# 140 MW SOLAR PHOTOVOLTAIC PROJECT IN RAJASTHAN

Document Prepared By

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**Summary:**

M/s VKU Certification Pvt. Ltd. (hereafter referred as VKU) was commissioned by M/s EKI Energy Services Limited (hereafter referred as EKI) has verified the greenhouse gas emission reductions reported for the project activity "140 MW Solar Photovoltaic Project in Rajasthan" (VCS ID 1709[1]) in India, covering fifth verification with monitoring period from 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) under first crediting period from 18-July-2017 to 17-July-2027 (Inclusive of both start and end dates) with regard to the relevant requirements for VCS activities.

The purpose of the verification is to have an independent review of ex-post determination of the monitored reductions in GHG emission reductions and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner.

The verification scope of the project is:

- To verify that the project is implemented as described in the registered VCS PD/3/.
- 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 voluntary emission reductions without any double counting.
- 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.

Verification was conducted using VKU's procedures in line with the requirements specified in the VCS Program Guide version 4.2/4/, VCS Standard version 4.3/5/, VCS Validation and Verification Manual version 3.2/6/, CDM M&P, the latest version of the CDM Validation and Verification Standard 3.0/7/, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS requirements to be certified.

[1] https://registry.verra.org/app/projectDetail/VCS/1709

VKU followed the rule-based approach to perform this verification. During verification, related to operation, monitoring and GHG emission reduction calculation of the VCS project activity in relation to all relevant VCS requirements for the project activity and the applied baseline and monitoring methodology and a total of 07 findings were raised, which includes: 05 Corrective Action Request (CARs); 02 Clarification Requests (CLs). 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 based on the approved methodology ACM0002: Grid-connected electricity generation from renewable sources- version 17.0/8/ and Tool to calculate the emission factor for an electricity system; Version 5.0/18/ and the monitoring plan included in the registered VCS PD (version 03) dated 26-December-2017/3/.

In conclusion, it is VKU's opinion that the project activity "140 MW Solar Photovoltaic Project in Rajasthan" (VCS ID 1709) in State: Rajasthan, Country: India meets all relevant requirements for VCS standard version 4.3/5/and guidelines and correctly applies the baseline and monitoring methodology ACM0002: Grid-connected electricity generation from renewable sources- version 17.0 /8/. The monitoring system is in place and the emission reductions are calculated without material misstatement.

Hence, VKU is able to certify that the emission reductions from the project during the fifth verification of the project activity for monitoring period from 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) under first crediting period (18-July-2017 to 17-July-2027) (Including both dates) amount to 340,149 $tCO_2e$

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# 1 INTRODUCTION

## 1.1 Objective

M/s EKI Energy Services Limited (hereafter referred as EKI) commissioned M/s VKU Certification Pvt Ltd (here after referred as VKU) to carry out fifth verification of the project "140 MW Solar Photovoltaic Project in Rajasthan" (VCS ID 1709) in India for the period from 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) under first crediting period from 18-July-2017 to 17-July-2027 (Including both dates).

This report summarizes the findings of the verification of the project, performed based on VCS Requirements and UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The objective of the verification is to have an independent evaluation of a project activity by an accredited validation and verification body against the requirements of the VCS Program Guide Version 4.2/4/, VCS standard version 4.3/5/ and GHG program applied, on the basis of the registered VCS Project Description version 03 dated 26-December-2017/3/.

This is the fifth verification of first crediting period (18-July-2017 to 17-July-2027; Including both dates) for a period of fourteen months i.e., from 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates). The project activity adopts renewable crediting period[2] of 10 years period which can be renewed for maximum 2 times as mentioned in section 1.6 of VCS PD version 03 dated 26-December-2017/3/.

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

- The project activity has been implemented and operated as per the registered VCS project description/3/ & MR /1/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place.
- Monitoring report and other supporting documents are complete.
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

To confirm that the monitoring system is implemented and fully functional to generate Verified Carbon Units (VCUs) without any double counting/27/, and to establish that the data reported

[2] This project is duly registered as per VCS standard 3.7 as per the validation report, in accordance with 3.8.1 of VCS standard 3.7 the project crediting period shall be a maximum of ten years which may be renewed at most twice. Please refer : https://verra.org/wp-content/uploads/2020/11/PREVIOUS-VERSION-VCS-Standard-v3.7.pdf

are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

## 1.2 Scope and Criteria

The verification scope is:

- To verify that the project is implemented as described in the registered VCS PD /3/
- 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.
- 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 shall ensure that the reported emission reductions are complete and accurate to be certified.

The project is assessed against the requirements of VCS standard version 4.3/5/, VCS program guide version 4.2/4/, VCS validation and verification manual version 3.2/6/ and related rules and guidance. VKU has, based on the recommendations in the latest version of CDM Validation and Verification Standard/7/, VCS validation and verification manual and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

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

The method and criteria used for verification consisted of the following phases:

- Desk review;
- Onsite visit & interviews with stakeholders;
- Final assessment of raised findings along with their respective resolution
- Completeness check

Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation

## 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.***

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 comprises of**

| Role/Qualification of Assessment Team | Last Name | Middle Name | First Name |
|---|---|---|---|
| VCS Team Leader,<br>VCS Verifier & Technical Expert TA 1.2 | Srivastava | Kumar | Abhishek |
| Validator/Verifier Trainee | Kaushik | NA | Niharika |
| Project Trainee | Dhankar | NA | Anil |

**Table No 02: The Technical Team comprises of:**

| Role/Qualification of Technical Team | Last Name | Middle Name | First Name |
|---|---|---|---|
| Technical Reviewer & Technical Expert TA 1.2 | K | Kumar | Sanjay |

## 1.4 Summary Description of the Project

The project activity is a renewable energy project and the electricity delivered by the project activity as per power purchase agreement (PPA) /21/ which has been established with NTPC Ltd, a government-appointed organization responsible for the development of Grid-connected Solar PV Power Projects, to facilitate the sale of electricity by the corresponding private parties (PPs). Two separate PPAs have been executed, one for 70 MW capacity between Rising Bhadla 1 Pvt. Ltd. and NTPC, and the other for the remaining 70 MW capacity between Rising Bhadla 2 Pvt. Ltd. and NTPC. Additionally, the PPA clearly outlines that NTPC Vidyut Nigam Limited will procure the electricity on behalf of NTPC and will subsequently sell it to Discom/Unified Indian Grid after bundling it with the Thermal Power allotted by the Ministry of Power, Government of India.

The implementation of project activity ensures energy security; diversification of the grid generation mix and sustainable growth of the electricity generation sector in India. The project being a renewable energy generation activity, it leads to removal of fossil fuel dominated electricity generation. The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change.

The total installed capacity of the project is 140 MW (AC) which is spread over an area of 2,800,200 square meters (1,400,000 square meters for Rising Bhadla 1 Private Limited and 1,400,200 square meters for Rising Bhadla 2 Private Limited) along with the power conditioning units and power transformers for which the detailed description is mentioned in Table no 08 of this report. The output generated by the modules in DC ranges from 0.315 KW to 0.330 KW.

and the power produced displaces an equivalent amount of power from the grid, which is fed mainly by fossil fuel fired power plants. This bundled project was commissioned on **18-July-2017** which is the earliest date of commissioning of 1st 40 MW (AC) plant by Rising Bhadla 1 Private Ltd and the full project was commissioned on **01-November-2017** which is the date of commissioning of 2nd & last 30 MW (AC) solar plant at Rising Bhadla 2 Private Ltd of the project activity and run satisfactorily since then which was verified against the registered VCS PD/3/ and commissioning certificates/28/and thus it is found to be acceptable to VKU.

The project activity is located in Village - Bhadla, Tehsil - Phalodi, District- Jodhpur of State – Rajasthan in country India. Location of the project was verified through Google Earth & Google Maps[3] /32/ during the desk review and GPS Map Camera/31/ during the site visit as well as through recorded live coordinates by onsite assessment team and found consistent with the data provided in the registered VCS PD/3/.

The project was commissioned in four stages as mentioned in table below:

**Table no 3: Commissioning Dates of the Project Activity**

| Project Proponents | Capacity | Date of commissioning | Project location | State | Country |
|---|---|---|---|---|---|
| Rising Bhadla 1 Private Ltd | 40MW | 18-July-2017 | Village - Bhadla, Tehsil - Phalodi, District- Jodhpur | Rajasthan | India |
| | 30MW | 29-September-2017 | | | |
| Rising Bhadla 2 | 40MW | 29-August-2017 | Village - Bhadla, | Rajasthan | |

[3] Google Earth & Untitled map - Google My Maps

| | | | | | |
|---|---|---|---|---|---|
| Private Ltd | 30MW | 01-November-2017 | Tehsil - Phalodi, District- Jodhpur | | India |

The main purpose of this project activity is to harness clean form of energy to generate electricity through renewable solar energy source. As verified by the assessment team during onsite visit /34/ & during interview with site personnels /33/ at the 140 MW solar plant the 900-volt DC electricity generated by the Rising Bhadla 1 and Rising Bhadla 2 solar modules is fed into inverters, which convert it into 380-volt AC electricity. This AC electricity is then supplied to an inverter transformer, which steps up the voltage to 33 kilovolts. The electricity is then further stepped up to 132 kilovolts at the plant end transformer yard and to 220 kilovolts at the RSDCL[4] Pooling Substation. Along with electricity from other sources, the electricity from both Rising Bhadla 1 and Rising Bhadla 2 is supplied to the RRVPNL[5] Pooling substation, where it is stepped up to 400 kilovolts. After passing through the 400KV Pooling Substation by RRVPNL, the electricity is then supplied to NTPC, the designated consumer of the electricity under the Power Purchase Agreement, which in turn supplies it to the Unified Indian Grid. which is confirmed from registered VCS PD/3/Validation report/9/ last Verification report/10/ and onsite personnel interview with site personnels/33/.

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 PD/3/. The total emission reductions achieved by the bundled project activity under the verification period from 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) amount to 340,149 tonnes of $CO_2e$.

# 2 VERIFICATION PROCESS

The registered VCS project is undergoing fifth periodic 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 4.2/4/, VCS Standard Document version 4.3/5/. The project activity does not fall under category "grouped projects", hence no

[4] Rajasthan Solarpark Development Corporation Limited

[5] Rajasthan Rajya Vidyut Prasaran Nigam Limited

sampling methods was employed by the validation/verification body for the verification of GHG emission reductions or removals generated by the project. The GHG emission reductions are based on the approved Baseline and monitoring methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 17.0/8/

Scope: 01 Energy Industries (renewable- and non-renewable sources) Title: "Grid Connected Renewable Electricity Generation".

The verification consisted of the following three phases.

- Document review;
- On-site assessment including Interviews and actual project scenario;
- Resolution of any Material Discrepancy and the issuance of the final verification report and certification

## 2.2 Document Review

The monitoring report (MR) version 01 of 13-December-2022, version 02 of 10-February-2023, version 03 of 25-February-2023 version 04 of 15-March-2023 & Final version 05 on 27-March-2023/1/, the emission reduction calculations spreadsheet version 01 of 13-December-2022, version 02 of 10-February-2023, and final version 03 of 25-February-2023/2/, were assessed as part of the verification. In addition, registered VCS PD/3/ in particular the baseline estimations and the monitoring plan for the project was reviewed. The following table lists the documentation that was reviewed during the verification.

**Table no 04: Control of Documents referred during the Assessment for the 5th Verification of VCS 1709**

| | |
|---|---|
| /1/ | EKI: VCS monitoring report for "140 MW Solar Photovoltaic Project in Rajasthan" in India,<br><br>Version 01 of 13-December-2022,<br><br>Version 02 of 10-February-2023,<br><br>Version 03 of 25-February-2023,<br><br>Version 04 of 15-March-2023<br><br>Version 05 of 27-March-2023 |
| /2/ | EKI: Emission Reduction Calculation Spreadsheet,<br><br>Version 01 of 13-December-2022, |

| | |
|---|---|
| | Version 02 of 10-February-2023,<br><br>Version 03 of 25-February-2023 |
| /3/ | EKI: Registered VCS PD for the project '140 MW Solar Photovoltaic Project in Rajasthan" version 3.0 dated 26-December-2017 |
| /4/ | VCS: VCS Program Guide, version 4.2 of 22-June-2022 |
| /5/ | VCS: VCS Standard, version 4.3 of 22-June-2022 |
| /6/ | Validation and verification manual version 3.2 dated 19-October-2016 |
| /7/ | CDM Validation and Verification Standard version 3.0 dated 09-September-2021 |
| /8/ | CDM Executive Board: Baseline and Monitoring Methodology "ACM0002: Grid-connected electricity generation from renewable sources- version 17.0 |
| /9/ | LGAI Technological Center, S.A (Applus+ Certification): Validation Report "140 MW Solar Photovoltaic Project in Rajasthan", Version 02, dated 27-December-2017 |
| /10/ | KBS Certification Services Pvt. Ltd.: VCS Verification Report "140 MW Solar Photovoltaic Project in Rajasthan" for monitoring period: 01-March-2021 to 30-September-2021 (including both days), Version 02 of 29-December-2021 |
| /11/ | VERRA: Project search: https://registry.verra.org/app/search/VCS |
| /12/ | UNFCCC: Project search: https://cdm.unfccc.int/Projects/projsearch.html |
| /13/ | REC website Renewable Energy Certificate Registry of INDIA (Renewable Energy Certificate Registry of INDIA - Registered RE Generator List (recregistryindia.nic.in) |
| /14/ | The International REC Standard Foundation<br><br>I-REC Standard - The International REC Standard Foundation (irecstandard.org) |
| /15/ | Gold Standard Foundation: https://registry.goldstandard.org/projects?q=&page=1 |
| /16/ | EIA Report & EIA NOTIFICATION dated 14-September-2006; https://moef.gov.in/wp-content/uploads/2018/03/so1533.pdf |

| | |
|---|---|
| /17/ | Draft report on use of non-conventional energy resources for Simhastha 2016 (niua.org) |
| /18/ | Tool to calculate the emission factor for an electricity system, Version 05.0<br><br>Tool to calculate the emission factor for an electricity system. version 03.0.0 (unfccc.int) |
| /19/ | $CO_2$ Baseline Database for the Indian Power Sector User Guide Version12.0<br><br>https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf |
| /20/ | Central Electricity Authority (Installation and Operation of Meters) Regulations<br><br>Notified on 17-March-2006 No. 502/70/CEA/DP&D<br><br>Amendments Notified on 26-June-2010 No. 502/6/2009/DP&D/D-I<br><br>https://cea.nic.in/wp-content/uploads/2020/02/meter_reg.pdf<br><br>Metering Regulations Archives - Central Electricity Authority (cea.nic.in) |
| /21/ | PPA 01: Power Purchase Agreements signed between Project Proponent (Rising Bhadla 1 Private Limited) and NTPC (National Thermal Power Corporation Limited) identified by Government of India as the implementation Agency for setting up Grid-connected PV Power Projects under State Specific Bundling Scheme and for facilitating purchase and sale of 33 kV or above grid -connected Solar PV Power dated 12-May-2016, New Delhi.<br><br>PPA 02: Power Purchase Agreements signed between Project Proponent (Rising Bhadla 2 Private Limited) and NTPC (National Thermal Power Corporation Limited) identified by Government of India as the implementation Agency for setting up Grid-connected PV Power Projects under State Specific Bundling Scheme and for facilitating purchase and sale of 33 kV or above grid -connected Solar PV Power dated 12-May-2016, New Delhi. |
| /22/ | Agreement 01: Operation and Maintenance Agreemen made between Project Proponent i.e. (Rising Bhadla 01 Private Limited) and Sterling and Wilson Solar Limited dated 01-June-2020,<br><br>Agreement 02: Operation and Maintenance Agreemen made between Project Proponent i.e. (Rising Bhadla 02 Private Limited) and Sterling and Wilson Solar |

| | |
|---|---|
| | Limited dated 01-June-2020, |
| /23/ | Certificates of Calibration for all the meters belongs to project activity |
| /24/ | Generation Log Book |
| /25/ | Monthly JMRs issued by RRVPNL for the current verification period. |
| /26/ | Invoice issued by PP to NTPC (National Thermal Power Corporation Limited). |
| /27/ | Two separate letters of declaration from both PP's (Rising Bhadla 1 Private Ltd and Rising Bhadla 2 Private Ltd) dated 20/January/2023 regarding not having created or sought any other form of environmental credit for the current verification period (01-October-2021 to 30-November-2022, inclusive of both start and end dates) |
| /28/ | Commissioning certificates of the project activity issued by state electricity authority (Rajasthan Renewable Energy Corporation Limited) |
| /29/ | Technical Specifications of Solar Project |
| /30/ | Grievance Register present on-site |
| /31/ | GPS map camera |
| /32/ | GPS Google earth software used for Location; Google Earth |
| /33/ | Onsite Personnel Interviews and Focussed Group Discussions dated 22-January-2023 to 23-January-2023. |
| /34/ | Site visit dated (22-January-2023) photographs and attendance sheet |
| /35/ | Breakdown Details (Please Refer Appendix 2 of MR and section 04 Verification Process of this Verification Report) PP has submitted Breakdown Details in an Excel Sheet. |
| /36/ | Diesel Consumption Declaration as per standard operation procedure by Rising Bhadla 1 Private Limited & Rising Bhadla 2 Private Limited dated 07-January-2023 |
| /37/ | Training records of Site Personnels |

## 2.3 Interviews

An on-site inspection/34/ was performed by the assessment team. However, the representatives of the PP and O&M contractors were interviewed personally by assessment team on **22-January-2023** i.e., personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure.

