



BUNDLED SOLAR POWER PROJECT BY D.J. MALPANI AND GIRIRAJ ENTERPRISES



Document Prepared By: 4K Earth Science Private Limited

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Summary:

4K Earth Science Private Limited (4KES) has performed the verification of the project “Bundled Solar Power Project by D.J. Malpani and Giriraj Enterprises” VCS ID 1670, against VCS Standard Version 4. The project involves installation and operation of 56.25 MW solar power projects in the state of Telangana and Tamil Nadu of India. The project is developed by M/s. D. J. Malpani and Giriraj Enterprises. The electricity generated by the project activity displaces the grid electricity and there by avoid associated CO₂ emission.

The scope of verification includes confirming the implementation of the monitoring plan of the approved VCS PD (version 02) dated 27/03/2017 and the application of the monitoring methodology “ACM0002 version 17: “Grid-connected electricity generation from renewable sources”.

The monitoring period covered in the verification is 26-March-2019 to 25-February-2020 (including both days)

The verification is consisted of three phases: i) desk review of the project; ii) follow-up onsite visit and/or interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted following 4KES internal quality procedures.

During the verification process 04 CARs, 01 CL and 00 FARs were raised. All the findings have been closed satisfactorily and the same has been discussed in Appendix 1.

4KES confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. The emission reductions from the project activity “Bundled Solar Power Project by D.J. Malpani and Giriraj Enterprises” in India during the period 26-March-2019 to 25-February-2020 (including both days) amount to 89,423 tonnes of CO₂e.

CONTENTS

1	Introduction	5
1.1	Objective	5
1.2	Scope and Criteria	5
1.3	Level of Assurance	5
1.4	Summary Description of the Project	5
2	Verification Process	7
2.1	Method and Criteria	7
2.2	Document Review	7
2.3	Interviews	7
2.4	Site Inspections	8
2.5	Resolution of Findings	8
2.6	Eligibility for Validation Activities	9
3	Validation Findings	10
3.1	Participation under Other GHG Programs	10
3.2	Methodology Deviations	10
3.3	Project Description Deviations	10
3.4	Grouped Project	10
4	Verification Findings	10
4.1	Project Implementation Status	10
4.2	Safeguards	12
4.3	AFOLU-Specific Safeguards	12
4.4	Accuracy of GHG Emission Reduction and Removal Calculations	12
4.5	Quality of Evidence to Determine GHG Emission Reductions and Removals	14
4.6	Non-Permanence Risk Analysis	18
5	Verification conclusion	19
	APPENDIX I: List of documents	19
	APPENDIX II: Verification Findings	21
	APPENDIX III: Team Competence	23

APPENDIX IV: Abbreviations

25

1 INTRODUCTION

1.1 Objective

EKI Energy Services Limited has contracted 4K Earth Science Pvt. Ltd (4KES) to perform VCS Verification of the 'Bundled Solar Power Project by D.J. Malpani and Giriraj Enterprises' in India (hereafter called project). This project has already been registered as a VCS project (VCS ID 1670). The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the DOE. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

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

1.3 Level of Assurance

The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. Therefore, 4KES confirms that the verification is conducted with reasonable level of assurance

1.4 Summary Description of the Project

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy sources. The project activity aims to harness solar energy through installation of solar power projects with total installed capacity of 56.25 MW and located in the state of Telangana and Tamil Nadu. The projects are already commissioned. The project is promoted by the following investors:

Project Investors	Project Capacity	COD	Location
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	MW (AC)		
M/s. D. J. Malpani	16.25 MW	31-03-2015	Village- Hoti, Tehsil- Zaheerabad Mandal, District- Medak Telangana
Giriraj Enterprises	40 MW	23-09-2015	Village- Sengottai, Tehsil - Virudhunagar, District- Virudhunagar, Tamil Nadu

The commissioning dates of the projects are verified against the approved VCS PD/4/ and commissioning certificates/7/.

Location of the project was verified through Google Map (<https://maps.google.com/maps>) and found consistent with the data provided in the registered PD/4/

The Project activity is a new facility (Greenfield) and the electricity delivered by the project activity is exported to the Indian electricity grid. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid.

The project activity results in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 93,022 tCO₂e per year, thereon displacing 95,145 MWh/year amount of electricity from the grid.

