming credits from other GHG Program and other form of credits is submitted with the responses. 5. JMRs and Invoices for the current monitoring period are submitted with the responses 6. Breakdown details is submitted with the responses.		

1st Assessment by Audit Team	**Status**	Closed	**Date**	29-August-2023
1. PP has provided SLD of the Plant site 2. PP has provided PPA agreement 3. PP has provided O&M response certificate 4. PP has provided Undertaking for not claiming credits from other GHG Program and other form of credits. 5. PP has provided JMRs and Invoices for the current monitoring period. 6. PP has provided breakdown details **Hence CL#02 is Closed**				

Type	**Date**	30-October-2023
CL#03	**Reference**	Section of Ver protocol: Section 1, Section 2 and Section 4

Description of the Non-Conformance		
1. Section 1.6 of MR; 1.1 Since the lifetime of the project activity is 25 years, PP to clarify how crediting period is taken twice renewable. **2. Section 1.7 of MR;** 2.1 PP to clarify how one single coordinate represents all the solar projects in the bundle? Also the location of the billing meters, MCR, transformers are not indicated in order to check the distinctiveness of these to the project activity. **3. Section 1.8 of MR;** 3.1 As per VCS standards v4.5, the category of the project as large is based on emissions and not on installed capacity **4. Section 1.11 of MR;** 4.1 Please clarify whether 403,619.4 MWh is the total energy that will be supplied to grid throughout the lifetime of the project. **5. Section 2.1 of MR;** 5.1 The risks to stakeholders as per para 3.19.4 and 3.19.5 of the VCS v4.5 is not demonstrated. 5.2 How are the local stakeholders notified about the same? Since the plant location is far from the nearest village are the local stakeholders given any other option to contact the PP. **6. Section 4.3 of MR;** 6.1 Agreed. However, are the calibrations of these meters done on regular intervals and conducted by NABL accredited agency? Also is this procedure consistent with the PPA with the state electricity board. 6.2 In case of delay in calibration dates, PP is requested to clarify what is the procedure applied in order to estimate the conservative estimate of emission reductions. **7. Section 5.4 of MR;** 7.1 PP to clarify why the periods in the year are not shown in full year i.e., 2021, 2022 wise. 7.2 Please clarify whether the generation is higher or lower than estimated.		
1st Response from PP	**Date**	09-November-2023
1. **In section 1.6 of MR;** 1.1 The crediting period is as per PDD and as per PROCEDURES FOR RENEWAL OF THE CREDITING PERIOD OF A REGISTERED CDM PROJECT ACTIVITY (Annex 11) If the remaining technical lifetime of the equipment is less than the end of the crediting		

period for which renewal is requested, then the current baseline needs to be updated for this crediting period.

So, this verification is part of 1st crediting period in 3rd crediting period (after 20 years) PP will follow the above-mentioned guideline.

2. In section 1.7 of MR;
   2.1 It is not currently effective as per VCS standard version 4.4 and also version 4.5 was not available at the time of registration and the same has been mentioned.

3. In section 1.8 of MR;
   3.1 The applicable Standard is V4.4 so it is as per guideline and the same is mentioned in revised MR version 3.0.

4. In section 1.11 of MR;
   4.1 The sentence has been reframed and it is the total generation from the project implementation to the current monitoring period.

5. In section 2.1 of MR;
   5.1 It is not currently effective as per VCS standard version 4.4 and also version 4.5 was not available at the time of registration and the same has been mentioned.
   5.2 The local stakeholders are informed about the Communication Register. Further, a public notice has been posted at the site informing the stakeholders about the communication procedure and the same thing is mentioned in the revised monitoring report version 3.0.

6. In section 4.3 of MR;
   6.1 Yes, the calibration of meters is done on regular interval of time and are conducted by NABL accredited agency and the procedure is consistent with PPA and state electricity board.
   6.2 There is no delay in calibration dates in this monitoring period and in case this happens in future PP will follow Annex 60, EB 52 guideline.

7. In section 5.4 of MR;
   7.1 It has been revised vintage wise and made in line with the ER sheet version 2.0.
   7.2 The generation is lower than estimation and the same is mentioned in the revised monitoring report version 3.0.

1st Assessment by Audit Team	Status	Closed	Date	24-November-2023

1. Section 1.6 of MR;

1.1 PP has clarified that the lifetime of the project activity is 25 years, and the rest of the crediting period will follow CDM guideline in the third crediting period, however it is not valid in the first crediting period, hence accepted.