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

Location: District- Jodhpur of State- Rajasthan, Country- India

**Table no: 05: Details of Personal Interview with Technical Team present Onsite**

| S. No. | Name | Designation | Topic |
|---|---|---|---|
| 1 | Ajeet Singh | AGM- Operation Badla, Rising Sun Energy | Implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and monitoring along with QA/QC |
| 2 | Umed Jangid | AM-IT (Badla) Rising Sun Energy | |
| 3 | Dharamveer Singh | Astt. Manager Sterling and Wilson Renewable Energy Ltd. | SCADA, Breakdown details and maintenance of generation records Data recording, management and archiving procedure |
| 4 | Kartika Khatai | Astt. Manager O&M | |

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording, emergency procedures, internal audit and archiving procedures. The assessment was based on the feedback received during onsite interview coupled with the documentation.

During Onsite Visit, 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/33/ 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 as tabulated below:

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

| S. No. | Name | Designation | Category | Topic of Discussion |
|---|---|---|---|---|
| 1 | Mohammad Sarif | Tractor Operator | Local Stakeholder | • Execution of Project activity and its impact on the economic, social and environmental parameters on the local people of the area & around the situated project activity<br>• The ongoing communication procedure and the address of their grievance mechanism followed by the project proponent<br>• Scope and generation of employment in the locality due to the implementation of said project activity in the area. |
| 3 | Raees Khan | Data Entry Operator | | |
| 4 | Vakil Khan | Peon | | |
| 5 | Dilbar | Tractor Operator | | |

During the on-site stakeholder consultation interview, there were no critical comments received. More information is provided in section 4.2.2 below.

## 2.4 Site Inspections

Site Location visited:

Location: Village – Bhadla, District- Jodhpur, State - Rajasthan in Country - India. Further the location along with longitude and latitude is mentioned in section 4.1 of this report.

An On-site visit was undertaken by the verification team to the project location identified in the MR/1/ at Village - Bhadla of District - Jodhpur of State - Rajasthan in Country - India **on 22-January-2023**; to carry out the following;

An assessment of the implementation and operation of the registered project activity as per the registered VCS PD version 03 dated 26-December-2017/3/ and VCS MR/1/;

- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews/33/ with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the VCS PD/3/;
- A cross check between information provided in the monitoring report and data from other sources such as plant log book, purchase records or similar data sources;
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS PD/3/, the applied methodology including applicable tool(s), and, where applicable, the applied standardized baseline;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- 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 project description. To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three 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 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, **02 CLs and 05 CARs** 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 VCS Validation Report/9/ and previous VCS Verification Report /10/, no FAR was raised during Validation and previous Verification 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 /33/ during site visit.

# 3 VALIDATION FINDINGS

## 3.1 Participation under Other GHG Programs

The project is neither registered nor seeking registration under any GHG program and it is only registered under VCS with project ID 1709[6]. This was confirmed by checking VERRA registry website for the project 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/27/ submitted by PP 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-October-2021 to 30-November-2022 (Inclusive of both dates) will not be double counted hence accepted by the assessment. Assessment team also did the exercise of

[6] https://registry.verra.org/app/projectDetail/VCS/1709

independently searching for such project registration or claim for current monitoring period was performed for other GHG related benefits such as REC/13/ and I-REC/14/ benefits and based on both independent assessment and declaration submitted by PP/27/, the assessment team accepted the claim that there is no double counting from this project activity for current monitoring period. 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:

1. https://www.recregistryindia.nic.in/
2. http://cdm.unfccc.int/
3. http://www.goldstandard.org/
4. https://verra.org/verra-standards-and-programs/.
5. I-REC Standard - The International REC Standard Foundation (irecstandard.org)
6. https://cri.nccf.in/
7. International Carbon Registry - International Carbon Registry
8. GCC PROJECTS PORTAL (globalcarboncouncil.com)

Rejection by other GHG programs

The Project is not rejected by other GHG programs listed below. A declaration/27/ 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:

1. https://www.recregistryindia.nic.in/
2. http://cdm.unfccc.int/
3. http://www.goldstandard.org/
4. https://verra.org/verra-standards-and-programs/.
5. I-REC Standard - The International REC Standard Foundation (irecstandard.org)
6. https://cri.nccf.in/
7. International Carbon Registry - International Carbon Registry
8. GCC PROJECTS PORTAL (globalcarboncouncil.com)

## 3.2 Methodology Deviations

There is no methodology deviation identified during the current monitoring period. Also, no methodology deviations identified during the validation/9/ & previous verification /10/.

## 3.3 Project Description Deviations

**A.** Deviation was requested during current verification (Monitoring Period: 01-October-2021 to 30-November-2022) that includes the following:

**A.1. Deviation 01:**

To achieve more precise detection, the monitoring report has revised the 140 MW (AC) Solar Photovoltaic Project in Rajasthan location's Longitude (E) and Latitude (N) values. The methodology's applicability, additionality, or the suitability of the base case scenario are unaffected by the deviation. The 140 MW (AC) Solar power plant's coordinates have been updated and are now listed as.

**For Rising Bhadla 1 Private Ltd.**

| Latitude (North) | Longitude (East) |
|---|---|
| 27°29'53.75" | 71°54'59.50" |
| 27°29'38.16" | 71°54'59.93" |
| 27°30'22.73" | 71°55'02.19" |
| 27°30'02.37" | 71°55'02.75 |
| 27°30'02.47" | 71°55'07.61" |
| 27°29'53.93" | 71°55'07.85" |
| 27°30'23.09" | 71°55'19.10" |
| 27°30'14.47" | 71°55'25.29" |
| 27°30'17.81" | 71°55'28.04" |
| 27°30'10.09" | 71°55'32.22" |
| 27°30'13.76" | 71°55'34.88" |
| 27°30'09.80" | 71°55'41.91" |
| 27°29'39.09" | 71°55'42.60" |
| 27°30'09.66" | 71°55'44.77" |
| 27°29'41.14" | 71°55'45.55" |

**For Rising Bhadla 2 Priate Ltd.**

| Latitude (North) | Longitude (East) |
|---|---|
| 27°30'03.31" | 71°54'37.83" |
| 27°29'06.79" | 71°54'39.38" |
| 27°30'03.49" | 71°54'45.87" |
| 27°29'53.46" | 71°54'46.15" |
| 27°29'06.99" | 71°54'48.62" |
| 27°29'09.85" | 71°54'55.74" |
| 27°29'53.75" | 71°54'59.39" |
| 27°29'38.06" | 71°54'59.82" |
| 27°29'12.12" | 71°55'02.33" |
| 27°29'14.43" | 71°55'08.92" |
| 27°29'16.22" | 71°55'11.47" |
| 27°29'27.56" | 71°55'25.93" |
| 27°29'38.99" | 71°55'42.45" |

The nature of deviation is permanent.

The project location was verified by the assessment team through Google earth/32/ during desk review and GPS map camera software/31/ during onsite visit/34/ and hence found to be correct. VKU thus states that the above requested deviation is verified and found to be correct,

However, PP mapped down the project area using a G-Map link[7] where the project location spread over the area of 2,800,200 square meters (1,400,000 square meters for Rising Bhadla 1 Private Limited and 1,400,200 square meters for Rising Bhadla 2 Private Limited) was traced down into proper geo-coordinates. Hence VKU conclude that it is found to be correct and acceptable.

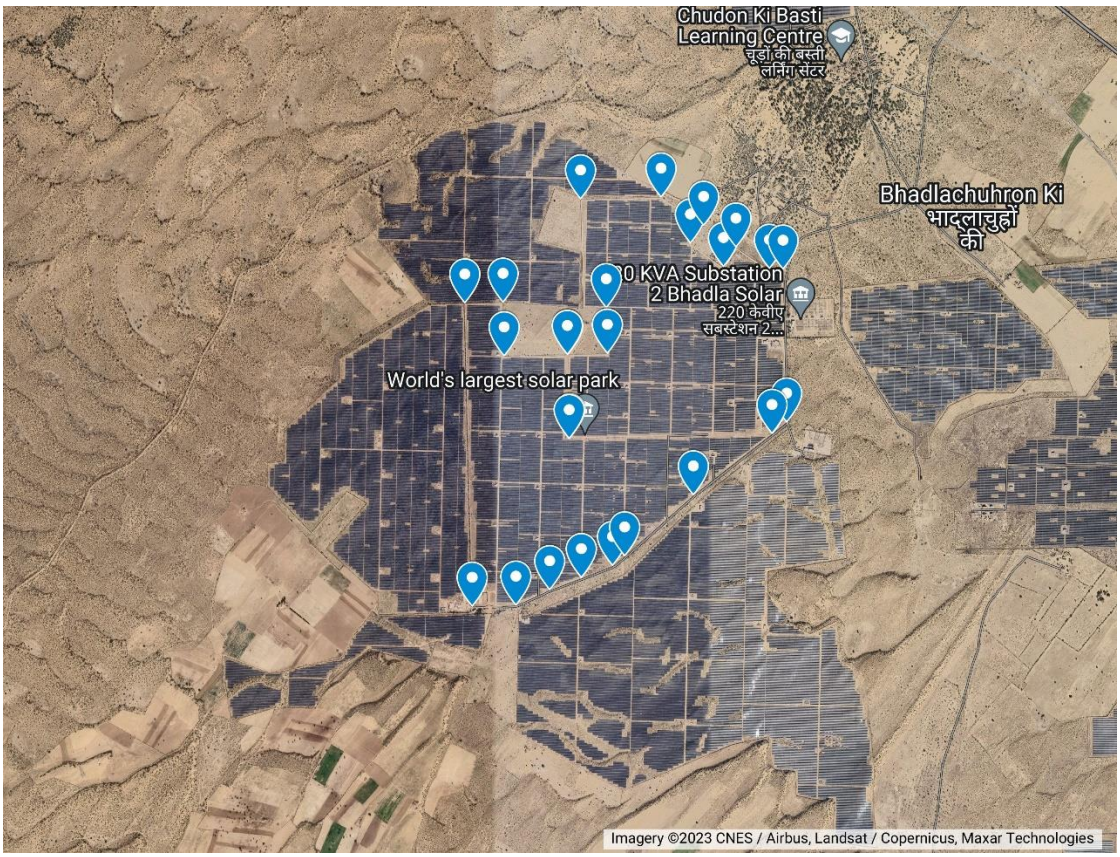


**Figure 01: Project implemented Location verified and mapped down Block-wise**

## 3.4 Grouped Project

This is not a grouped project. Therefore, this section is Not Applicable.

# 4 VERIFICATION FINDINGS

## 4.1 Project Implementation Status

During the onsite audit with PP representative, it was concluded that the project is implemented as per the requirement of the registered VCS PD/3/ and approved monitoring

[7] Untitled map - Google My Maps

plan/3/. During the current monitoring period, the 900-volt DC electricity generated by the Rising Bhadla 1 and Rising Bhadla 2 solar modules is fed into inverters, which convert it into 380-volt AC electricity. This AC electricity is then supplied to an inverter transformer, which steps up the voltage to 33 kilovolts. The electricity is then further stepped up to 132 kilovolts at the substation and to 220 kilovolts at the RSDCL[8] Pooling Substation. Along with electricity from other sources, the electricity from both Rising Bhadla 1 and Rising Bhadla 2 is supplied to the RRVPNL[9] Pooling substation, where it is stepped up to 400 kilovolts. After passing through the 400KV Pooling Substation by RRVPNL, the electricity is then supplied to NTPC, the designated consumer of the electricity under the Power Purchase Agreement, which in turn supplies it to the Unified Indian Grid as in line with the registered monitoring plan/3/ and was also confirmed from the site personnels during onsite interview and focussed group discussions /33/

**Table no 07: Breakdown Details of the project activity divided into Scheduled and Unscheduled hours**

| Plant Site | Breakdown hours | |
|---|---|---|
| | Scheduled Hours Breakdown | Unscheduled Hours Breakdown |
| Village - Bhadla,<br>Tehsil - Phalodi,<br>District- Jodhpur State: Rajasthan<br>Country: India | 16 Hours 30 minutes | 37 Hours 40 Minutes |
| **Total** | **54 Hours 10 Minutes** | |

It was observed that there was no unforeseen incident/event evolved which can impact the operation of the project activity except the scheduled maintenance and service breakdowns calculated as **54 hours 10 minutes** /35/. Consequently, there have been no substantial repercussions of plant breakdown on the project activity's reduction of GHG emissions or the project activity's monitoring method. Reasons for breakdown include:

1. Scheduled shutdown for solar panel cleaning for 09:00 Hrs of 11-November-2021.

[8] Rajasthan Solarpark Development Corporation Limited

[9] Rajasthan Rajya Vidyut Prasaran Nigam Limited

2. Unscheduled breakdown due Control room HT panel insulation failure due to moisture to 12:35 hrs. of 20-December-2021.
3. Unscheduled breakdown due Y-Phase fuse get failure to 08:00 hrs. of 09-March-2022.
4. Scheduled shutdown for planned maintenance to 07:30 hrs. of 14-April-2022.
5. Unscheduled breakdown due to HT Cable fault to 17.05 hrs of 26-July-2022.

The Project was operational for 426 days which gives total operational hours as 10,224. Also, Since the project activity was under breakdown for the duration 54 hours and 10 minutes as described in Appendix 2 of this report, the total net operational hours for the project activity for the monitoring 01-October-2021 to 30-November-2022 is 10,169 hours and 50 minutes

It is verified through generation log book records/24/ and breakdown excel sheet/35/ provided by the PP and also verified during Onsite visit to the project implemented site/34/ and also mentioned in section 03 and Appendix 02 of MR/1/. This does not have a significant impact on the ER calculation. The project underwent continuous operation and only scheduled maintenance as per the manufactures specification which is acceptable to the assessment team as verified during the interview with PP personnel (Senior engineers/Junior engineer/Assistant manager)/33/ was carried out on: Sunday, 22-January-2023 by the verification team during onsite visit /34/. Moreover, there is no unforeseen incident which can affect the applicability of the methodology and thus the same is acceptable to the assessment team.

Starting date of the operation of the bundled project activity is 18-July-2017 (refer section 1.1 of MR) which is the date of commissioning of first phase of the Project. The PP name is Rising Bhadla 1 Private Ltd. Assessment team checked the commissioning certificate/28/ and confirmed that the date of commissioning for the Solar power plant is correct. Assessment team also confirm during the onsite audit/34/ 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 PD/3/. This has been further verified from the registered Validation report/9/ and previous verification reports/10/.