During the monitoring period from 26-March-2019 to 25-February-2020 (including both days), the project replaced 89,423 tonnes of CO₂e by displacing the 91474.27 MWh electricity.

2 VERIFICATION PROCESS

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

2.1 Method and Criteria

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

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

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

2.2 Document Review

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

2.3 Interviews

The site visit for the project activity was proposed on 25/03/2020 & 26/03/2020. However due to nationwide lockdown due to COVID-19 spread, the site visit was not conducted. Since the date of closure of lockdown is uncertain due to the increase spread of COVID-19 and hence VVB could not conduct site visit for this project activity. However, the verification team performed the telephonic interview with the site person and reviewed documents to achieve a reasonable level of assurance in the verification. This is in line with Section 4.1.2 of the VCS Standard, v4.0 which does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications.

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

Sr. No	Name of the person	Role/Designation
1	Mr. Mahendra	Site In-charge, M/s. D. J. Malpani plant
2	Mr. Vasu Reddy	Safety Officer, M/s. D. J. Malpani plant
3	Mr. M Swaminathan	O&N In-charge, Giriraj Enterprises plant
4	Mr. Kingshuk Das	Project Manager, EKI Energy Services Limited

2.4 Site Inspections

As mentioned above, the site visit for the project activity was proposed on 25/03/2020 & 26/03/2020. However due nationwide lockdown due to COVID-19 spread, the site visit was not conducted. Since the date of closure of lockdown is uncertain due to the increase spread of COVID-19 and hence VVB could not conduct site visit for this project activity. However, the verification team performed the video conference and telephonic interview with the PP, Consultant and the site person and reviewed documents to achieve a reasonable level of assurance in the verification. This is in line with Section 4.1.2 of the VCS Standard, v4.0 which does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications

2.5 Resolution of Findings

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

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

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

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

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

During the Verification process, total 04 CAR and 01 CL were raised and resolved satisfactorily. No FAR has been raised in the verification. The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix II of this report.

2.5.1 Forward Action Requests

The project activity is undergoing fourth verification of 1stcrediting period under VCS; there were no FARs raised during the validation or previous verification.

2.6 Eligibility for Validation Activities

The Validation and verification body holds accreditation to carry out both validation and verification activities. The accreditation scope can be checked from the below link:

<http://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0069>

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity is registered under the VCS only (VCS Project ID 1670) and is not registered under any other emissions trading program or any other mechanism that includes GHG allowance trading. PP also confirms that net GHG emission reductions or removals generated during this monitoring period shall not be used for compliance under any such programs or mechanisms. This was confirmed through a declaration/16/ submitted by the PP and hence accepted by the assessment team.

3.2 Methodology Deviations

There is no methodology deviation applied during the current monitoring period.

3.3 Project Description Deviations

There is no project description deviation applied during the current monitoring period.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is installation of 56.25 MW solar power project, promoted by M/s. D. J. Malpani and Giriraj Enterprises. The purpose of the project activity is to generate clean electricity with utilization of solar energy. The commissioning date and location of the project activity is given below:

Project Investors	Project Capacity MW (AC)	COD	Location
M/s. D. J. Malpani	16.25 MW	31-03-2015	Village- Hoti, Tehsil- Zaheerabad Mandal, District- Medak Telangana
Giriraj Enterprises	40 MW	23-09-2015	Village- Sengottai, Tehsil - Virudhunagar, District- Virudhunagar,

			Tamil Nadu
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The technical specification of the project is given below:

Investors	Module Make	DC Capacity	AC Capacity
M/s. D. J. Malpani	CSUN 255-60P- Polycrystalline Solar PV modules	17.92854 (70308 No of Nodules, 255 Watt capacity)	16.25 MW
Giriraj Enterprises	Canadian Solar PV Modules, 315 Wp (CS6X-315P),	49.565280 (Total Modules (87024 + 72864 = 159,888) of 315 Watt capacity)	40 MW

The installation and specification of solar power plants has been checked with Plant Technical Specification/6/ and commissioning certificates/7/. The commissioning has also been duly validated in the VCS validation report of the project activity/04/. There was no major breakdown or shutdowns during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

Assessment team concludes the following:

- There is no material discrepancies between project implementation and the project description provided in the registered PD/04/.
- 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.
- There is no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/08/.
- The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading/16/.
- The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification.
- The project is registered under VCS only.
- The project activity is comply 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.

