



**Verified Carbon
Standard**

VERIFICATION REPORT

40MW BUNDLED SOLAR PROJECT IN TELANGANA, INDIA



South Asia

Document Prepared By

TÜV SÜD South Asia Pvt Ltd

Project Title	40 MW Bundled Solar Project in Telangana, India
Version	2.0
Report ID	10817SK

Report Title	VCS Verification of “40 MW Bundled Solar Project in Telangana, India”
Client	Grinibhrit Solar Power Limited
Pages	16
Date of Issue	17/04/2021
Prepared By	TÜV SÜD South Asia Pvt. Ltd.

Contact	Solitaire, 4th floor, ITI Road, Aundh, Pune, India
Approved By	Eswar Murty, Certification Body, TUV SUD South Asia Pvt Ltd
Work Carried Out By	Shailendra Kewat (Assessment Team Leader & Verifier) Eswar Murty (TR)

Summary:

TÜV SÜD South Asia Pvt. Ltd. has performed the third verification of the aforementioned VCS project activity. The verification is based on the currently valid documentation of the VCS and United Nations Framework Convention on Climate Change (UNFCCC).

The Verification has been conducted for the monitoring period 29/09/2019 to 31/12/2020.

The verification process includes three phases:

- Desk review of documents;
- Off-site audit and follow-up interviews with the relevant personnel;
- Resolution of outstanding issues and the issuance of final verification report and opinion.

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. The project involves the implementation of 40 MW solar power project in Telangana state of India by Grinibhrit Solar Power Limited (GSPL).

The electricity generated by the project is supplying to grid. The project activity is therefore displacing an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid.

The Project comprises of total 40 MW, out of which 32 MW has been commissioned dated 22/12/2017 and the rest 8 MW has been commissioned dated 17/01/2018.

2 Clarification Requests (CLs) and 2 Corrective Action Request (CAR) have been raised during the course of verification process and has been successfully closed. No Forward Action Request (FAR) was raised during this monitoring period.

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1 INTRODUCTION

1.1 Objective

TÜV SÜD has been commissioned by the aforementioned client to perform an independent verification assessment.

The objective of the verification work is to comply with the requirements of Verified Carbon Standards requirements. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PD, and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable VCS and CDM VVS requirements,
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- evaluate the data recorded and stored as per the applicable requirements.
- assessment of the sustainability monitoring parameters as per the VCS requirements

1.2 Scope and Criteria

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of VCS project activities, the scope is set by:

- VCS v4.0 requirements
- Clean Development Mechanism Validation And Verification Standard (VVS) for Project Activities v2.0
- Baselines and monitoring methodologies (including GHG inventories)
- Environmental issues relevant to the applicable sectoral scope
- Current technical and operational knowledge of the specific sectoral scope and information on best practice
- Stakeholder consultation and feedback

The verification process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

1.3 Level of Assurance

The errors identified in the project are below the threshold limit of materiality and hence not material. The GHG emission reductions are calculated without material misstatements.

The VVB confirms that a reasonable level of assurance has been achieved during the verification process.

1.4 Summary Description of the Project

The project involves the installation of solar Power Project. The total installed capacity of the project is 40 MW, which involves installation of solar projects in the state of Telangana of India. The project is located at Village: Mandamarri, District: Mancherial, State: Telangana, Country: India.

The Geo-Coordinates of the project activity is provided in the table below:

Name of Investor	Latitude (N)	Longitude (E)
Achintya Solar Power Limited - I	18°58'30" N	79° 25' 33.6"E
Achintya Solar Power Limited - II	18°58'30" N	79° 25' 33.6"E
Grinibhrit Solar Power Limited	18°58'30" N	79° 25' 33.6"E
Suvarchas Solar Power Limited	18°58'30" N	79° 25' 33.6"E

The project activity has not been registered under any other GHG program at this moment.

The project is utilizing solar energy for generating clean electricity and selling it to grid which would have otherwise been generated through fossil fuel dominated power plants, contributing to reduction in specific emissions (emissions of pollutant) including GHG emissions and also reducing its dependence on fossil fuels for energy requirements.