The project location was verified by the assessment team through Google earth/32/ during desk review and GPS map camera software/31/ during onsite visit/34/. Moreover, assessment team confirmed that the latitude and longitude as mentioned in the registered VCS PD/3/, VCS Validation Report/9/, VCS MR/1/. But the mentioned geocoordinates in the documents did not show any particular implemented solar project, so a CAR#01 & CAR#05 (*Refer Appendix 02 of this report*) was raised with respect to the geocoordinates and thus PP requested a deviation, (permanent in nature) and now the updated geocoordinates are

**For Rising Bhadla 1 Private Ltd.**

| Latitude (North) | Longitude (East) |
|---|---|
| 27°29'53.75" | 71°54'59.50" |
| 27°29'38.16" | 71°54'59.93" |
| 27°30'22.73" | 71°55'02.19" |
| 27°30'02.37" | 71°55'02.75 |

| | |
|---|---|
| 27°30'02.47" | 71°55'07.61" |
| 27°29'53.93" | 71°55'07.85" |
| 27°30'23.09" | 71°55'19.10" |
| 27°30'14.47" | 71°55'25.29" |
| 27°30'17.81" | 71°55'28.04" |
| 27°30'10.09" | 71°55'32.22" |
| 27°30'13.76" | 71°55'34.88" |
| 27°30'09.80" | 71°55'41.91" |
| 27°29'39.09" | 71°55'42.60" |
| 27°30'09.66" | 71°55'44.77" |
| 27°29'41.14" | 71°55'45.55" |

**For Rising Bhadla 2 Private Ltd.**

| Latitude (North) | Longitude (East) |
|---|---|
| 27°30'03.31" | 71°54'37.83" |
| 27°29'06.79" | 71°54'39.38" |
| 27°30'03.49" | 71°54'45.87" |
| 27°29'53.46" | 71°54'46.15" |
| 27°29'06.99" | 71°54'48.62" |
| 27°29'09.85" | 71°54'55.74" |
| 27°29'53.75" | 71°54'59.39" |
| 27°29'38.06" | 71°54'59.82" |
| 27°29'12.12" | 71°55'02.33" |
| 27°29'14.43" | 71°55'08.92" |
| 27°29'16.22" | 71°55'11.47" |
| 27°29'27.56" | 71°55'25.93" |
| 27°29'38.99" | 71°55'42.45" |

During the project assessment process, the evaluation team used Google Earth /32/ for desk review and GPS map camera software /31/ during the onsite visit /34/ to verify the project location. Based on this verification, VKU confirms that the requested deviation is accurate and can be confirmed by accessing the following link on Untitled map - Google My Maps

The 140 MW (AC) bundled solar project was implemented in four phases, commissioning dates for four phases along with the longitude and latitude are mentioned in below table –

**Table no: 8 Project Location along with Date of Commissioning**

| Project Proponents | Capacity | Date of commissioning | Project location | State |
|---|---|---|---|---|
| Rising Bhadla 1 Private Ltd | 40MW | 18-July-2017 | Village - Bhadla, Tehsil - Phalodi, District- Jodhpur | Rajasthan |
| | 30MW | 29-September-2017 | | |
| Rising Bhadla 2 Private Ltd | 40MW | 29-August-2017 | Village - Bhadla, Tehsil - Phalodi, District- Jodhpur | Rajasthan |
| | 30MW | 01-November-2017 | | |

| | |
|---|---|
| **Project Title** | 140 MW Solar Photovoltaic Project in Rajasthan |
| **Date of Commissioning** | 18-July-2017 |
| **Project Type** | Solar Project |
| **Capacity** | 140 MW (AC) |
| **Location** | Village - Bhadla, Tehsil - Phalodi, District- Jodhpur, State- Rajasthan in Country – India. |
| **Host Country** | India |

The verification team checked the implementation status of the project activity and the instrumentation installed for the project activity. During onsite visit/34/ the technical specifications /29/ were verified from name plates and installed at each modules also PP has submitted supporting documents for the salient features of the solar technology & same has been tabulated in the table below:

**Table no: 9 The major technical specifications of the project activity:**

| **The technical specification of 40 MW AC plant of Rising Bhadla 1 Private Ltd. are as follows:** | | |
|---|---|---|
| **Sl. No.** | **Technical details of the equipment[10]** | **Comments** |
| 1 | Technology Used | Multi Crystalline |
| 2 | Rating of each module (Wp) | 315 Wp to 330 Wp |
| 3 | Angle from horizontal at which array is installed | 5 Deg Angle |
| 4 | Number of modules installed of each type | 315 Wp- 3120 Nos.<br>320 Wp 36192 Nos.<br>325 Wp- 53040 Nos<br>330 Wp- 61152 Nos.<br>The DC capacity of the Solar panels is 49.8 MW and the AC capacity is 40 MW. Hence the DC to AC |

[10] It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 140 MW (AC).

| | | |
|---|---|---|
| | | conversion ratio if 1.25. |
| 5 | Sources(s) of the modules installed of each type | Canadian Solar 315 Wp, 320 Wp<br>325 Wp, 330 Wp |
| 6 | Number of the Power Conditioning Units (PCUs) installed | 1000 KW- 40 No-s |
| 7 | Sources of PCUs (Name of Supplied) | ABB India Limited |
| 8 | Invertor Transformers | 11 Nos. (4 MVA -10 Nos & 2 MVA-1No.) |
| 9 | Power Transformer | 2 Nos. (30/36 MVA) Schneider |
| The technical specification of 30 MW plant of Rising Bhadla 1 Private Ltd. are as follows: | | |
| Sl. No. | Technical details of the equipment5 | Comments |
| 1 | Technology Used | Multi Crystalline |
| 2 | Rating of each module (Wp) | 315 Wp to 330 Wp |
| 3 | Angle from horizontal at which array is installed | 5 Deg Angle |
| 4 | Number of modules installed of each type | 315 Wp- 4,800 Nos.<br>320 Wp 10,848 Nos.<br>325 Wp- 85,920 Nos<br>330 Wp- 14,848 Nos.<br>The DC capacity of the Solar panels is 37.80 MW and the AC capacity is 30 MW. Hence the DC to AC conversion ratio if 1.26. |
| 5 | Sources(s) of the modules installed of each type | Canadian Solar 315 Wp, 320 Wp, 325 Wp, 330 Wp |
| 6 | Number of the Power Conditioning Units (PCUs) installed | 1000 KW- 30 Nos |
| 7 | Sources of PCUs (Name of Supplied) | ABB India Limited |
| 8 | Invertor Transformers | 7 Nos. (4 MVA- 7 Nos) |
| The technical specification of 40 MW plant of Rising Bhadla 2 Private Ltd. are as follows: | | |
| Sl. No. | Technical details of the equipment11 | Comments |
| 1 | Technology Used | Multi Crystalline |

[11] It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 140 MW (AC).

| | | |
|---|---|---|
| 2 | Rating of each module (Wp) | 320 Wp to 330 Wp |
| 3 | Angle from horizontal at which array is installed | 5 Deg Angle |
| 4 | Number of modules installed of each type | 320 Wp 78,400 Nos.<br>325 Wp- 46,320 Nos<br>330 Wp- 30,400 Nos.<br>The DC capacity of the Solar panels is 50.17 MW and the AC capacity is 40 MW. Hence the DC to AC conversion ratio if 1.25. |
| 5 | Sources(s) of the modules installed of each type | Canadian Solar<br>320 Wp, to 330 Wp<br>JA Solar<br>320 Wp, 325 Wp |
| 6 | Number of the Power Conditioning Units (PCUs) installed | 1000 KW- 40 Nos |
| 7 | Sources of PCUs (Name of Supplied) | ABB India Limited |
| 8 | Invertor Transformers | 10 Nos. (4 MVA – 10 Nos) |
| 9 | Power Transformer | 2 Nos. (30/36 MVA)<br>Crompton<br>Greaves |
| **The technical specification of 30 MW plant of Rising Bhadla 2 Private Ltd. are as follows:** | | |
| **Sl. No.** | **Technical details of the equipment[12]** | **Comments** |
| 1 | Technology Used | Multi Crystalline |
| 2 | Rating of each module (Wp) | 320 Wp to 330 Wp |
| .3 | Angle from horizontal at which array is installed | 5 Deg Angle |
| 4 | Number of modules installed of each type | 320 Wp 15,680 Nos.<br>325 Wp- 84,920 Nos<br>330 Wp- 15,200 Nos. The DC capacity of the Solar panels is 37.6 MW and the AC capacity is 30 MW. Hence the DC to AC conversion ratio if 1.25. |
| 5 | Sources(s) of the modules installed of each type | Canadian Solar 320 Wp, |

[12] It is to be noted that in future there is possibility of change in module configuration, however project capacity in total will remain same as 140 MW (AC).

| | | |
|---|---|---|
| | | to 330 Wp<br>JA Solar<br>320 Wp, 325 Wp |
| 6 | Number of the Power Conditioning Units (PCUs) installed | 1000 KW- 30 Nos |
| 7 | Sources of PCUs (Name of Supplied) | ABB India Limited |
| 8 | Invertor Transformers | 8 Nos. (4 MVA – 7 Nos & 2 MVA – 1 Nos) |

Interview of the site personnel (Refer Table:01) was conducted by the verification team, which revealed that all the QA/QC procedures listed in the registered VCS PD/3/ have been followed while operating the project activity. All parameters stated in the monitoring plan in registered VCS PD/3/ and the applied methodology/8/ has been monitored in the current monitoring report. All the emergency preparedness as mentioned in the registered VCS PD/3/ is followed onsite and no discrepancies were found regarding the same. The assessment team confirmed through onsite visit /34/ with PP representative that there is no proposed or actual change to the project design during this monitoring period All baseline emission parameters have been verified from the registered VCS PD/3/. The discussion regarding each parameter has been elaborated in the further section of this report. PP will not claim the credits under any other GHG emission reduction scheme (including CDM) for the present monitoring period under VCS and PP has provided declaration/27/ on the same during this verification. Hence, there is no possibility of double counting.

Assessment team concludes the following:

a) There are no material discrepancies between project implementation and the project description provided in the registered VCS PD version 03 dated 26-December-2017/3/.
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.
c) There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/8/.
d) 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/27/.
e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation/9/ and previous verification/10/.
f) The project is registered under VCS [13] only, however PP has submitted the declaration/27/stating, they will not claim same GHG emission reductions of the

[13] https://registry.verra.org/app/projectDetail/VCS/1709

project from CDM or any other GHG programme for the current monitoring period when project is seeking to get GHG emission reduction from VCS. Audit team also checked the REC/13/ Mechanism database of India and I-REC/14/ 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 [14] /13/REC)/(International-Renewable Energy Certificate Standard Standard) I-REC[15]/14/ 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/27/ for the same.

g) 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/34/ and found all the indicators to be effective and applicable for the project activity.

As per the VCS Standard Version 4.3[16], projects registered on or after 20-January-2023, must demonstrate contributions to a minimum of three Sustainable Development Goals (SDGs). Projects registered with VERRA before this date must show contributions to three SDGs by 20-January-2025[17,] as stated in the Quarter 1 VCS Program Update released on 20-January-2022. This project's fifth Periodic Verification for the Monitoring Period 01-October-2021, to 30-November-2022, is registered before 20-January-2023, so the Project Proponent (PP) must demonstrate contributions to at least three SDGs by 20-January-2025. For the current monitoring period, the PP is voluntarily showing contributions to two SDGs, as indicated below:

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, **352,376.94 MWh** renewable electricity has been supplied to Indian grid that helps to strengthen the renewable energy share in the energy mix. VVB has referred previous verification reports /10/, JMRs/25/, Invoices/26/ and thus found the above claimed renewable electricity supplied to Indian grid is correct.

2. 13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)

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

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

[16] https://verra.org/wp-content/uploads/VCS-Standard_v4.3.pdf

[17] https://verra.org/wp-content/uploads/2022/01/VCS-Summary-of-Effective-Dates-2022-Q1.pdf

Due to installation of this project activity PP has prevented the release of **340,149 $tCO_2$** into the atmosphere. 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 /10/, JMRs/25/, Invoices/26/ and thus found the above claimed renewable electricity supplied to Indian grid is correct.

**Table no: 10 Contributions Over Project Lifetime**

| Sl.No. | Monitoring Period Dates | Energy Supplied by the project activity to grid during its lifetime (MWh) | GHG emissions avoided by the project activity during its lifetime (tCO2e) | GHG Programme |
|---|---|---|---|---|
| 1. | Current Monitoring Period<br><br>01-October-2021 to 30-November-2022 (inclusive of both start and end dates) | 352,376.94 | 340,149 | VCS |
| **Contributions Over Project Lifetime** | | **352,376.94 MWh** | **340,149 $tCO_2$** | **VCS** |

In addition to its contribution to sustainable development, the project has had a positive impact on economic, social, environmental, and technological aspects of sustainable development. The Ministry of Environment and Forests has identified these four criteria as key components of sustainable development. The project has supported social well-being by providing employment opportunities and improving local infrastructure during both the construction and operation phases. Economic progress has been made possible by the advantages of VCS, which have allowed the project to be a clean technology investment in the area. Technological advancement will result from the successful completion of the project, which will boost solar-based power generation and encourage other business owners to pursue similar initiatives. Finally, the project's use of solar energy as a renewable source of power has eliminated reliance on fossil fuels, conserved limited resources, and resulted in zero emissions, thereby contributing to the reduction of GHG emissions and specific pollutants like SOx, NOx, and SPM that are produced by traditional thermal power generation facilities.

In order to ensure the project activity functions effectively and emission reductions are properly monitored, staff members are trained accordingly. Plant helpers have already received training in equipment operation, data recording, report writing, operation and maintenance, and emergency procedures, in accordance with the monitoring plan.

For the current monitoring period (1-October-2021 to 30-November-2022), inclusive of both dates), additional training programs have been organized. These include road safety training to raise awareness among employees, as well as technical trainings such as Inverter Operation and Maintenance Training, Switchyard Maintenance Training, and Office Safety Training. The purpose of these trainings is to equip the staff with the necessary skills and knowledge to effectively carry out their roles and responsibilities, and to ensure the safety and smooth operation of the project activity. VKU assessment team verified the above stated training during onsite visit /34/interview with site personnels/33/ & from training records present at site and submitted by client/37/

During the current monitoring period, the project activity has supplied 352,376.94 MWh of electricity, and thus contributing to 340,149 $tCO_2e$ GHG reductions.

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 project description/3/, All the above stated information was verified by VVB during onsite visit and site personnel interviews/33/.

## 4.2 Safeguards

### 4.2.1 No Net Harm

The use of renewable solar energy by the project has resulted in no negative socioeconomic or environmental consequences. Instead, the project promotes sustainable development by providing environmentally friendly power and generating job opportunities that contribute to improving the socioeconomic conditions of the region. Because the project falls under the exemption granted to solar power projects from environmental clearance requirements as per EIA notifications dated 14-September-2006/16/ and Ministry of Environment & Forests OM J-11013/41/2006 - IA II (I) dated 13th-May-2011, environmental impact assessments are not necessary. The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” dated 01-September-2013 /17/ by MNRE confirms that solar project activity operations do not result in direct air or noise pollution. The project has no significant impact on the quality of air, water, soil, or ambience, as verified by the verification team. Furthermore, the project has had no influence on the area's air, water, or ecology during its operational and maintenance phases, as highlighted in the MR/1/. The project has strengthened the region's skilled and unskilled labour force, creating job opportunities during both construction and operation, and improving the socio-economic conditions of the project region. This has increased the employment rate and standard of living for nearby residents, resulting in no net harm from the project activity.