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

4.2 Safeguards

4.2.1 No Net Harm

The project is a solar power project which is a cleaner source of power generation. The solar power project does not emit any GHG or any other toxic gases. Hence, solar project has no significant impact on the environment. As per the EIA notification dated 14th September 2006, the solar power projects are exempted from environmental clearance. Hence, Environmental impact assessment is not required for this project activity.

The report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013 also confirms that solar power project activity operations do not result in direct air pollution, noise pollution. Hence verification team confirms that there are no any significant impacts due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

4.2.2 Local Stakeholder Consultation

As per the section 2.2 of the MR, the projects have continuous feedback mechanism and kept a grievance register to receive any feedback/grievances from stakeholder. Verification team conducted telephonic interview with site in-charge and found that the continuous feedback mechanism is implemented effectively.

As verified from the copy of grievances registers from each site/19/ no grievances/feedback received on the operation of the project activity. However, some grievances received related to CSR activities undertaken by the PP. The details of the grievances received are provided in the MR. Verification team discussed with the site in-charge and confirmed that all the grievances are addressed by PP.

4.3 AFOLU-Specific Safeguards

Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS PD and MR.

In detail the following has been verified:

Transparency: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.

Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.

Correctness: It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.

Completeness: It has been checked whether all calculations are complete and without omissions

Baseline emission: The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the regional grid emission factor. The grid in this case would be the 'Indian Grid'

Formula Used:-

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

Where:

BE_y : Baseline emissions in year y (tCO₂e/yr)

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

$EF_{grid,CM,y}$: Combined margin 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" (tCO₂e/MWh).

The verification team has checked the entire monthly JMR report and invoices applicable for the monitoring period as per the project activity applied for verifications and found all the parameters are monitored and recorded as per the monitoring plan in the approved PD. The verification team has crosschecked the emission reduction sheet and monitoring report data with the JMR sheet and invoice bills and found all the values are matching.

Project Emission: As per the applied methodology, para 37 of ACM0002 version 17, "For all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected". Since the project is a solar power project, $PE_{FF,y} = 0$.

Leakage: As per methodology and registered PDD the leakage is zero. $LE_y = 0$.

Emission Reduction:

Emission reduction is calculated as below:

$$ER_y = BE_y - PE_y - LE_y$$

PP has submitted emission reduction the calculation in the excel sheet/2/. The emission reduction calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the approved PD/4/ and the selected methodologies/8/.

The verification team confirms the following:

- The calculations of emission reduction have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology.
- The emission factor applied is an ex-ante value valid for the fixed crediting period.
- Any assumptions used in emission or removal calculations have been justified.
- Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the emission reduction calculation is overall correct.
- The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible.
- Hence, the emission reduction reported in the monitoring report for the monitoring period is verified to be correct

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The only monitoring parameter in the project activity is “Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y” ($EG_{PJ, y}$). This parameter is monitored through energy meters installed in the respective site. The energy meters at the site records both export and import electricity and monthly reading is recorded by personal from respective state DISCOM. The net electricity export $EG_{PJ, y}$ is estimated from the difference of export & import (ie, $EG_{PJ, y} = \text{Export} - \text{Import}$). The monthly export, import and net export are recorded in the Joint meter reading (JMR) report which is signed by DISCOM and PP. The appropriateness of reading is assessed as below:

Criteria/Requirements	Assessment/Observation
Measuring /Reading /Recording frequency	The electricity exported to the grid is measured through energy meters at site location on continuous basis and reported

	monthly.
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 approved PD/04/ and monitoring methodology/8/.
Monitoring equipment	Energy meters (main & Check) installed at substation.
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?	All the energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the PD.
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes the accuracy valid for the entire measuring range.
Calibration frequency /interval:	5 year
Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	There was no delay in meter calibration.
Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity.
Is(are) calibration(s) valid for the whole reporting period?	There was no delay in meter calibration and hence the calibration is valid for whole reporting period.
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried.
How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly joint metering report/12/. Value of this parameter for the

	current monitoring period is verified as 91474.27 MWh. Furthermore monthly values of this parameter is reported in the ER calculation sheet/02/ are also verified with the MR/01/ and found to be consistent.
If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /13/ 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?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M Contractor. The data transfer process for the said parameter is as follows: Joint monthly meter reading is taken at the substation meters by representative of DISCOM and O&M team/service provider (on behalf of the project proponent). It must be noted here that the meter readings as mentioned above shall be calculated as the product of meter multiplication factor and the difference of the current and previous meter readings
In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.