2. Section 1.7 of MR;

2.1 PP has clarified that one single coordinate is as per registered VCS Joint PD&MR and current guideline was not available hence it is accepted.

3. Section 1.8 of MR;

3.1 PP has clarified that this section is as per VCS standards v4.4, and found consistent, hence accepted.

4. Section 1.11 of MR;

4.1 PP has updated the statement in the revised MR and it is found to be correct, hence accepted.

5. Section 2.1 of MR;

5.1 PP has clarified that the risks to stakeholders as per para 3.19.4 and 3.19.5 of the VCS v4.5 is not effective immediately, hence they were not demonstrated, which is acceptable to assessment team.

5.2 The MR already represents the process of local stakeholder consultation and ongoing process which is verified by assessment team during site visit hence it is accepted and no change was required in this section.

6. Section 4.3 of MR;

6.1 PP has clarified that the calibrations of these meters done on regular intervals and conducted by NABL accredited agency- GANGA calibration and this is consistent with the PPA with the state electricity board, hence accepted.

6.2 PP has stated the procedure in case of delay in calibration dates, in order to estimate the conservative estimate of emission reductions in the revised MR, which is found acceptable to the assessment team.

7. Section 5.4 of MR;

7.1 PP has updated the dates in the table of revised MR and clarified the periods in the year 2021, 2022 and same has been updated in the revised ER sheet submitted by PP, which is verified by assessment team and found acceptable.

7.2 PP has clarified and updated this section in the table that the emission reduction are 0.48% lower than the estimated which is found acceptable by the assessment team.

Hence CL#03 is Closed

~~Type~~	~~Date~~	~~DD Month YYYY~~
~~FAR#01~~	~~Reference~~	~~Section of Val/Ver protocol~~
~~Description of the Non-Conformance~~		

1st Response from PP			Date	DD Month YYYY
1st Assessment by Audit Team	Status	Open/Closed	Date	DD Month YYYY

APPENDIX C: COMPETENCE STATEMENT

Team Leader-

COMPETENCE STATEMENT

Name	Sunil Kathuria
Nationality	Indian
Countries of Experience	Malaysia, Uganda, Kenya, South Africa, Nigeria Bangladesh, China, Vietnam, Thailand, Philippines, United Kingdom, Germany, USA
Education Qualification	B.E. (Electrical Power)
Year of Experience	40 Years
Area of Expertise	Climate Change & Environment Energy Generation / Distribution GHG Footprints Manufacturing Sector
Eligible Sectoral Scope	TA 1.1 - Thermal energy generation TA 1.2 - Renewables TA 2.1 - Energy distribution TA 3.1 - Energy Demand (General & Cook Stove) TA 4.1 - Cement and lime production (Manufacturing Industries)

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	YES
Technical Reviewer	YES
Local Expert (Country Wise)	YES
TA Expert (1.1, 1.2, 2.1, 3.1, 4.1)	YES
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	13/05/2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	13/05/2023

Validator/Verifier-

COMPETENCE STATEMENT

Name	Shivani Chauhan
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (Environmental Science) M.Sc. (Environmental Science)
Year of Experience	2 years as Intern 9 months as Employee
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	NA

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	NO
Technical Reviewer	NO
Local Expert (Country)	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	03.04.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	03.04.2023

Project Trainee-

Certification Pvt. Ltd. VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Km Nisha Chauhan
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (BCZ) M.Sc. (Environmental Science)
Year of Experience	NA, Fresher
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	NA

Roles

Project Trainee	YES
Validator/Verifier Trainee	NO
Validator	NO
Verifier	NO
Team Leader	NO
Technical Reviewer	NO
Local Expert (Country Wise)	NO
TA Expert (X.X)	NO
Financial Expert	NO

Technical Reviewer-

COMPETENCE STATEMENT

Name	Sanjay Kumar K
Nationality	Indian
Countries of Experience	India
Education Qualification	B.E. (Civil Engineering) M. Tech (Environmental Engineering)
Year of Experience	20 Years +
Area of Expertise	Climate Change & Environment Sustainable Development GHG Footprints
Eligible Sectoral Scope	TA 1.2 - Renewables TA 3.1 - Energy Demand TA 6.1 - Construction

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	YES
Technical Reviewer	YES
Local Expert (Country Wise)	YES
TA Expert (1.2, 3.1, 6.1)	YES
Financial Expert	YES

Reviewed by	Vandana Gupta (Quality Manager)	Date	03.03.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	03.03.2023