### 4.2.2 Local Stakeholder Consultation

The Project is already registered with VCS and registered VCS PD/3/; sections 5.3 describe the Local Stakeholder Consultation Process as in-line with VCS requirement. As a part of local stakeholder consultation process conducted while setting up the project there were the Local

Stakeholder Meetings were organized for local stakeholder consultation and informed local stakeholder regarding the meeting. The followings are the local stakeholders for the project activity:

- Local community
- Local village administration
- Technology suppliers
- Local vendors

All the stakeholders have been invited through public notice to attend the stakeholders meeting.
The details of the Stakeholder Meetings are as follows:

- Date of invitation – 15-September-2016
- Date of Meeting – 24-September-2016
- Location of Meeting - Project site, Rajasthan

During the local stakeholder consultation process conducted prior to setting up the project, some stakeholders raised specific questions, which were adequately and satisfactorily addressed by the project participant's representatives. No other significant comments or protests were raised, and stakeholders expressed their complete support for such projects in the region. To facilitate ongoing communication, the project proponent has installed an onsite grievance register where stakeholders can submit complaints, which will be addressed promptly if found to be legitimate. However, no feedback or grievances have been reported during the monitoring period, as the project generates renewable solar power, which does not result in negative impacts. The verification team has interacted with local stakeholders during an on-site assessment and recorded no negative comments or feedback from them. Section 2.3 of the report provides a summary of these interactions. Thus, continuous and ongoing stakeholder inclusivity is in place for the project activity in order to consider feedback or concerns from the local stakeholders involved in the project activity, which was verified by VKU assessment team during onsite visit/34/ and with grievance register placed by PP on project implemented site /30/

## 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 PD/3/ and the monitoring report/1/. It involves a single parameter to be monitored $EG_{PJ,y}$ (Quantity of net electricity generation supplied by the project (140 MW (AC) Solar) plant/unit to the grid in year y; MWh) according to the monitoring plan and monitoring report/1/. The parameter $EG_{PJ,y}$ value is sourced from JMRs/25/ and Invoices/26/. Proper calibrated meters of 0.2s accuracy class

installed at site regularly monitor the import and export value which is monthly aggregated in JMRs. ER sheet prepared by PP has been reviewed by assessment team thoroughly by cross checking the values of JMRs/25/ and Invoices/26/ submitted by PP and found correct including all the formulae and conversions and aggregations.

The monitoring plan laid in the registered VCS PD/3/ is being followed at the site/34/. 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 based on the net electricity generated and exported from the project. 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/2/ provided by PP. the verification of each monitoring parameter has been discussed later in section 4.5.

The calculation method and formulae used in calculating baseline emission is in compliance to the methodology used i.e., ACM0002 Version 17.0/8/. 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.

GHG Calculations:

The calculation of emission reduction has been done in accordance with the applied methodology used i.e., ACM0002 Version 17.0/8/. As per the applied methodology, the values of project emission and leakages are considered as zero for the project activity. The equation used for calculation of baseline emission is given below:

Baseline emissions are calculated as follows:

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

Where,

$BE_y$ = Baseline Emissions ($tCO_2$/year)

$EG_{PJ,y}$ = 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/year)

$EF_{grid, CM, y}$ = Baseline Emission Factor (Combined margin $CO_2$ emission factor for grid)

Therefore, the baseline emissions for Year 2021 (from 01-October- 2021 till 31-December-2021)

= 70,716 MWh * 0.9653 $tCO_2$/MWh

= 68,261 $tCO_2e$ (Round down Value)

Therefore, the baseline emissions for Year 2022 (from 01-January 2022 till 30-November-2022)

= 281,660.94 MWh * 0.9653 $tCO_2$/MWh

= 271,888 $tCO_2e$ (Round down Value)

The Total baseline Emissions = 68,261 + 271,888 = 340,149 $tCO_2e$

Project emissions are calculated as follows:

As per para 38 under section 5.4.1., of ACM0002 Version 17.0/8/ for all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected.

As per the standard operating procedure of the O&M contractor, the solar panels are cleaned via tractors which are used to clean the panels through water. Since negligible amount of emission reductions are accounted for such consumption so the project emission is here taken to be zero.

Hence the Project Emission are PEy = 0 tCO2e, PP has submitted a declaration/36/ dated 07-January-2023 regarding the same declaring that as per Standard Operation Procedure only 30 Litres of diesel is consumed monthly for the solar panel cleaning of the entire 140 MW solar power project situated at Bhadla Village, Phalodi Tehsil, Jodhpur District in Rajasthan State of India. Considering 10 months of water requirement the total diesel consumption for the entire year is 300 litres for our project activity. Hence the project emissions accounting for it will be negligible which is considered as 0.

The estimated emission reduction for the present monitoring period is 281,808 $tCO_2e$, however the achieved emission reductions are 340,149 $tCO_2e$ (round down value), or around 20.70% higher than the estimated emission reductions. In section 4,5 of this report and section 5.4 of MR/1/ calculations has been stated. This is further compiled in ER/2/ which has been verified by the assessment team from Monthly JMRs issued to PP by RRVPNL (Rajasthan Rajya Vidyut Prasaran Nigam Limited)/25/& invoices issued by PP to NTPC (National Thermal Power Corporation Limited)/26/ submitted to VVB by PP. Hence VVB can state 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 17.0” /8/. 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 project emission has been considered as zero.

## 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 proponents, which are used to determine emission reductions.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant, lack of evidence and missing data were detected during verification. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures.

The only parameters in the project activity are "Quantity of net electricity generation supplied by the project plant/unit to the grid **EG $_{PJ, y}$ (MWh)"**.

The below tables describe how the parameter "Quantity of net electricity generation supplied by the project plant/unit to the grid **EG $_{PJ, y}$ (MWh)"**, that is to be measured according to the monitoring plan, has been verified to confirm that the actual monitoring complies with the monitoring plan, monitoring data has been thoroughly assessed and that the calibration requirements are met: -

**Table No: 11 Assessment of Parameter (Quantity of net electricity generation supplied by the project activity to the grid) EG $_{PJ, y}$(MWh)' that is to be measured**

<table>
<tr><td>Parameter</td><td colspan="2">Quantity of net electricity generation supplied by the project (Solar) activity to the grid in year y, EG$_{PJ, y}$ (MWh)</td></tr>
<tr><td>Means of verification</td><td colspan="2"><table>
<tr><td>Criteria/Requirements</td><td>Assessment/Observation</td></tr>
<tr><td>Measuring /Reading /Recording frequency</td><td>Continuous monitoring and monthly recording<br><br>Quantity of net Electricity generation supplied to the grid is in MWh. The quantity of net electricity supplied by the project activity to the grid will be calculated as a difference of electricity exported to the grid, electricity imported from the grid and the transmission losses obtained from JMRs</td></tr>
</table></td></tr>
</table>

| | | |
|---|---|---|
| | | provided by RRVPNL as per below equation:<br>Net electricity supplied to the grid by the project plant in a given month = $Export_{,kWh}$ – $Import_{,kWh}$<br>**This is a calculated value** |
| | 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 PD version 03 dated 26-December-2017/3/ and monitoring methodology/8/. Thus, there is no deviation from the stated procedures in the registered monitoring plan. This was verified by assessment team during desk review and by Team Leader during onsite visit /34/ and interviews with site personnel. /33/ |
| | Monitoring equipment | No monitoring equipment is used as this parameter is calculated. However, the export and import values are calculated using measured values, which are continuously measured, and recorded monthly by two sets of meters (main & check meters) used for measuring the electricity export to the grid and electricity import from the grid.<br>The electricity is exported / supplied by the plant to pooling substation and further to RRVPNL substation. This main meter& Check meter located at 132/220 KV GSS END are |

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| | | bidirectional which measures export and import of electricity by the plant from the grid.<br><br>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? | The accuracy of the monitoring equipment used to measure the input values such as import and export to calculate net electricity generation value is 0.2s which is as per the registered VCS PD version 03 dated 26-December-2017/3/ which is as per the norm defined in the PPA/21/. Also the same was verified from the energy meters installed at the site during onsite visit/34/ to the Grid Sub Station. |
| | 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 as specified in calibration certificates/23/ is **63.5 V (P-N) 1-1.2A, 50Hz** is valid for the entire range, which is per registered VCS PD/3/ |
| | Calibration frequency /interval: | Meters used for the monitoring of export, import shall be calibrated once in every five years basis as per PPA/21/ but the PP is following a good practise of calibrating meters every year thus minimizing any chance of error, which is in line with the VCS standard Version 4.3 and thus acceptable to the VVB. |
| | Is the calibration interval in line with the monitoring plan and/or | Yes. The calibration frequency is once in five years as per PPA/21/ and also outlined in |

| | | |
|---|---|---|
| | 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? | the registered VCS PD/3/ is in accordance with the national standards i.e., Clause 18 of Central Electricity Authority (Installation and Operation of Meters) /2018/.In the PPA itself the accepted calibration frequency is once in every five years/21/ verified through onsite present field staff/33/, which is in line with VCS Standard version 4.3/5/ calibrations requirements are as per the registered monitoring plan. Also, the PP adopt yearly calibration of meters as a good practice. This was also confirmed during interview with onsite personnel /33/and cross verified by the calibration certificates/23/ submitted by the PP |
| | Is the calibration of measuring equipment carried out by an accredited person or institution? | Calibration certificates/23/ of the measuring equipment's is carried out by NABL accredited agency through state utility RRVPNL as per PPA/21/ All the main meters and check meters are tested by M/S Yadav measurement PVT. LTD., till 2018 and from 2021 the calibration of the meters is done by Darsh Calibration Pvt. Ltd. However from 2022 the calibration of the meters is done by Yash Metrology Laboratory Private Limited on a periodic basis.<br><br>As per the emergency procedure of the PP outlined in MR/1/ and RMP/3/ In case of |

[18] https://cea.nic.in/wpcontent/uploads/regulations_cpt/2022/03/Gazette_Notification_of_Central_Electricity_Authority_Installation_and_Operation_of_Meters_Amendment_Regulations_2022_dated_28_Feb_2022.pdf

| | | |
|---|---|---|
| | | any faulty readings observed appropriate corrective action will be taken. If the error is found beyond the permissible limits, the PP will inform the respective agency so as to immediately rectify the error in the instrument, which was confirmed during onsite visit while interviewing/33/ the site personnel at project site/PP/Consultant, this is mentioned by the PP in the MR and VKU verified the same during onsite visit and is hence acceptable.<br><br>Also note that however in this monitoring period no apportioning has been done but the data apportioning details in case the dates of recording are not in line with the monitoring period dates have now been clearly mentioned in section 4.3 of MR/1/ and also incorporated in this section of verification report. |
| | Is(are) calibration(s) valid for the whole reporting period? | Yes, the calibration frequency mentioned in PD/3/ and in the PPA for once in five years is valid for the whole reporting period and as per that there are no any delays in the calibration as per registered monitoring plan/3/ |
| | Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried | Yes. The calibration is carried out appropriately. Since in registered monitoring plan the calibration frequency is once in |

| | | |
|---|---|---|
| | out? | five years which is also as per the national standards i.e., Clause 18 of Central Electricity Authority (Installation and Operation of Meters). In that case the calibration carried out for a measuring range.<br><br>But as identified during onsite visit & as per the calibration certificates, the PP is getting calibration done annually to minimize any error variation, which if observed is lesser than the error variation specified. Hence, it is within the measurable range. Also the end date of monitoring period is withing the calibration validity as per the date of calibration, So no error has been applied for the months in this monitoring period. ***(Please refer Appendix 01 of MR/1/ & Table no 10 for calibration Details)***<br><br>The calibration is carried out appropriately as per the registered monitoring plan and VCS Validation and Verification manual version 3.2/6/ |
| | How were the values in the monitoring report verified? | Cumulative value of $EG_{PJ,\ y}$ 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/25/ issued by RRVPNL and found to be consistent/25/ |

| | | |
|---|---|---|
| | | Value of this parameter for the current monitoring period was verified as ***352,376.94 MWh***. The same is outlined in the ER Sheet submitted by the PP, which was verified by VKU from the JMRs/25/ issued to the PP by State utility and cross checked from the Invoices/26/ issued to the state entity/NTPC by the PP. |
| | If applicable, has the reported data been cross-checked with other available data? | The monthly reported values of $EG_{PJ,\ y}$ was further cross checked with the monthly invoices /26/ raised by the PP to NTPC, and 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 /33/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. |
| | In case project proponents 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. |
| **Findings** | CL#02, CAR#02, CAR#03, CAR#04 & CAR#05 were raised and resolved | |
| **Conclusion** | The 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. | |

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| | 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 are free from material errors. |

**Table No: 12 Data and Parameters Available at Validation or Ex-ante parameters:**

| Parameter | Unit | Description | Value[19] |
|---|---|---|---|
| $EF_{grid,OM,y}$ | $tCO_2/MWh$ | Operating Margin $CO_2$ Emission Factor in year y | 0.9843 $tCO_2/MWh$ is consistent with the registered VCS PD/3/. |
| $EF_{grid,BM,y;}$ | $tCO_2/MWh$ | Build Margin $CO_2$ Emission Factor in year y | 0.9083 $tCO_2/MWh$ is consistent with the [20]Methodological Tool: |
| $EF_{grid,CM,y}$ | $tCO_2/MWh$ | Combined Margin $CO_2$ Emission Factor in year y | 0.9653 $tCO_2/MWh$ is consistent with the registered VCS PD/3/. |

[19] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver12.pdf

[20] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v5.0.pdf

**Calibration of meters /23/**

During the verification assessment of the project activity, accuracy of all the metering equipment's has 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 by VKU. Details of meters are provided in below table:

**Table No: 13 Calibration details of meters**

| Date of Meter Calibration→ | | 13-August-2018 | 07-September-2021[21] | 14-October-2022 |
|---|---|---|---|---|
| RB-01 (70 MW) | Main Meter | 13194081 | 13194081 | 13194081 |
| | Check Meter | 13194941 | 13194941 | 13194941 |
| | Stand by Meter | 13195711 | 13195711 | 13195711 |
| RB-02 (70 MW) | Main Meter | 13194961 | 13194961 | 13194961 |
| | Check Meter | 13195690 | 13195690 | 13195690 |
| | Stand by Meter | 13195705 | 13195705 | 13195705 |

**Table No: 12 Meter Specifications & Calibration Details:**

| Serial No. | Meter Type | Accuracy Class | Make | Date of calibration<br>Calibration Frequency: (Once in 05 Years) | Validity till |
|---|---|---|---|---|---|
| **Rising Bhadla 1 Pvt Ltd (70 MW) (AC)** | | | | | |
| 13194081 | Main Meter | 0.2 s | L&T | 13-August-2018 | 12-August-2023 |
| 13194941 | Check Meter | 0.2 s | L&T | 13-August-2018 | 12-August-2023 |
| 13195711 | Stand by Meter | 0.2 s | L&T | 13-August-2018 | 12-August-2023 |
| **Rising Bhadla 2 Pvt Ltd (70 MW) (AC)** | | | | | |

[21] PP is following a good practise of getting meters calibrated annually and since as per the RMP the calibration frequency outlined in PPA & PD/3/ is once in five years the slight delay during annual calibration observed is lesser than the error variation specified also note that the end date of monitoring period is withing the calibration (validity i.e. once in five years) as per the date of calibration, So no error has been applied for the months in this monitoring period.

| | | | | | |
|---|---|---|---|---|---|
| 13194961 | Main Meter | 0.2 s | L&T | 13-August-2018 | 12-August-2023 |
| 13195690 | Check Meter | 0.2 s | L&T | 13-August-2018 | 12-August-2023 |
| 13195705 | Stand by Meter | 0.2 s | L&T | 13-August-2018 | 12-August-2023 |

Assessment on calibration:

The energy meter calibration certificates/23/ are checked by assessment team with respect to their calibration validity, accredited entity, accuracy class, make and calibration date 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-October-2021 to 30-November-2022 (inclusive of both the dates).