Parameter fixed ex-ante:

EF_{grid,OM,y}; tCO_{2e}/MWh: it is the operating margin emission factor of Indian grid fixed at the time of project registration and mentioned value of 0.9941 tCO_{2e}/MWh is consistent with the PD/04/.

EF_{grid,BM,y}; tCO_{2e}/MWh: it is the build margin emission factor of Indian grid fixed at the time of project registration and mentioned value of 0.9285 tCO_{2e}/MWh is consistent with the PD/04/.

EF_{grid,CM,y}; tCO_{2e}/MWh: it is the combined margin emission factor Indian grid fixed at the time of project registration and mentioned value of 0.9777 tCO_{2e}/MWh is consistent with the PD/04/.

Calibration of meters:

During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate. As per the approved PD, the calibration frequency of energy meter is 5 years. Details of meter calibration are provided in below table:

40 MW Project Activity by Giriraj Enterprises

Meter Type	Meter Serial Number	Make	Accuracy Class	Calibration Date/14/	Validity
Main Meter	15196299	L & T	0.2s	10-08-2015	09-08-2020
Check Meter	15196298	L & T	0.2s	10-08-2015	09-08-2020

16.25 MW Project Activity by D J Malpani

Meter Type	Meter Serial Number	Make	Accuracy Class	Calibration Date ¹	Validity
Main Meter	16351134	Elster	0.2s	21-02-2015	20-02-2020
				20-02-2020	19-02-2025
Check Meter	16538757	Elster	0.2s	21-02-2015	20-02-2020
				20-02-2020	19-02-2025
Standby Meter	16538948	Elster	0.2s	21-02-2015	20-02-2020
				20-02-2020	19-02-2025

The energy meter calibration certificates are checked and found that the calibration details provided in the MR is correct. Verification team also confirms that the energy meters are calibrated as per the frequency mentioned in the PD and during the monitoring period calibration all the energy meters are valid.

The assessment team has verified the monthly joint meter reading report issued by respective state utility and confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid by the projects belongs to particular developer and consequently for ER calculations. As verified through the calibration certificates, that meters were working satisfactorily during the current monitoring period.

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

¹ As the calibration frequency of the meter is once in five year, the calibration reports are valid during the current monitoring period. Hence, error factor has not been applied.

GHG Calculations

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

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

$$BE_y = EG_{facility,y} * EF_y$$

Since project emission and leakage are zero, baseline emission is equal to emission reduction.

$$ER_y = BE_y$$

The emission reduction is estimated for each month in ER calculation sheet, and the summary of emission reduction is as below:

Project	Year 2019- Emission Reduction (tCO2e)*	Year 2020- Emission Reduction (tCO2e)*	Total Emission Reduction (tCO2e)
16.25 MW- Telangana	17892	4714	22606
40 MW- Tamil Nadu	54506	12311	66817
Total	72398	17025	89423

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

However, verification team has observed that the actual ER achieved during the current monitoring period is 4% higher than the estimated ER as per registered PD for the comparable period. 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. The verification team has reviewed and verified the facts and supporting provided by PP and able to conclude that justification is valid and such condition is an unforeseen event which is not a regular affair in the project activity, moreover PP does not any direct control on it. It is also noted that the 4% increase in PLF is within the financial analysis sensitivity limit mentioned in the PDD and hence does not affect the addtionality of the project.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

4K Earth Science Pvt. Ltd (4KES), contracted by EKI Energy Services Limited, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID-1670) “Bundled Solar Power Project by D.J. Malpani and Giriraj Enterprises” in India for the monitoring period 26/03/2019 - 25/02/2020 as reported in the Monitoring Report Version 02 dated 30/03/2020. The EKI Energy Services Limited and the respective project proponent is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity

4KES commenced the verification on the basis of the baseline and monitoring methodology ACM0002 version 17, the monitoring plan contained in the registered PD Version 02 dated 27/03/2017 and VCS guidelines version 4, Monitoring Report Version 02 dated 30/03/2020 as per the process described under Section 2 of this report.