2 VERIFICATIONPROCESS

2.1 Method and Criteria

The information provided by the project participants is assessed by applying the means of verification specified in the VCS v4, Toolkit and the VVS.

A competent assessment team is selected prior to the start of the verification. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the VCS project activity. Additionally, a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by an on-site visit, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB "Environment and energy" before submission to the VCS.

2.2 Document Review

The documents referred during the course of this verification are provided in Appendix 1.

2.3 Interviews

The VVB has not conducted the on-site inspection for this current monitoring period due to obligations imposed by COVID 19. However the VVB has ensured that reasonable level of assurance has been achieved as per Verra regulations on the relaxation of mandatory site visits by the VVB due to Covid-19. The VVB has conducted telephonic interviews and video calls to discuss with the client regarding the data and documents pertaining to the current verification period. The interviews and discussions were conducted successfully.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Krishnam	Murali	GSPL	26/03/2021	Plant technology and monitoring	Shailendra Kewat
2	Barve	Samarth	Infinite Solutions	26/03/2021	Monitoring	Shailendra Kewat

2.4 Site Inspections

Please see 2.3

2.5 Resolution of Findings

CL from this verification

CL ID	01	Section no.	4.2	Date: 02/04/2021
Description of CL				
PPA need to be submitted for the verification.				
Project participant response				Date: 05/04/2021
There are 4 PPA agreement of 10 MW each dated 07/09/2016 in the name of below PPs with NTPC: <ol style="list-style-type: none"> 1. Suvarchas Solar Power Limited 2. Achintya Solar Power Limited (I) 3. Achintya Solar Power Limited (II) and 4. Grinibhrit Solar Power Limited All the Power purchase Agreements are hereby submitted.				

Documentation provided by project participant	
PPA	
DOE assessment	Date: 17/04/2021
PPA is submitted CL is closed	

CL ID	02	Section no.		Date: 02/04/2021
Description of CL				
JMR and Invoices are missing for the July-20 for the Suvarchas and Grinibhrit.				
Project participant response				Date: 05/04/2021
JMR & invoice for the July-20 for Suvarchas and Grinibhrit are hereby submitted.				
Documentation provided by project participant				
JMR & invoice for the July-20 for Suvarchas and Grinibhrit				
DOE assessment				Date: 17/04/2021
JMR and Invoices submitted for respective months, CL is closed				

CARs from this verification

CAR ID	01	Section no.		Date: 02/04/2021
Description of CAR				
Calibration details of meters are missing in the monitoring report				
Project participant response				Date: 05/04/2021
Calibration details has been incorporated in Appendix-I of the MR version 2.0 along with meters serial number and details.				
Documentation provided by project participant				
Revised MR version 2.0 Calibration Certificates				
DOE assessment				Date: 17/04/2021
Revised MR with calibration details is received. CAR is closed				

CAR ID	02	Section no.	3.1	Date: 02/04/2021
Description of CAR				
Section 3.1 of MR should explain about current status of the project.				
Project participant response				Date: 05/04/2021
The Project comprises of total 40 MW, out of which 32 MW has been commissioned dated 22/12/2017 and the rest 8 MW has been commissioned dated 17/01/2018 and it running smoothly with specific schedule maintenance works. Same has been incorporated under revised section 3.1 of the MR version 2.0.				
Documentation provided by project participant				

Revised MR Version 2.0	
DOE assessment	Date: 17/04/2021
Revised MR received. CAR is closed.	

2.6 Eligibility for Validation Activities

Not applicable

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project activity is registered under VCS with reference number 1990. The project proponent has provided undertaking that it will not claim any GHG credits in any GHG program other than that under VERRA during the current monitoring period.

3.2 Methodology Deviations

NA

3.3 Project Description Deviations

There is no deviation with respect to the project activity during the current monitoring period.

3.4 Grouped Project

NA

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project involves the installation of solar Power Project. The total installed capacity of the project is 40 MW, which involves installation of solar projects in the state of Telangana of India. The project is located at Village: Mandamarri, District: Mancherial, State: Telangana, Country: India.