The verification team has checked all the meters during the onsite visit/34/ and confirmed that the meters were working satisfactorily. Also, the calibration /23/of meters are completely under purview of state utility i.e., RRVPNL at site and the calibration is conducted by Yadav Measurement Private Limited till 2018 and from 2021 the calibration of the meters is done by Darsh Calibration Pvt. Ltd. However, from 2022 the calibration of the meters is done by Yash Metrology Laboratory Private Limited on a periodic basis. In case of any faulty readings observed appropriate corrective action will be taken. If the error is found beyond the permissible limits, the PP will inform the respective agency to immediately rectify the error in the instrument. At the metering point, there are three energy meters available, namely the Main Meter, Check Meter, and Standby Meter. These meters are always operational, and they undergo regular onsite calibration. If, during calibration, one of the meters exceeds the allowed limits, the other two meters are used to measure the energy generation values. This ensures that there is no disruption in recording the data. The faulty meter is then replaced with a new one to ensure accurate measurement of energy generation and PP has no control over the same as confirmed by VKU through personal interviews & Focussed group discussions with the site personnel/33/ and PPA /21/signed by the PP with state utility.

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 3.2/6/ and also in line with the para 366 of CDM Validation and Verification Standard /7/.

The Main and Check meters at the substations are used to constantly monitor the export and import energy. Once a month, an authorized officer from the SEB will read the meters in the presence of either the PP or their representative. Invoices are then created based on the Meter Reading Statement provided to the PP. These invoices/26/ can be used to verify the meter readings for the specific project activity.

However not applicable to this monitoring period, the data apportioning details are mentioned below in case the dates of recording are not in line with the monitoring period dates.

It is possible that the start date of the monitoring period for the project activity may not match the start date of the JMR Statement. In such cases, the following procedures will be used to apportion the electricity exported to the grid from the solar panels during the intervening period:

A. The total electricity exported for the entire billing cycle will be determined based on the daily generation data (in MWh).

B. The electricity exported during the intervening period will be determined based on the daily generation data (in MWh).

C. The generation ratio will be calculated as B divided by A.

D. The electricity exported for the entire billing cycle will be determined based on the Joint Meter Reading Value (in MWh).

E. The apportioned value of electricity exported for the intervening period will be calculated as C multiplied by D.

The import value will be considered for the entire monitoring period, following a conservative approach for the apportioning of net electricity.

The registered VCS PD version 03/3/ & MR/1/ and site audit observations confirm that the metering equipment are sealed and maintained by the state utility.

The assessment team has verified the monthly JMRs/25/ issued by the state utility and confirmed that only the data recorded through main meters is used to calculate quantity of net electricity supplied to the grid consequently for ER calculations.

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:

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

| | | |
|---|---|---|
| $BE_y$ | = | Baseline emissions in year y (tCO2) |
| $EG_{PJ,y}$ | = | Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh) |

| | | |
|---|---|---|
| $EF_{grid, CM, y}$ | = | Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t $CO_2$/MWh) |

Where:

**Baseline Emission factor = 0.9653 $tCO_2$/MWh**

| Parameter | Unit | Value |
|---|---|---|
| $EG_{PJ, y}$ | MWh | 352,376.94 |
| $EF_{grid, CM, y}$ | $tCO_2e$ | 0.9653 |
| BE y | = | 352,376.94 MWh x 0.9653 |
| | = | **340,149 $tCO_2e$** (Round down value) |

Emission reductions are calculated as follows:

$ER_y = BE_y - PE_y - LE_y$

Where,

$ER_y$ = Emission reductions in year y ($tCO_2e$)

$BE_y$ = Baseline emissions in year y ($tCO_2e$)

$PE_y$ = Project emissions in year y ($tCO_2e$)

$LE_y$ = Leakage emissions in year y ($tCO_2e$)

The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The assumptions, emission factors and default values that were applied in the calculations are justified. The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The estimated emission reduction to be achieved from the project activity for the current monitoring period is 281,808 $tCO_2e$, whereas actual emission reductions achieved are 340,149 $tCO_2e$ (round down value), thus the actual emission reduction achieved is 20.70% higher than the estimated figure to match the monitoring period as per registered VCS PD version 03 dated 26-December-2017/3/.

The assumptions, emission factors and default values that were applied in the calculations are justified. The actual emission reduction achieved are 20.70% high than the estimated figure to match the monitoring period as per registered VCS PD/3/, which is due to the high PLF

achieved by the project activity during the current monitoring period which is completely governed by the availability of more sunshine hours which is a natural phenomenon and same is beyond the control of PP.

The assessment team further performed the analysis of the achieved PLF against the ex-ante PLF and also the difference in PLF between the two for Rising Bhadla 1 & 2 Private Limited.

The reference to the PLF estimation from the previous monitoring period *(refer table no 14 in this report)* is used to support the claim that the current monitoring period has achieved 20.70% higher emission reductions due to the increase in power output resulting from a higher number of sunshine hours. This suggests that power output is directly related to the amount of sunshine, and that the higher generation observed during the current period is a result of the increased load factor 24.62% for the current monitoring period. This higher generation falls within the sensitivity analysis for PLF as specified in registered PD. The PLF achieved by the project activity is as follows:

**Table no: 14 Variation of PLF in Rising Bhadla 1 Private Limited 70 MW (AC) Plant from ex-ante estimation for current monitoring period 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates)**

| Month | PLF | PLF ex ante | Variation |
|---|---|---|---|
| October-2021 | 26.15% | 20.50 % | 27.56% |
| November-2021 | 23.09% | 20.50 % | 12.63% |
| December-2021 | 19.43% | 20.50 % | -5.22% |
| January-2022 | 21.82% | 20.50 % | 6.44% |
| February-2022 | 26.73% | 20.50 % | 30.39% |
| March-2022 | 27.73% | 20.50 % | 35.27% |
| April-2022 | 27.79% | 20.50 % | 35.56% |
| May-2022 | 27.04% | 20.50 % | 31.90% |
| June-2022 | 26.78% | 20.50 % | 30.63% |
| July-2022 | 21.23% | 20.50 % | 3.56% |
| August-2022 | 21.71% | 20.50 % | 5.90% |
| September-2022 | 25.39% | 20.50 % | 23.85% |
| October-2022 | 26.64% | 20.50 % | 29.95% |
| November-2022 | 23.65% | 20.50 % | 15.37% |

Table no: 15 Variation of PLF in Rising Bhadla 2 Private Limited 70 MW (AC) Plant from ex-ante estimation for current monitoring period 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates)

| Month | PLF | PLF ex ante | Variation |
|---|---|---|---|
| October-2021 | 26.17% | 20.50 % | 27.66% |
| November-2021 | 23.00% | 20.50 % | 12.20% |
| December-2021 | 19.43% | 20.50 % | -5.22% |
| January-2022 | 21.81% | 20.50 % | 6.39% |
| February-2022 | 26.69% | 20.50 % | 30.20% |
| March-2022 | 27.71% | 20.50 % | 35.17% |
| April-2022 | 27.83% | 20.50 % | 35.76% |
| May-2022 | 27.17% | 20.50 % | 32.54% |
| June-2022 | 26.72% | 20.50 % | 30.34% |
| July-2022 | 21.12% | 20.50 % | 3.02% |
| August-2022 | 21.72% | 20.50 % | 5.95% |
| September-2022 | 25.35% | 20.50 % | 23.66% |
| October-2022 | 26.64% | 20.50 % | 29.95% |
| November-2022 | 23.41% | 20.50 % | 14.20% |

Table no: 16 Variation of PLF in Rising Bhadla 1 Private Limited 70 (AC) MW Plant from ex-ante estimation for Last monitoring period 01-March-2021 to 30-September-2021 (inclusive of both start and end dates)

| Month | PLF | PLF ex ante | Variation |
|---|---|---|---|
| March-2021 | 26.12% | 20.50 % | 27.41% |
| April-2021 | 26.50% | 20.50 % | 29.27% |
| May-2021 | 26.24% | 20.50 % | 28.00% |
| June-2021 | 26.69% | 20.50 % | 30.20% |
| July-2021 | 24.15% | 20.50 % | 17.80% |
| August-2021 | 24.86% | 20.50 % | 21.27% |

| | | | |
|---|---|---|---|
| September-2021 | 21.29% | 20.50 % | 3.85% |

**Table no: 17 Variation of PLF in Rising Bhadla 2 Private Limited 70 MW Plant from ex-ante estimation for Last monitoring period 01-March-2021 to 30-September-2021 (inclusive of both start and end dates)**

| Month | PLF | PLF ex ante | Variation |
|---|---|---|---|
| March-2021 | 26.13% | 20.50 % | 27.46% |
| April-2021 | 26.39% | 20.50 % | 28.73% |
| May-2021 | 26.34% | 20.50 % | 28.49% |
| June-2021 | 26.95% | 20.50 % | 31.46% |
| July-2021 | 23.95% | 20.50 % | 16.83% |
| August-2021 | 24.63% | 20.50 % | 20.15% |
| September-2021 | 21.45% | 20.50 % | 4.63% |

Since the data available for 2021 is from March to September, assessment team plotted the graph for the equivalent period in 2022 to study the trend.

**Figure 02: Trends of PLF from March 2021 to September 2021**

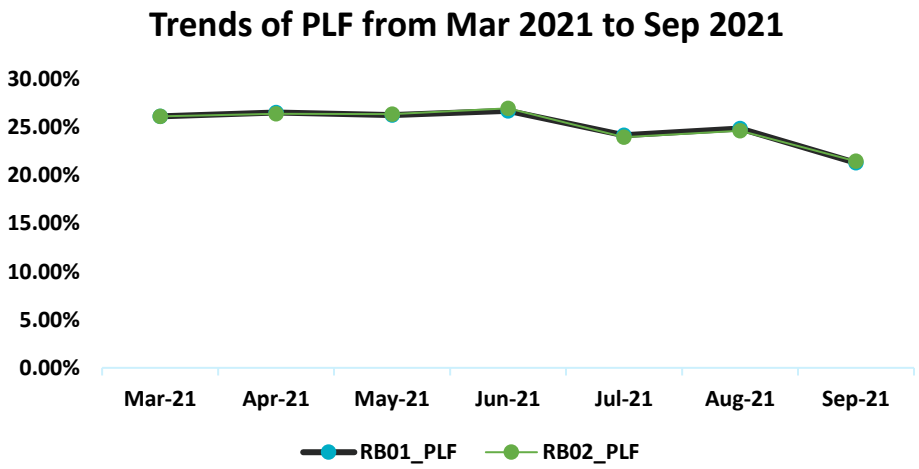
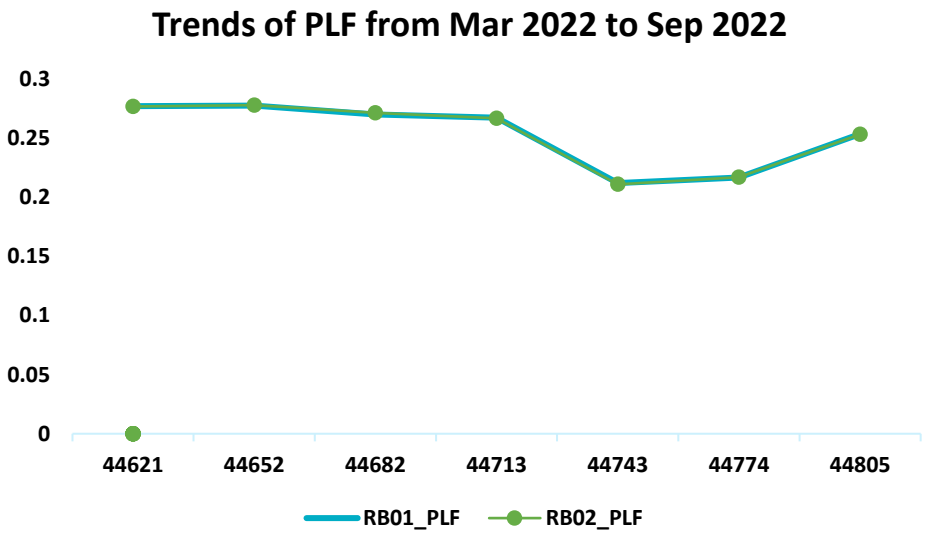


Figure 03: Trends of PLF from March 2022 to September 2022




Upon comparing Figure 02 and 03, it is clear that the trend of PLF in 2022 has been higher than the comparable period in 2021. This is reflected in higher emission reductions for the current monitoring period at 20.70%. At the same time upon checking the IRR sheet to check the additionality, it was found that although the achieved PLF is higher than the estimate, it is within the sensitivity bound. In other words, PLF has to touch or breach 25.55% to cross the IRR, while the achieved PLF for the monitoring period is 24.62%. Hence assessment team accepted higher emission reductions due to vagaries in sunshine pattern which is beyond the control of the PP.

This comparison is submitted in the ER sheet along with a justification confirming that this event of higher power generation was an unforeseen situation and also not under the direct control of PP.

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 and project 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.

## 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 CONCLUSION

VKU Certification Pvt. Ltd. (here after VKU) has performed the fifth verification of the first crediting period (18-July-2017 to 17-July-2027, Inclusive of both start and end dates). The emission reductions reported for the project activity "140 MW Solar Photovoltaic Project in Rajasthan" in India, VCS Registry Project ID 1709, for the period 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) is 340,149 $tCO_2e$, with regard to the relevant requirements for VCS activities. The project proponents of the "140 MW Solar Photovoltaic Project in Rajasthan" bundled project by Rising Bhadla 1 Private Ltd & Rising Bhadla 1 Private Ltd. is responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered VCS PD version 3.0 of 26-December-2017/3/.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.
- It is the responsibility of VKU to express an independent verification opinion about the project's conformity with the requirements of VCS Standard version 4.3/5/ 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 PD/3/;
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.3/5/ requirements;
- The monitoring is in place as per the applied baseline and monitoring methodology;
- The monitoring plan in the registered VCS PD/3/ is as per the applied baseline and monitoring methodology/8/.

VKU's 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. It is VKU's opinion that the GHG emission reduction stated in the monitoring report version 05 of 27-March-2023 for the "140 MW Solar Photovoltaic Project in Rajasthan" in India for the period 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) are fairly stated.

The GHG emission reductions are calculated on the basis of approved methodology ACM0002: Grid-connected electricity generation from renewable sources- (version 17.0)/8/ and the monitoring plan included in the registered VCS PD (version 03) dated 26-December-2017/3/.

Hence VKU is able to certify that the emission reduction from the project during the monitoring period 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) amounts to 340,149 $tCO_2e$. The following table shows the Net Emission Reduction from 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates) of first crediting period.