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

In our opinion the GHG emissions reductions reported for the project activity for the period 26/03/2019 - 25/02/2020 are fairly stated in the Monitoring Report Version 02 dated 30/03/2020. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 version 17, and the VCS standard.

Verification period: From 26-March-2019 to 25-February-2020

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2019	72,398	0	0	72,398
2020	17,025	0	0	17,025
Total	89,423	0	0	89,423

Approved by

Chandrakala R.



Director

4K Earth Science Private Limited

Date: 20-April-2020

Place: Bangalore, India

APPENDIX I: LIST OF DOCUMENTS

Ref. No	Title of Document	Version	Date
1	Monitoring Report	1.0	14/03/2020
		2.0	30/03/2020
2	Emission Reductions Calculation Spread sheet	1.0	14/03/2020
		2.0	30/03/2020
3	VCS Project page: https://www.vcsprojectdatabase.org/#/project_details/1670	-	-
4	Project Description	2	27/03/2017
	Validation Report	-	30/03/2017
5	Previous Monitoring Report (3 rd Monitoring)	2	17/05/2019
	Previous Verification Report (3 rd Verification)	1	18/05/2019
6	Technical specifications of the project		
7	Commissioning Certificates of the project activity: 16.25 MW project M/s. D. J. Malpani 40 MW Project by Giriraj Enterprise	-	31/03/2015 29/09/2015
8	CDM Methodology: ACM0002, "Grid-connected electricity generation from renewable sources"	17.0	-
9	VCS Standard	Version 4	19/09/2019
	VCS Program Guide	Version 4	19/09/2019
10	Clean Development Mechanism Validation and Verification Standard	02.0	29/11/2018
9	Grievances Registers	-	-
12	Joint Meter Reading for the monitoring period	-	-
13	Invoices for the electricity sold for the monitoring period	-	-
14	Energy meter Calibration Certificates		
15	Break down details of the complete monitoring period	-	-
16	Declaration regarding no participation in other GHG program for the concerned monitoring period	-	-
17	Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" prepared by MNRE dated September 2013	-	-
18	MOEF Notification http://envfor.nic.in/legis/eia/so1533.pdf		14/09/2006

APPENDIX II: VERIFICATION FINDINGS

Clarification Requests

CL ID	01	Section no.		Date: 25/03/2020
Description of CL				
The monitoring period considered in the MR is 26-March-2019 to 25-March-2020. The MR was submitted for verification on 17 th March 2020 and also the March 2020 data is not considered for emission reduction calculation. Clarify the reason for considering the mentoring period up to 25-March-2020.				
Project participant response				Date: 30/03/2020
<i>The Monitoring Period is from 26/03/2019 to 25/02/2020 (first and last date included), and the typo error in the monitoring dates have now been corrected in the ER sheet and in the Monitoring Report. In the ER sheet, the data till Feb-2020 have been considered.</i>				
Documentation provided by project participant				
1. Revised MR, Version-2 2. Revised ER sheet, version-2				
DOE assessment				Date: 02/04/2020
PP has revised the Monitoring period to 26-March-2019 to 25-February-2020. This is also in line with the monitoring period considered in the ER calculation sheet. CL is closed.				

Corrective Action Requests

CAR ID	01	Section no.		Date: 25/03/2020
Description of CAR				
In the MR, PP shall follow instruction of completing Monitoring report. In specific, the shall following the following instruction: • The table in title page should be completed using Arial or Century Gothic 10.5 point, black, regular (non-italic) font • All other sections should be completed using Arial or Franklin Gothic Book 10.5 point, black, regular (non-italic) font				
Project participant response				Date: 30/03/2020
<i>The font size and font style have now been corrected throughout the Monitoring Report.</i>				
Documentation provided by project participant				
<i>Revised MR, Version-2.</i>				
DOE assessment				Date: 02/04/2020
The font size, style colour in the MR has been revised as per the requirements of the template. CAR is closed.				