The Project comprises of total 40 MW, out of which 32 MW has been commissioned dated 22/12/2017 and the rest 8 MW has been commissioned dated 17/01/2018.

The project is utilizing solar energy for generating clean electricity for supplying to grid which would have otherwise been generated through fossil fuel dominated power plants, contributing to reduction in specific emissions (emissions of pollutant) including GHG emissions and also reducing its dependence on fossil fuels for energy requirements.

The audit team has checked the commissioning certificates to confirm the location and the implementation of the project and found project is commissioned in two phases on 22/12/2017 and 17/01/2018.

Monitoring parameters:

Means of verification	Referring to VCS v4 and p.360, p.361, p.363 and p.364 of CDM VVS PA, v2.0, the below tables provide a summary on the verification of each monitoring parameter listed in the registered monitoring plan.	
	Data / Parameter:	EGPJ, y
	Data unit:	MWh
	Description:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)
Source of data used:	JMR as per Monthly Generation Report	

	Means of verification/Comments:	<p>The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid and electricity imported from the grid obtained from Monthly Meter reading reports provided by TSTRANSCO /TSNPDCCL as per below equation:</p> $EG_{P,j,y} = EG_{Export} - EG_{Import}$ <p>Verification team has checked the JMR to check net generation value and same has been cross verified with sales invoices raised by PP.</p>	
	Cross-check	Electricity Sales invoices submitted	
Conclusion	<p>Compliance with the calibration frequency requirements for measuring instruments</p> <p>As per the registered monitoring plan, the meters are to be calibrated in every five years and same has been confirmed by cross-checking the calibration records. The details of the calibration of meters are given in the table below.</p> <p>The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD. All parameters were monitored and determined as per the registered monitoring plan. Referring to p.360, p.361, p.363 and p.364 of CDM VVS PA, v2.0, VVB confirms through video call and telephonic interviews and from the document review, the actual monitoring system complies with the registered monitoring plan. The substantiation of this conformity on information flow for these parameters including the values in the monitoring reports is reported in the above section.</p> <p>During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. After appropriate corrections, carried out by the project participant, it is confirmed that all monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements.</p> <p>All parameters required to be monitored are recorded at the intervals required by the registered monitoring plan and the applied methodology. On the basis of review of source and nature of available evidences and records, the verification team confirms the quality of evidence for emission reduction provided is sufficient as per CDM VVS PA, v2.0.</p>		

Calibration of the meters:

Achintya Solar Power Limited-II

Equipment	Serial no	Accuracy	Make	Calibration date	Valid till
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Main meter	0017250984	0.2s	L&T	21/09/2017	20/09/2022
Check meter	0017250985	0.2s	L&T	21/09/2017	20/09/2022
Standby Meter	0017250986	0.2s	L&T	21/09/2017	20/09/2022

Grinibhrit Solar Power Limited

Equipment	Serial no	Accuracy	Make	Calibration date	Valid till
Main meter	0017250987	0.2s	L&T	21/09/2017	20/09/2022
Check meter	0017250988	0.2s	L&T	21/09/2017	20/09/2022
Standby Meter	0017250989	0.2s	L&T	21/09/2017	20/09/2022

Suvarchas Solar Power Limited

Equipment	Serial no	Accuracy	Make	Calibration date	Valid till
Main meter	0017250990	0.2s	L&T	21/09/2017	20/09/2022
Check meter	0017250991	0.2s	L&T	21/09/2017	20/09/2022
Standby Meter	0017250992	0.2s	L&T	21/09/2017	20/09/2022

Achintya Solar Power Limited-I

Equipment	Serial no	Accuracy	Make	Calibration date	Valid till
Main meter	0017250981	0.2s	L&T	21/09/2017	20/09/2022
Check meter	0017250982	0.2s	L&T	21/09/2017	20/09/2022
Standby Meter	0017250983	0.2s	L&T	21/09/2017	20/09/2022

4.2 Safeguards

4.2.1 No Net Harm

The project do not have any negative environmental impacts.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. As confirmed by PP during interviews, for on-going stakeholders communication, PP has maintained

feedback/complaint register at the site office. Local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project.

During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate."

4.3 AFOLU-Specific Safeguards

Not applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	The assessment of data and the calculation of baseline emission reduction in the MR and the ER excel sheet have been verified as per the following set of supporting documents: <ol style="list-style-type: none"> 1. Export and Import data 2. Joint meter readings 3. VER spreadsheets 4. Sales Invoices
Conclusion	Calculations applied formulae and method for calculation of baseline emission are in accordance with the registered monitoring plan and are in line with the requirements of the applied methodology.

Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. 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 registered monitoring plan
Conclusion	Project emissions are zero as per the requirement of the methodology and registered CDM PDD.

Calculation of leakage GHG emissions

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the project activity. 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 registered monitoring plan
Conclusion	Leakage emissions are not applicable according to the applied methodology and registered CDM PDD

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	<p>No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the verification team against basic monitored data and the calculations were found to be correct. The verification team confirms that all assumptions, emission factors and default values have been correctly justified. All the emission factors, application of maximum permissible errors and default values are explicitly mentioned in the monitoring report. Hence the VVB confirms that the methods and formulae used to obtain the emissions are appropriate.</p> <p>No reporting risks have been identified for the data reported. Troubleshooting procedure, maintenance and calibration of monitoring equipment, monitoring measurements and reporting, record handling and maintenance, reviewing monitored data are available at the plant. All the monitored data are archived partially in electronic and paper form. The data will be kept for the whole crediting period and 2 years after the last crediting period thereby meeting the requirement of the monitoring plan.</p>
Conclusion	<p>The formulae and the methods referred in the MR and the emission reduction calculation spread sheet comply with the methods described in the registered PDD.</p> <p>No lack of evidence and missing data were detected during this monitoring period. All values as per the monitoring plan were crosschecked by the verification team against basic monitored data and the GHG emission calculation is found correct.</p> <p>TUV SUD confirms that all assumptions, emission factors and default values have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report. Calculations applied formulae and method for calculation of GHG emission are in accordance with the registered monitoring plan and are in line with the requirements of VCS, the applied methodology and p. 372, p.373 of CDM VVS PA ver 2.0.</p>

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

The VVB confirms that

- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the project is operated as planned and described in the project design document approved by the EB;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the monitoring plan in Monitoring Report is as per the PD and monitoring plan approved by the VCS;
- the approved monitoring plan in the approved PD is as per the applied methodology;
- There is an audit trail that contains the evidence and records that validate the stated figures.

Based on the information we have seen and evaluated, we confirm that the project activity achieved the verified amount of reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the project activity

Verification period: From 29 September 2019 to 31 December 2020

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

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})
2019	18,220	0	0	18,220
2020	78,599	0	0	78,599
Total	96,819	0	0	96,819

APPENDIX 1: DOCUMENTS REVIEWED

No	Author	Title	References to the document
1	UNFCCC	CDM VVS for PA v2.0	
2	UNFCCC	ACM0002 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 18.1	-
3	Verra	VCS Standard v4.0	-
4	Infinite Solutions	VCS MR – Version 2.0	05/04/2021
5	Infinite Solutions	ER Calculation sheet Version 2	05/04/2021
6	The Northern Power Distribution Company of Telangana Limited (TSNPDCL)	Commissioning Certificates for 32 MW Commissioning Certificates for 8 MW	22/12/2017 17/01/2018
7	Yathva Energy Solutions Private Limited	Calibration test certificates for main and check meters	21/09/2017
8	The Northern Power Distribution Company of Telangana Limited (TSNPDCL)	Monthly Joint meter reading report for 40 MW solar power plant.	2019 and 2020
9	GSPL	Monthly invoices for 40 MW solar power plant.	2019 and 2020
10	Google Earth	GPS coordinates for solar plant	
11	Infinite	Site photographs of solar panel and energy meters	