**Verification period:** 01-October-2021 to 30-November-2022 (Inclusive of both start and end dates)

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-October-2021 to 31-December-2021) | 68,261 | 0 | 0 | 68,261 |
| **Year 2022** (01-January-2022 to 30-November-2022) | 271,888 | 0 | 0 | 271,888 |
| **Total** | **340,149** | **0** | **0** | **340,149** |

# APPENDIX A: ABBREVIATIONS

| Abbreviations | Full texts |
|---|---|
| BE | Baseline Emissions |
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CDM M&P | Modalities and Procedures CDM |
| CER(s) | Certified Emission Reduction(s) |
| CH4 | Methane |
| CL | Clarification Request |
| CO2 | 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) |
| GPS | Global Positioning System |
| GS | Gold Standard |
| GWP | Global Warming Potential |
| IPCC | Intergovernmental Panel on Climate Change |
| KV | kilovolts |
| KW | Kilowatt |
| MoV | Means of Verification |
| MR | Monitoring Report |

| | |
|---|---|
| MW | Megawatt |
| NGO | Non-governmental Organization |
| NTPC | National Thermal Power Corporation |
| ODA | Official Development Assistance |
| PDD | Project Design Document |
| PE | Project Emission |
| PPA | Power Purchase Agreement |
| PP(s) | Project Proponent(s) |
| QA/QC | Quality assurance & Quality control |
| Ref. | Document Reference |
| RRVPNL | Rajasthan Rajya Vidyut Prasaran Nigam Limited |
| SLDC | State Load Dispatch Centre |
| SS(s) | Sectoral Scope(s) |
| TA(s) | Technical Area(s) |
| TE(s) | Technical Expert(s) |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VCS | Verified Carbon Standard |
| VCU | Verified Carbon Unit |
| VKU | VKU Certification Ltd. |
| VVS | Validation and Verification Standard |
| VVB | Validation and verification body |
| Wp | Watts peak |

# APPENDIX B: AUDIT FINDINGS

CAR: Corrective Action Request_05
CL: Clarification Request_02
FAR: Forward Action Request_00

| Type | Date | 25-January-2023 |
|---|---|---|
| CL#01 | Reference | Section 01/DR/OSV of VER |
| **Description of the Non Conformance** | | |
| **1.** **In section 1.1 of MR;** Please mention the operation of the plant as per the project description requirement as per the guidance document. PP to mention the operational hours of Solar power plant and is it the expected operational hours.<br>**2.** **In section 1.1 of MR;** This project opts for renewal crediting period; PP is requested to incorporate such crucial information in the project description.<br>**3.** **In section 1.1 of MR;** PP is requested to clarify that the project activity has been implemented or proposed.<br>**4.** **In section 1.1 of MR;** PP is requested to provide justification against the values of estimated GHG and net electricity value mentioned in this section of MR.<br>**5.** **In section 1.1 of MR;** PP is requested to specify the entity to whom the electricity generated at project site is being sold. Please provide and mention about the supporting document as a reference to justify the claim. Please make it consistent with the PPA submitted to VVB.<br>**6.** **In section 1.1 of MR;** PP is requested to provide the Evidence/Supporting Documents for the verification of commissioning Date of the Rising Bhadla 2 Pvt. Ltd 30 MW Unit.<br>**7.** **In section 1.9 of MR;** PP is requested to submit an undertaking stating the project activity is not registered with any other program.<br>**8.** **In section 1.10 of MR;** PP to produce undertaking to support the claim that PP is not receiving any REC benefits, also PP is requested to submit an undertaking stating they are not availing other forms of environmental credit for the same crediting period.<br>**9.** **In section 1.11 of MR;** As per VCS MR template version 4.1 PP is requested to provide a brief description of sustainable development contributions in (no more than 100 words) | | |
| **1st Response from PP** | **Date** | **10-February-2023** |
| **1.** It is now clearly mentioned that the ER estimation is done based on 20.50% PLF and 8760 hours of annual operation.<br>**2.** The project registered under VCS standard v4.0, where Appendix 1 states that “registered projects and projects that complete validation on or before 19 March 2020 remain eligible to apply the crediting period requirements under VCS version 3.” The Project completed validation before 19 March 2020 and chose to use the crediting period requirements under VCS version 3.<br>**3.** The Project activity has already been implemented, this is a typographical error and the same has been corrected.<br>**4.** The values of estimated GHG and net electricity value have been corrected in accordance with the registered VSC PD and the same has been corrected in the revised MR.<br>**5.** As per the PPA, the electricity is being sold to NTPC and the same has been corrected in the revised MR.<br>**6.** The commissioning certificate of the Rising Bhadla 2 Pvt. Ltd 30 MW Unit has been provided and the | | |

same has been mentioned in the revised MR.

**7.** A no-double-counting certificate has been provided for the same.

**8.** A no-double-counting certificate has been provided for the same.

**9.** The description has been revised in accordance with the VCS guidelines and the same is within 100 words limit.

| **1st Assessment by Audit Team** | **Status** | Open/Closed | **Date** | 17/02/2023 |
|---|---|---|---|---|

1. **For section 1.1 of MR**; PP is requested to incorporate the above provided justification in MR. **[OPEN]**
2. **For section 1.1 of MR;** PP to explain if the justification provided above is valid for the clarification raised by the VVB. **[OPEN]**
3. **For section 1.1 of MR;** PP has clearly mentioned that the project activity has been already implemented and PP also has made relevant changes in the MR which is acceptable to the VVB. **[CLOSED]**
4. **For section 1.1 of MR;** PP to justify why the estimated value mentioned here in MR is the average value and the estimated value taken in the ER sheet is for the fifth year of monitoring period. PP is further requested to explain and correct this inconsistency. **[OPEN**
5. **For section 1.1 of MR**; Assessment team confirms that PP has mentioned the entity to whom the sale has been made but PP has not provided proper and full statement to clarify the agreement made between two entities**. [OPEN]**
6. **For section 1.1 of MR;** PP has submitted document named as Connectivity report for 30 MW plant RB-2 that shows the date of connection with the grid as 31/10/2017. PP to clarify the inconsistency in the dates as mentioned in the MR v02**. [OPEN]**
7. **For section 1.9 of MR;** VVB confirms that PP has submitted the declaration to support stating that the project activity is not registered with any other program and there is not any double counting during current monitoring period. **[Closed]**
8. **For section 1.10 of MR;** VVB confirms that PP has confirmed that they have not received any REC & International REC benefits or any other forms of credits during the monitoring period & the same was confirmed from https://www.recregistryindia.nic.in/index.php/publics/registered_regens PP has also submitted the declaration to support their claim as per the MR template about the IREC mechanism. But assessment team does not trace any statement regarding International REC Mechanism in MR so PP is requested to incorporate this in the MR. **[OPEN]**
9. **For section 1.11 of MR; PP** has revised the section in accordance with the VCS guidelines and the same is within 100 words limit. **[CLOSED]**

**Hence CL#01 OPEN**

| **2nd Response from PP** | **Date** | **25-February-2023** |
|---|---|---|

**1.** The details have been mentioned as per the VCS MR filling guidance document.

**2.** Since the project activity completed validation on 26-December-2017, so the crediting period requirements are applicable as per VCS version 3. So, the project will opt for renewal of crediting period after 17-July-2027 and hence the information for the renewal of crediting period has not been included in section 1.1 of the monitoring report.

**4.** The Estimated GHG value is taken for the fifth year of the crediting period and the same has been made consistent in the ER-Sheet as well as the monitoring report.

**5.** The Statement has been revised and now the name of both the entities between whom the power purchase agreement has been made has been clearly mentioned in the section 1.1.

**6.** For all the project instances mentioned in the table in section 1.1, for all the commissioning certificates, It can be clearly seen that the Minutes of the meeting was held for the connectivity to the grid prior to it based upon which the connectivity reports were made. Since the Commissioning Certificate is the certificate for the successful completion of the interconnection of the grid so the same is considered as the start date of all the project instances. The Same is also true for 30 MW RB-2 project Instance.

**8.** A statement has been added in section 1.10 of the MR with the link of the IREC mechanism that

| | | | | |
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| clearly states that the project activity is also not availing any International REC benefits. | | | | |
| **2nd Assessment by Audit Team** | **Status** | Open | **Date** | 14-March-2023 |
| 1. **For section 1.1 of MR**; PP has incorporated the justification regarding operational hours in MR, which is acceptable to VVB . **[OPEN]**<br>2. **For section 1.1 of MR;** PP has explained that the project activity has completed validation on 26-December-2017, so the crediting period requirements are applicable as per VCS version 3. So, the project will opt for renewal of crediting period after 17-July-2027 and hence the information for the renewal of crediting period has not been included in section 1.1 of the monitoring report, this is in line with VCS standards and thus acceptable to the VVB<br>3. **For section 1.1 of MR;** PP has corrected the Estimated GHG value & has taken value applicable to the fifth year of the crediting period and the same has been made consistent in the ER-Sheet as well as the monitoring report, , which is acceptable to VVB<br>4. **For section 1.1 of MR**; PP to specify the Channel of electricity supply from NTPC to Grid as per PPA **[OPEN]**<br>**5. For section 1.1 of MR;** PP has submitted the commissioning certificates to verify the installation date for 30 MW RB-2<br>6. **For section 1.10 of MR;** VVB confirms that PP has confirmed that they have not received any REC & International REC benefits or any other forms of credits during the monitoring period & the same was confirmed from https://www.recregistryindia.nic.in/index.php/publics/registered_regens PP has also submitted the declaration to support their claim as per the MR template about the IREC mechanism.<br>**Hence CL#01 Open** | | | | |
| **3rd Response from PP** | | | **Date** | 14-March-2023 |
| **4.** The channel of electricity supply from NTPC to Grid is now clearly mentioned in the revised MR as per the PPA. | | | | |
| **3rd Assessment by Audit Team** | **Status** | Closed | **Date** | 15-March-2023 |
| **4. For Section 1.1 of MR:** PP has clarified the channel of electricity supply from NTPC to Grid & has mentioned in the revised MR as per the PPA, which is acceptable to VKU.<br>**Hence CL#01 is closed**. | | | | |

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|---|---|---|
| **Type** | **Date** | **25-January-2023** |
| CL#02 | **Reference** | Section: 02/DR/OSV of Ver protocol<br>Section: 02/DR/OSV of Ver protocol |
| **Description of the Non Conformance** | | |
| 1. **In section 2.1 of MR:** Please indicate the potential negative environmental and socio-economic impacts and the steps taken to mitigate them were not stated in the monitoring report and ensure that it is in line with section 3.17.2 of the VCS 4.3<br>2. **In section 2.2 of MR:** PP is requested to provide the evidence for the grievance register.<br>3. **In section 2.2 of MR,** PP is requested to submit the evidences for the CSR services supported by PP in the project implemented area that are being claimed in this section of MR<br>4. **In section 4.2 of MR;** PP is requested to explain why the source of data taken here is JMRs and not invoices since in the ER sheet submitted by the PP the value of emission reductions is calculated using the Net generation value underlined in invoices. | | |
| **1st Response from PP** | **Date** | **10-February-2023** |

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| **1.** Since this is a solar power project so there is no environmental and socio-economic impact. Also, as per the grievance register, no negative environmental and socio-economic impacts occurred for this monitoring period, so any steps were taken for the mitigation of such plan.<br>**2.** Grievance register has been provided.<br>**3.** Since no, CSR activities have been organized for the current monitoring period from 01-October-2021 to 30-November-2022. Thus, no evidence for the CSR activities has been submitted to the VVB assessment team. The same has been corrected in the revised MR.<br>**4.** As per the registered VCS PD the source of generation is JMR. So, the same has been used for ER calculations. However, the invoices are used for cross-checking purposes and exactly match the Net-Generation values for all the months. Hence the same is also conservatively correct. |

| **1st Assessment by Audit Team** | **Status** | Closed | **Date** | **17-February-2022** |
|---|---|---|---|---|

1. **For section 2.1 of MR:** Assessment Team confirms that PP has incorporated the indication about the potential negative environmental and socio-economic impacts and the steps taken to mitigate them in the MR and VVB confirm the same during site visit and from grievance register submit by the PP. **[CLOSED]**
2. **For section 2.2 of MR:** PP has submitted the grievance register and it is acceptable to VVB. **[CLOSED]**
3. **For section 2.2 of MR:** PP has clearly justified that there have no CSR activities occurred during the current monitoring period and same is incorporated in MR. **[CLOSED]**
4. **For section 4.2 of MR:** PP has provided the sufficient justification for the sources of data taken hence acceptable. **[CLOSED]**

**Hence CL#2 closed.**

| **Type** | **Date** | **25-January-2023** |
|---|---|---|
| CAR#01 | **Reference** | **Section 01/DR/OSV** |

**Description of the Non Conformance**

1. **On Cover Page of MR;** PP is requested to correct the font size as per the guidelines to fill the MR version 4.1 throughout the report. ***Please keep consistent font throughout the report either Franklin Gothic 10.5 or Arial 10.5***
2. **On Cover Page of MR;** In footnotes; PP is requested to correct the font (type/size/color) as it is not consistent with the guidelines to fill MR version 4.1. ***Please make this editorial correction throughout the Monitoring report in all footnotes.***
3. **On Cover Page of MR;** PP is requested to adjust the content table and do the editorial corrections throughout the MR.
4. **In section 1.3 of MR;** PP is requested to fill the Telephone details.
5. **In section 1.5 of MR;** PP is requested to keep the date format constant throughout the report.
6. **In section 1.6 of MR:** PP is requested to specify the crediting period number and monitoring period number for current verification.
7. **In section 1.6 of MR:** PP to justify how they opted for a renewable crediting period of 10 years as the length of renewable crediting period should be 7 years and not 10 years as per the VCS standards Version 4.3
8. **In Section 1.7 of MR;** The coordinates when checked with Google earth does not show any installed solar panels. PP to justify the same.
9. **In Sustainable Development Table in MR:** PP is requested to update/remove irrelevant section from the table.
   - **9.1.**Please clarify/Correct whether the goal under SDG 13.0 is same as stated in MR?
   - **9.2.**Please clarify whether the project activity will increase or decrease the GHG emissions.
   - **9.3.**PP is requested to provide the weblinks/Hyperlinks/Evidence for the mentioned values.

| 1st Response from PP | Date | 10-February-2023 |
|---|---|---|
| **1.** On the cover page the title of the project activity is filled in accordance with the MR filling guideline which is Century Gothic 24, Arial 12 has been used to mention the details of the entity which prepared the MR. Except these the entire MR has been filled with Arial 10.5 font.<br>**2.** All the footnotes have been corrected in accordance with the guidelines and the font used for footnotes throughout the MR is Calibri Light 9.<br>**3.** The content table has now been adjusted correctly and the editorial corrections have been done throughout the MR.<br>**4.** The telephone details of the project proponent have been provided in the revised MR.<br>**5.** The date format has been corrected and it is now consistent throughout the MR.<br>**6.** The crediting period number and the monitoring period number have been included in section 1.6 of the revised MR.<br>**7.** The project registered under VCS standard v4.0, where Appendix 1 states that "registered projects and projects that complete validation on or before 19 March 2020 remain eligible to apply the crediting period requirements under VCS version 3." The Project completed validation before 19 March 2020 and chose to use the crediting period requirements under VCS version 3.<br>**8.** The same has been corrected and deviation 1 has been taken with regard to it.<br>**9.** According to the Appendix 2- the document history mentioned in the VCS Standard Version 4.3, it is clearly mentioned that Project Proponent is required to demonstrate contributions to a minimum of three SDGs, effective immediately for all projects registered on or after 20 January 2023. Since this is the 5th Verification of this project and it is registered before 20 January 2023, the PP will demonstrate contribution to at least three SDGs by 20 January 2025. | | |

| 1st Assessment by Audit Team | Status | Open | Date | 17/02/2023 |
|---|---|---|---|---|

1. **For Cover Page of MR:** PP is requested to either use Arial or Franklin Gothic as font specified in the MR template Version 4.1. Please keep font constant throughout the MR.**[OPEN]**
2. **For Cover Page of MR:** Assessment Team was not able to trace down any such instruction notified in the VCS Template guidelines to fill MR for footnotes, that Calibri font is to be used in footnotes. Please refer the template again and make the relevant changes throughout the MR.**[OPEN]**
3. **For Cover Page of MR:** Assessment Team confirms that the adjustment of content table has been corrected and is consistent with VCS MR template version 4.1 **[CLOSED]**
4. **For section 1.3 of MR:** Telephone details has been now provided, as verified by the VVB. **[CLOSED]**
5. **For section 1.5 of MR:** PP has updated the date format consistent with the MR, as verified by the VVB **[CLOSED]**
6. **For section 1.6 of MR:** PP has specified the crediting period and monitoring period number in section 1.6 of MR, required as per VCS Validation Verification Standard version 4.3, as verified by the VVB **[CLOSED]**
7. **For section 1.6 of MR:** PP has specified that they opted for a renewable crediting period of 10 years as per the VCS standard v4.0, But PP is required to mention the above provided justification in the MR.**[OPEN]**
8. **For section 1.7 of MR:** PP has been taken a deviation regard to the latitude & longitude in the current monitoring period and same has been updated & incorporated in the MR, which was verified by the VVB. **[CLOSED]**
9. **For Sustainable Development Table in MR: PP has provided justification against the query and has referenced** the document history mentioned in the VCS Standard Version 4.3, it is clearly mentioned that Project Proponent is required to demonstrate contributions to a minimum of three SDGs, effective immediately for all projects registered on or after 20 January 2023. Since this is the 5th Verification of this project and it is registered before 20 January 2023, the PP thus declares to demonstrate contribution to at least three SDGs by 20 January 2025. Since this is in accordance with the standard, hence acceptable by the VVB. **[CLOSED]**

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| Hence CAR#01 OPEN |

| 2nd Response from PP | | | Date | 25-February-2023 |
|---|---|---|---|---|
| 1. Arial Font is used and it is consistent in all the sections of the MR.<br>2. Arial Font has been used to fill footnotes in all the sections of the MR.<br>7. The information has been transparently mentioned in section 1.6 of the MR that the project activity opts for a renewable crediting period of 10 years. | | | | |
| 2ndAssessment by Audit Team | Status | Closed | Date | 14-March-2023 |
| 1.For Cover Page of MR: PP has kept the font constant throughout the MR as per guidelines to fill MR for VCS.<br>2.For Cover Page of MR: PP has made the font used in footnotes consistent throughout the report which is in line with VCS guidelines to fill MR version 4.1<br>7.For section 1.6 of MR: PP has specified that they opted for a renewable crediting period of 10 years as per the VCS standard v4.0, But PP has justified the same with guidelines referred in Standard Version 3 of VCS, that says if the project is registered under VCS standard v4.0, where Appendix 1 states that "registered projects and projects that complete validation on or before 19 March 2020 remain eligible to apply the crediting period requirements under VCS version 3." The Project completed validation before 19 March 2020 and chose to use the crediting period requirements under VCS version 3. This is acceptable to the VVB<br>Hence CAR#01 is closed | | | | |

| Type | Date | 25-January-2023 |
|---|---|---|
| CAR#02 | Reference | Section: 03/DR/OSV of Ver protocol<br>Section: 04/DR/OSV of VER protocol |

**Description of the Non Conformance**

1. In section 3.1 of MR: This is a renewable energy project. PP is requested to incorporate such crucial information in the project activity process.
2. In section 3.1 of MR; PP is requested to include information about the operation of the project activity(s) during this monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring crucially required as per guidelines to fill VCS MR template version 4.1
3. In section 3.1 of MR; PP to explain if the electricity generated by the project would be exported or is exported every month to the Indian electricity grid? Please correct statements/tenses as per current monitoring period as this is consecutive 5th verification of first crediting period.
4. In section 3.1 of MR; PP is requested to avoid the information which has already been added to the MR. Please delete the table.
5. In section 3.2 of MR; In section 3.2.2 PP is requested to clarify on the cleaning of the solar panels and how is it operationalised in the plant. As a diesel operated Tractor is used for cleaning the panels 3 times a month is done in order to increase efficiency, then are emissions from the machine taken into account towards ER calculation. If not, please clarify how it is not mentioned a deviation as per section 3.19 of the VCS v4.3
6. In section 3.2 of MR; PP is requested to update and remain the font size constant throughout the report either Arial or Franklin Gothic book.
7. In section 4.2 of MR: RRVPNL? PP is requested to elaborate this.
8. In section 4.2 of MR; PP to provide reference of the document where calibration frequency is mentioned as opted for once in five years. Also PP is requested to mention about the practice of performing calibration annually at project implemented site. PP to provide details of calibration and

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| calibration certificates as evidences to support the claim. |

| 1st Response from PP | Date | 10-February-2023 |
|---|---|---|
| **1.** The same has been corrected and renewable energy project has been included.<br>**2.** The Project is in continued operation for this monitoring period and there has been no any such event that may impact the GHG emission reductions during the current monitoring period.<br>**3.** The electricity generated by the project is exported every month to the Indian electricity grid and the same has been corrected.<br>**4.** It is a typographical error and the same has been corrected.<br>**5.** As per the standard operating procedure of the O&M provider only 30 liters of diesel is consumed per month for the entire 140 MW of the solar panels in the project activity. As this is a very negligible amount. Thus, the same is not accounted as a project emission for the solar project and deviation is not required in this regard.<br>**6.** Arial 10.5 font size has been used in all the sections of the MR including section 3.2.<br>**7.** The full form for the same has been provided in the footnote.<br>**8.** The details have been provided in the footnote as per which the calibration frequency for solar projects is once in 5 years which is the CEA notification. The same is also corrected as per the registered VCS PD. The PP is performing annual calibration as per his requirement which is anyways a conservative approach. The details have been incorporated in the appendix 1. | | |

| 1st Assessment by Audit Team | Status | Open | Date | 17-February-2023 |
|---|---|---|---|---|

1. **For section 3.1 of MR:** PP has corrected the project type and same has incorporate in the MR as verified by the assessment team. **[CLOSED]**
2. **For section 3.1 of MR:** PP has incorporate the information about the operation of the project activity(s) during this monitoring period, including any information on events that may impact the GHG emission reductions or removals and monitoring crucially required as per guidelines to fill VCS MR template version 4.1, as verified by the assessment team. **[CLOSED]**
3. **In section 3.1 of MR:** PP has corrected the statement that the energy is exported to the Indian grid, via NTPC as verified by the assessment team. **[CLOSED]**
4. **In section 3.1 of MR:** PP has corrected the typographical error, as verified by assessment team. **[CLOSED]**
5. **In section 3.2 of MR: PP to provide evidence to substantiate the clarification as provided above to the VVB. Also Provide reference of the section of the VCS Standard for justification [OPEN]**
6. **In section 3.2 of MR:** PP has updated the font size of section 3.2.2 as per the MR template version 4.1, as verified by the assessment team. **[CLOSED]**
7. **In section 4.2 of MR:** PP has elaborated RRVPNL in footnote section of MR as verified by the assessment team. **[CLOSED]**
8. **In section 4.2 of MR: The justification provided by PP is not applicable to the query raised. PP to provide modified explanation. [OPEN]**

**Hence CAR#02 OPEN**

| 2nd Response from PP | Date | 25-February-2023 |
|---|---|---|
| **5.** The project activity uses ACM 0002 version 17.0 methodology and as per para 38 under section 5.4.1., "For all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected.". Also, as per the para 3.19.2 of the VCS standard version 4.3 the applicable change in the project activity complies with the methodology, additionality and the appropriateness of the baseline scenario of the project activity Hence the diesel Operated Tractor is not taken into account for the ER-Calculation.<br>**8.** As per the CEA Notification mentioned in the section 4.2 of the MR the calibration frequency for all the energy meters installed in India is once in 5 years. Also, It is clearly mentioned that as per the onsite practice the energy meters are calibrated once in a year. The details of the calibration are clearly mentioned in Appendix 1 of the MR and the relevant calibration certificates are submitted to the VVB assessment team. | | |

| 2nd Assessment by Audit Team | Status | Closed | Date | 14-March-2023 |
|---|---|---|---|---|
| 5.In section 3.2 of MR: PP to provided evidence to substantiate the clarification regarding the use of diesel operated tractor not been taken account as the methodology under para 38 section 5.4.1., says that "For all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected.". Also, as per the para 3.19.2 of the VCS standard version 4.3 the applicable change in the project activity complies with the methodology, additionality and the appropriateness of the baseline scenario of the project activit. This ii acceptable to the VVB.<br>8.In section 4.2 of MR: PP has clearly mentioned references for the frequency of the calibration selected As per PPA and also mentioned about the practise of annually calibrating the meters. Also that the meters are working efficiently onsite as verified by the assessment team thus acceptable to the VVB.<br>**Hence CAR#02 is closed** | | | | |

| Type | | Date | 25-January-2023 |
|---|---|---|---|
| CAR#03 | | Reference | Section: 04/DR/OSV of VER protocol |
| **Description of the Non Conformance** | | | |
| **1. In section 4.3 of MR:** PP to mention details of the DC to AC conversion of SPP (preferably in KVA/MVA)<br>**2. In section 4.3 of MR:** Also Justify the energy conversion at each stage: from panels to transformers to the substation/grid in kV. This major information about the project activity is missing in the MR.<br>**3. In section 4.3 of MR:** PP is requested to mention about SCADA technology which is employed for monitoring purposes on site.<br>**4. In section 4.3 of MR:** PP is requested to specify the kind of renewable energy project implemented either it is Solar or wind. PP to please correct such crucial information.<br>**5. In section 4.3 of MR:** PP is requested to indicate about the O & M Partner in section 4.3. Also as identified during onsite visit PP is requested to mention the frequency of inspection conducted by O & M partner at project activity site.<br>**6. In section 4.3 of MR;** PP is requested to mention details about calibration & the entity performing calibration of meters.<br>**7. In section 4.3 of MR;** PP is requested to justify if this project is registered under VCS or CDM and why the monitoring plan for a project registered in VCS is in accordance with the modalities and procedures for CDM project activities. PP is requested to add correct SLD in the MR which should be in line with the VCS standards Version 4.1<br>**8. In section 4.3 of MR:** PP is requested to address this diagram.<br>**9. In section 4.3 of MR;** PP is requested to incorporate the QA/QC Procedure?<br>**10. In section 4.3 of MR;** The first and second para under this section are contradicting each other. PP needs to unambiguously state the mechanism available at site for the measurement of the energy in the event of energy meter failure or calibration throws up error beyond acceptable limits.<br>**11. In section 4.3 of MR;** PP to justify if it is VERs or VCUs as per VCS Standard version 4.1<br>**12. In section 4.3 of MR;** PP is requested to provide the Supporting Documents for the trainings conducted by the PP. Also to justify the statement "*The plant helpers will be trained in equipment*" PP to justify if the plant helpers are not already trained to ensure proper implementation of the Solar Project activity. Please justify/modify the statements accordingly. | | | |
| **1st Response from PP** | | **Date** | **10-February-2023** |
| **1.** The details of DC to ac conversion have been mentioned.<br>**2.** The energy conversion at each stage has been mentioned.<br>**3.** The details of the SCADA technology has been mentioned. | | | |

| | | | | |
|---|---|---|---|---|
| **4.** The renewable technology implemented is solar and the same has been corrected.<br>**5.** The name of the O&M partner has been clearly mentioned in revised MR.<br>**6.** The details about calibration & the entity performing calibration of meters is described in the revised MR.<br>**7.** The SLD and the other details have been corrected and it is now in accordance with the VCS standards version 4.1<br>**8.** The diagram has been corrected.<br>**9.** The QA/QC procedures have been incorporated in the revised MR.<br>**10.** A conditional parameter has been stated that if the main meter is found to be faulty then the check meter will be used for the measurement purpose. Since it is a conditional statement so the same can be considered.<br>**11.** The typographical error has been corrected and VCU has been incorporated in all the sections of the MR.<br>**12.** Training attendance sheet for the conducted trainings in this monitoring period have been provided. | | | | |
| **1st Assessment by Audit Team** | **Status** | **Open** | **Date** | **17/02/2023** |
| 1. **For section 4.3 of MR:** PP has incorporated the details of the DC to AC conversion of SPP in section 4.3 of MR, as verified by assessment team. **[CLOSED]**<br>2. **For section 4.3 of MR:** PP has incorporated the energy conversion details for each stage, as verified by the assessment team. **[CLOSED]**<br>3. **For section 4.3 of MR:** PP has incorporated the information of SCADA system and the reference for the same has been provide in the footnote, as verified by assessment team. **[CLOSED]**<br>4. **For section 4.3 of MR:** PP has corrected the type of technology of project in MR, as verified the assessment team. **[CLOSED]**<br>5. **For section 4.3 of MR:** PP has incorporated the O & M details in the section of 4.3 and also provide the relevance documents for the same, as verified by the assessment team. **[CLOSED]**<br>6. **For section 4.3 of MR:** PP has incorporated the information of calibration and details of the entity performing calibration of meters in the MR, as verified by the assessment team. **[CLOSED]**<br>7. **For section 4.3 of MR:** PP has sufficiently justified the corrected in MR which is in line with the VCS standard version 4.1, as verified by the assessment team. **[CLOSED]**<br>8. **For section 4.3 of MR:** PP has corrected the SLD as per the project which is acceptable to the VVB. **[CLOSED]**<br>9. **For section 4.3 of MR**: PP has incorporated the QA/QC procedure but as found on site visit the meters are calibrated annually. But As per RMP the calibration frequency is once in five years, PP is thus requested to modify the statements accordingly. **[OPEN]**<br>10. **For section 4.3 of MR:** PP has justified that in emergency procedures a conditional parameter has been stated that if the main meter is found to be faulty then the check meter will be used for the measurement purpose. Since it is a conditional statement so the same can be considered. **[CLOSED]**<br>11. **For section 4.3 of MR:** PP has corrected the typographical error, as verified by the assessment team. **[CLOSED]**<br>12. **For section 4.3 of MR:** The training attendance sheet shared by the PP with the VVB is indicating towards the road safety training, So PP is requested to provide justify how the road safety training records can support the claim that site personnel are trained as required for the competence of plant operators **[OPEN]**<br>**Hence CAR#03 OPEN** | | | | |
| **2nd Response from PP** | | | **Date** | **25-February-2023** |
| **9.** It is found as per the onsite practice the energy meters are calibrated annually. Also, it is clearly mentioned in the OA/QC procedure that the calibration frequency is once in 5 years.<br>**12.** Some relevant training records are provided to the VVB assessment team valid for the current monitoring period. | | | | |
| **2nd Assessment by Audit** | **Status** | **Closed** | **Date** | **14-March-2023** |

| Team | | | | |
|---|---|---|---|---|
| **9.For section 4.3 of MR**: PP has incorporated the QA/QC and has mentioned the information regarding annual meter calibration as identified during onsite visit by the verification team, hence this is acceptable to the VVB.<br>**12.For section 4.3 of MR: PP has mentioned regarding the awareness training conducted by the PP like** the road safety training for which the training attendance sheet was shared by the PP with the VVB, Also PP has provided reference and evidence of the training provided to the site personnels specific to the solar power plant as mentioned in section 4.3 of MR<br>**Hence CAR#03 is closed** | | | | |

| Type | Date | 25-January-2023 |
|---|---|---|
| CAR#04 | Reference | Section 05 /DR/OSV of VER protocol |
| **Description of the Non Conformance** | | |
| 1. **In section 5.2 of MR; As** noted during the onsite visit PP is requested to mention about the cleaning of the solar panels and how is it operationalised in the plant. Diesel operated Tractors are used for cleaning the panels 3 times a month is done in order to increase efficiency, then are emissions from the machine taken into account towards ER calculation. Please incorporate the same in MR in relevant sections and also the calculation needs to be updated in ER Sheet also.<br>2. **In Section 5.4 of MR;** PP is requested to clarify the higher emissions achieved in this MP, as outlier by providing with the PLF data for 3 years (if available) or at least 1 year PLF data prior to this MP. This data will allow assessment team to assess the ER calculations in line with VCS MR template v4.1 sections 3.1 and 5.4<br>3. **In Appendix 01 of MR:** PP is requested to update the section as identified during site -visit that PP has a practise of calibrating meters annually however they have opted for calibration frequency of once in five years as per CEA which is also underlined in registered PD. So, PP to mention the calibration details of this monitoring period and also submit the relevant evidences.<br>4. **In ER Sheet:** The estimated ER value used here is not valid with the verification period requested by the PP. The mentioned value is of the first year of verification and as per registered PD; which degrades every year by 0.5%. Hence PP is requested to correct the calculation for the PLF.<br>5. **In ER Sheet:** PP is requested to mention Date/ Version/Monitoring period/ Project title/Registry Number of the Project<br>6. **In ER Sheet:** PP to specify Monitoring period number, MP 02 is mentioned.<br>7. **In ER Sheet;** PP is requested to enter the formula in net electricity generated section to show which value is used for final calculation of ERs to define that the conservative approach is referred while calculating VCUs for this project activity.<br>8. **In ER Sheet;** PP is requested to specify the billing cycle. Either JMR or Invoice billing cycle is to be used, as it is different for JMRs (01-12-2021 TO 01-01-2022) and Invoices (01-12-2021 TO 31-12-2021) | | |
| **1st Response from PP** | **Date** | **10-February-2023** |
| **1.** As per the standard operating procedure of the O&M provider only 30 liters of diesel is consumed per month for the entire 140 MW of the solar panels in the project activity. As this is a very negligible amount. Thus, the same is not accounted as a project emission for the solar project and deviation is not required in this regard, and no major change is required in the ER sheet as well.<br>**2.** The PLF data for the last 1 year has been provided to the VVB assessment team for ER-Calculations comparison.<br>**3.** The calibration frequency of once in five years as per CEA is applicable for this project activity. However, as per the internal requirement of the project proponent, the calibration is done annually for some years. These details have been considered as a conservative approach and the same has been mentioned in appendix 1 of the revised MR.<br>**4.** The estimated ER value has been revised as per the degradation factor and the revised values have | | |

been corrected in the MR and the ER – Sheet.
**5.** The Date/ Version/Monitoring period/ Project title/Registry Number of the Project have been mentioned in the revised ER-Sheet.
**6.** The correct monitoring period number has been mentioned in the ER-Sheet.
**7.** For the conservative approach the minimum function has been applied for the between the net electricity values of JMR and Invoices.
**8.** As the JMR is the primary source of measurement as per the registered PD so the billing cycle of the JMR which is (01-12-2021 TO 01-01-2022) is considered for ER Sheet.

| **1st Assessment by Audit Team** | **Status** | Open/Closed | **Date** | 17/02/2023 |
|---|---|---|---|---|

1. **For section 5.2 of MR: PP to justify the reason w.r.t the methodology.**
2. **For section 5.4 of MR:** Last one year data has been provided by the PP, as verified by the assessment team and found that the PLF is in line with VCS MR template v4.1 sections 3.1 and 5.4. **[CLOSED]**
3. **For Appendix 01 of MR: Calibration details before October, 2021 is not required, PP is requested to make relevant changes accordingly. [OPEN]**
4. **For ER sheet:** The updated values of estimated emission reduction is not consistent with the MR, PP is requested to correct accordingly. **[OPEN]**
5. **For ER sheet:** PP has done the needful revisions in the MR which is acceptable to the assessment team. **[CLOSED]**
6. **For ER sheet:** PP has corrected the monitoring period number, as verified by the assessment team. **[CLOSED]**
7. **For ER sheet:** PP has applied the formula in ER sheet for conservative approach, as verified by the assessment team. **[CLOSED]**
8. **For ER sheet:** PP has provided the sufficient justification that the primary source of data is JMR's and the invoice is only for the cross-reference purpose. **[CLOSED]**

**Hence CAR#04 OPEN**

| **2nd Response from PP** | **Date** | **25-February-2023** |
|---|---|---|

**1.** The project activity uses ACM 0002 version 17.0 methodology and as per para 38 under section 5.4.1., "For all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected.". Hence the diesel Operated Tractor is not taken into account for the ER-Calculation.
**3.** The table in appendix 1 has been revised according to the monitoring period and only relevant calibration dates have been mentioned in Appendix 1 of the MR.
**4.** The values of the estimated emission reductions have been revised and are consistent in both MR as well as the ER Sheet.

| **2nd Assessment by Audit Team** | **Status** | Open | **Date** | 14-March-2023 |
|---|---|---|---|---|

**1.For section 5.2 of MR: PP has mentioned the justification w.r.t to the cleaning of the solar panels by diesel operated tractors, thus PP quoted** para 38 under section 5.4.1., "For all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected.". Hence the diesel Operated Tractor is not taken into account for the ER-Calculation.
**3.For Appendix 01 of MR: PP has made relevant corrections in the calibration dates in appendix 01 as per relevant details of calibrations.**
**4.For ER sheet:** The updated value of estimated emission reduction is consistent with the MR and ER.
**For Section 1.11 in SDGs Table: [OPEN]**

9. PP is requested to update/remove irrelevant section from the table.
10. PP to please provide references/weblinks for the mentioned/claimed values
11. PP to justify/modify the statements written in footnote on page no 10
12. For Section 4.3 of MR: In this particular monitoring period the calibration was performed by Three different Calibration agencies, please specify the same

| | | | |
|---|---|---|---|
| CAR#04 is open | | | |
| **3rd Response from PP** | | **Date** | 14-March-2023 |
| **9.** The irrelevant section has been removed from the table in section 1.11.<br>**10.** The weblinks for all the claimed values have been provided in the table in section 1.11.<br>**11.** The footnote has been corrected as per the details mentioned in section 1.11.<br>**12.** Since, the calibration was performed by 3 different agencies so the names of all the 3 agencies has been clearly mentioned in the section 4.3. | | | |
| **3rd Assessment by Audit Team** | **Status** | Closed | **Date** | 15-March-2023 |
| For Section 1.11 in SDGs Table:<br>9. PP has removed irrelevant section from the table.<br>10. PP has provided the references/weblinks for the mentioned/claimed values<br>11. PP has modified the statements written in footnote on page no 10<br>12. For Section 4.3 of MR: PP has now specified that the calibration was performed by three different Calibration agencies.<br>**Hence CAR#04 is closed** | | | |

| | | |
|---|---|---|
| **Type** | **Date** | 25-March-2023 |
| CAR#05 | **Reference** | Section 01 /DR/OSV of VER protocol<br>Section 05 /DR/OSV of VER protocol<br>Section 05 /DR/OSV of VER protocol<br>Section 05 /DR/OSV of VER protocol<br>Section 05 /DR/OSV of VER protocol |
| **Description of the Non Conformance** | | |
| 1. **For section 1.1:** PP to specify if the 70 MW capacity of plant is AC or DC<br>• Please provide the power output generated at the modules at this voltage ie., KW in DC<br>• Are power transformers used in the transformer yard of the power plant?<br>2. **For section 1.1:** Please also mention the area spread of the PV panels as part of project description.<br>3. **For section 1.1:** The establishment of baseline is primarily performed by the methodology. PP is requested to quote the relevant sections while stating the baseline<br>4. **For section 1.7**: Since the plant is spread over several acres, PP is requested to provide coordinates to represent the full extent of the plant.<br>5. **For section 2.2:** As per the guidance document to fill section 2.2, the PP is requested the procedures or methods used for engaging local SH including dates of announcements or meetings, periods during which inputs was sought.<br>6. **For section 3.1:** The cleaning mechanism is not provided. Also, PP needs to clarify regarding the insulation used to reduce the accidental electric arc caused by high voltages. The number | | |

of ICR or power conditioning room is not provided.

7. **For section 3.1:** In table the total number of modules and the number plate rating of the panels gives the total MWp (DC) as 49.98 MW. Provide the DC to AC conversion.
    - Please provide the respective numbers based on the rating
8. **For section 4.3:** PP is requested to clarify how the ER will be computed if the dates of recording are not aligned with the monitoring period dates. Although apportioning is mentioned to distribute the line losses to respective project activity, a formula for computation is not presented for cross checking.
9. **For section 4.3:** PP is requested to clarify how the energy readings will be done in the interim…that is during the time the meters are replaced. If a mechanism exist to measure it, what are the reliability checks incorporated to ensure that the measured energy units are acceptable.
10. **For section 4.3:** Please clarify this term "incompliance"
    - Please mention the range of voltages that was applied to meters as per the calibration certificate and how the error was within the limit of the accuracy class
11. **For section 5.1:** As per the guidance to fill the MR, PP is requested to provide computation such that it can be reproduced under this section. For example, here two values are mentioned under energy generation, without giving context or cross referencing. PP is requested to follow the guidance accordingly.
12. **For section 5.1:** Please refer comments above under cleaning mechanism of panels, and insulation mechanism used to prevent accidental arcing in power transformers.
13. **For Appendix 02:** Please ensure that all appendices start in a new page
    - It would be better to classify breakdown into scheduled and unscheduled breakdown hours. Also state whether the scheduled breakdown hours cover the planned shutdown per year ie., if they planned shutdown for example for 16 hours/year, whether the same hours were followed at site

| 1st Response from PP | Date | 27-March-2023 |
|---|---|---|

**1.** The capacity of the project is in AC unit. Capacity and it has been clearly mentioned.
- The output generated by the modules in DC ranges from 0.315 KW to 0.330 KW
- Yes, the transformer yard uses power transformers.

**2.** The area spread over the panels has been clearly mentioned in the revised Monitoring report.
**3.** The relevant section of the methodology has been provided to refer to the paragraph that clearly mentions the establishment of the baseline scenario.
**4.** The coordinates have been provided to represent the full extent of the plant.
**5.** The details of the local-stakeholder consultation meeting have been provided.
**6.** The cleaning mechanism and the circuit breakers used to avoid the electric arcs have been provided in the revised monitoring report.
**7.** The total Number of Modules and the DC to AC conversion ratio has been clearly mentioned in all the modules for all 4 Instances.
**8.** The apportioning procedure has been clearly mentioned in the monitoring report.
**9.** Onsite Calibration of meters is being followed for the energy meters available at the site. Also, if there is an error that exceeds the permissible limits the energy meters are replaced immediately.
**10.** The same is a typographical error. The statement wants to convey that the calibration of once in 5 years is in compliance with the conservative calibration that is being practiced at the site. A voltage of up to 63.5 volts is applied to the errors found in the energy meters were well within the allowed limits.
**11.** The calculation has been re-assessed and it is now according to the guidance to fill MR and it can be reproduced for further calculation.
**12.** The cleaning mechanism for the panels has been clearly described in section 3.1 of the MR. Since according to the MR filling guidelines section 5.1 should not contain panel cleaning details, the same has been stated in section 3.1.
**13.** The appendices start from a new page now for the breakdown details. Also, since there are not any planned shutdown hours for a year so it cannot be stated whether it is achieved or not.

| 1st Assessment by Audit Team | Status | Closed | Date | 28-March-2023 |
|---|---|---|---|---|

1. **For section 1.1:** PP has specified that the 70 MW capacity of plant is AC
    - Assessment team confirms that the output generated by the modules in DC ranges from 0.315 KW to 0.330 KW
    - PP confirms that yes, the transformer yard uses power transformers.
2. **For section 1.1:** PP has mentioned the area spread of the photo voltaic modules which is spread over an area of 2,800,200 square meters (1,400,000 square meters for Rising Bhadla 1 Private Limited and 1,400,200 square meters for Rising Bhadla 2 Private Limited) along with the power conditioning units and power transformers
3. **For section 1.1:** The establishment of baseline is primarily performed by the methodology. As the project activity falls under the definition of a Greenfield power plant, the baseline scenario as per paragraph 24 of Section 5.2.1 of applied methodology ACM0002 version 17.0[22]
4. **For section 1.7**: Since the plant is spread over several acres, PP has provided updated coordinates for the same.
5. **For section 2.2:** As per the guidance document to fill section 2.2, the PP has updated in MR regarding the procedures or methods used for engaging local SH including dates of announcements or meetings, periods during which inputs was sought.
6. **For section 3.1:** The cleaning mechanism and the circuit breakers used to avoid the electric arcs have been provided in the revised monitoring report.
7. **For section 3.1:** The total Number of Modules and the DC to AC conversion ratio has been clearly mentioned in all the modules for all 4 Instances. The DC capacity of the Solar panels is 50.17 MW and the AC capacity is 40 MW. Hence the DC to AC conversion ratio if 1.25.
8. **For section 4.3:** has incorporated the apportioning procedure in section 4.3 of MR
9. **For section 4.3:** PP has explained that the meters are in continuous operation and the energy measurement is continuous, there are three meters located at the metering point namely Main Meter, Check Meter, and Standby Meter. Onsite Calibration of meters is being followed for the energy meters available at the site and the meters are always in continuous operation. During calibration of the meters, if any one of the three meters is found to exceed the permissible limits, the other two meters are used for measurement and hence there is no interruption in the recording of the energy generation values. The faulty meter is then replaced with a new meter. Assessment team thus confirms that the system is present at site to tackle any situation that may arise and cause interruption in data recording. Hence acceptable to VKU and CAR is closed.
10. **For section 4.3:** PP has made editorial corrections in section 4.3
    - **The range of voltage applied during calibration is** up to 63.5 volts is applied to the errors found in the energy meters were well within the allowed limits.
11. **For section 5.1:** Assessment team confirms that the calculation has been re-assessed by PP and it is now according to the guidance to fill MR and it can be reproduced for further calculation.
12. **For section 5.1:** Assessment team confirms that the cleaning mechanism for the panels has been clearly described in section 3.1 of the MR. Since according to the MR filling guidelines section 5.1 should not contain panel cleaning details, the same has been stated in section 3.1.
13. **For Appendix 02:** PP has made editorial corrections in the MR version 05 dated 27-March-2023
    PP has classified breakdown into scheduled and unscheduled breakdown hours.

[22] https://cdm.unfccc.int/methodologies/DB/HF3LP6O41YY0JIP1DK6ZRJO9RSCX3S

| Hence Assessment team confirms that the CAR#05 is closed successfully. |
|---|

| ~~Type~~ | | | ~~Date~~ | ~~DD/MM/YYYY~~ |
|---|---|---|---|---|
| ~~FAR~~ | | | ~~Reference~~ | ~~Section of Val/Ver protocol~~ |
| ~~Description of the Non-Conformance~~ | | | | |
| | | | | |
| ~~1st Response from PP~~ | | | ~~Date~~ | ~~DD/MM/YYYY~~ |
| | | | | |
| ~~1st Assessment by Audit Team~~ | ~~Status~~ | ~~Open/Closed~~ | ~~Date~~ | ~~DD/MM/YYYY~~ |
| | | | | |

# APPENDIX C: COMPETENCE STATEMENT

**Team Leader**

Certification Pvt. Ltd. VKU.F50W. Competence Statement

## COMPETENCE STATEMENT

| | |
|---|---|
| Name | Abhishek Kumar Srivastava |
| Nationality | India |
| Countries of Experience | India, Uganda |
| Education Qualification | M. Tech- Energy Management<br>M. Sc. -Physics |
| Year of Experience | 14 Years |
| Area of Expertise | Climate Change & Environment / Industry |
| Eligible Sectoral Scope | 1. GHG emission reductions from fuel combustion |

## 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, 3.1,) | YES |
| Financial Expert | YES |

| | | | |
|---|---|---|---|
| **Reviewed by** | Vandana Gupta (Quality Manager) | Date | 25/02/2023 |
| **Approved by** | Vivek Kumar Ahirwar (Technical Manager) | Date | 25/02/2023 |

Validator/Verifier Trainee

Certification Pvt. Ltd. VKU.F50W. Competence Statement

## COMPETENCE STATEMENT

| | |
|---|---|
| Name | Niharika Kaushik |
| Nationality | Indian |
| Countries of Experience | India |
| Education Qualification | B.Sc. (Zoology Honours)<br>M.Sc. (Environmental Sciences) |
| Year of Experience | 2.5+ Years |
| Area of Expertise | Climate Change & Environment |
| Eligible Sectoral Scope | NA |

### Roles

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

| | | | |
|---|---|---|---|
| **Reviewed by** | Vandana Gupta (Quality Manager) | Date | 02.02.2023 |
| **Approved by** | Vivek Kumar Ahirwar (Technical Manager) | Date | 02.02.2023 |

Project Trainee

Certification Pvt. Ltd.
VKU.F50W. Competence Statement

## COMPETENCE STATEMENT

| | |
|---|---|
| Name | Anil Dhankar |
| Nationality | Indian |
| Countries of Experience | India |
| Education Qualification | B.Sc. (BCZ)<br>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 |

| | | | |
|---|---|---|---|
| **Reviewed by** | Vandana Gupta (Quality Manager) | Date | 06/12/2022 |
| **Approved by** | Vivek Kumar Ahirwar (Technical Manager) | Date | 06/12/2022 |

Technical Reviewer

Certification Pvt. Ltd. VKU.F50W. Competence Statement

**COMPETENCE STATEMENT**

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

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