CAR ID	02	Section no.		Date: 25/03/2020
Description of CAR				

In section 2.2 of the MR (Local Stakeholder Consultation), the following details are missing:	
- Grievances received during the monitoring period - How due account of all and any input received during ongoing communication/ Grievances has been taken	
Project participant response	Date: 30/03/2020
<i>The grievance related details have now been provided in section 2.2 of the Monitoring report</i>	
Documentation provided by project participant	
<i>Revised MR, Version-2.</i>	
DOE assessment	Date: 02/04/2020
As per the grievance register there is no grievance relevant to the project has been received. However, the grievances related to the CSR activities undertaken by PP have been received. All the grievances received during the monitoring period are addressed by PP. The same is confirmed from the verification of grievances register. The details have been included in the MR. CAR is closed	

CAR ID	03	Section no.		Date: 25/03/2020
Description of CAR				
PP has considered the monitoring period of 26-March-2019 to 25-March-2020 (first and last date included). However from the verification of ER calculation sheet the following observations found:				
- March 2020 generation is not considered for all the projects in the ER calculation - February 2020 generation data are not considered for the 16.25 MW project in Telangana				
Project participant response				Date: 30/03/2020
<i>The Monitoring Period is from 26/03/2019 to 25/02/2020 (first and last date included) which is now correctly mentioned in revised MR, version-2 and also in the revised ER sheet, version-2.</i>				
<i>The data for the month of Feb-2020 of 16.25 MW Telangana site is now included in the ER sheet</i>				
Documentation provided by project participant				
<i>Revised ER sheet, version-2.</i>				
DOE assessment				Date: 02/04/2020
- Now the March 2020 is excluded from the monitoring period. The revised monitoring period is 26-March-2019 to 25-February-2020. Hence Ok - February 2020 generation data of 16.25 MW project in Telangana is now included in the ER sheet.				
CAR is closed.				

CAR ID	04	Section no.		Date: 25/03/2020
Description of CAR				
In Appendix 1 of the MR, PP has provided the calibration details of the energy meter. However, the calibration certificate is not submitted to DOE for verification.				
Project participant response				Date: 30/03/2020
<i>The calibration certificates of the Energy Meters are now provided to the DOE assessment team.</i>				
Documentation provided by project participant				

Calibration Certificates of the Energy Meters.	
DOE assessment	Date: 02/04/2020
The calibration certificates are now submitted by PP. CAR is closed.	

APPENDIX III: TEAM COMPETENCE

<u>Certificate of Competence</u>						
Name	☒ Mr. ☐ Ms.	Ma Paa Puratchikkannal				
Qualification Procedure	Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	29-07-2019					
Authorized to work as Technical Expert for:						
Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope			
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy demand	3.1	Energy demand			
	Construction	6.1	Construction			
	Waste handling and disposal	13.1	Solid waste and wastewater			
	Agriculture	15.1	Agriculture			
Authorized to work as Local Expert for:						
Country/Countries	India					
Compliance check by: Anand S. R.						

<u>Certificate of Competence</u>						
Name	☒ Mr. ☐ Ms.	Narendra Kumar .R				
Qualification Procedure	Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
<i>Appointed</i>	Yes	Yes	Yes	Yes	Yes	No
<i>Appointed Date</i>	29-07-2019					
Authorized to work as Technical Expert for:						
<i>Authorized Technical Area</i>	Sectoral Scope	TA Code	Technical Area within the scope			
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy demand	3.1	Energy demand			
	Waste handling and disposal	13.1	Solid waste and wastewater			
Authorized to work as Local Expert for:						
<i>Country/Countries</i>	India					
<u>Compliance check by:</u> Anand S. R.						

APPENDIX IV: ABBREVIATIONS

ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CSP	Concentrated Solar power
DPR	Detailed Project Report
EB	Executive Board
EISA	Environmental and Social Impact Assessment
EPC	Engineering and Procurement Contractor
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel for Climate Change
ISO	International Organization for Standardization
JMR	Joint Meter Readings
LCS	Local Controller System
MP	Monitoring Period
MR	Monitoring Report
MW	Mega Watt
MWh	MegaWatt hour
NCV	Net Calorific Value
OM	Operating Margin
O&M	Operation & Maintenance
PD	Project Description
PP	Project proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance/Quality Control
tCO ₂	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change

VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit