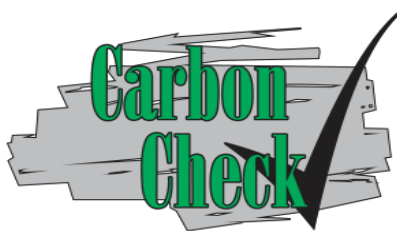


VALIDATION AND VERIFICATION REPORT FOR SOLAR GROUPED PROJECT BY ACME GROUP (EKIESL-VCS-AUG-16-01)



Document Prepared by:
Carbon Check (India) Private Ltd.

Project Title	Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01)
Report Title	Joint Validation and Verification report for "Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01)"
Version	03
Report ID	CC IPL 470/VCS/VAL/VER/REVCSP/20160906
Verification Period	22-June-2015 to 31-January-2017 (both days inclusive)
Client	ACME Cleantech Solutions Pvt. Ltd.
Pages	69
Date of Issue	18/07/2017
Prepared By	Carbon Check (India) Pvt. Ltd.
Contact	Physical Address: Carbon Check (India) Private Ltd. G-49&50, 3rd Floor Sector-3, Noida – 201301

	Phone: +91 120 4373114
	Website: www.carboncheck.co.in
	Approved By Vikash Kumar Singh
	Work Carried Out By Sanjay Kumar Agarwalla (Team Leader, Technical Expert) Kranav Sharma (Team Member, Technical Expert) Amit Mandal (Team Member, Technical Expert) Amit Anand (Technical Reviewer)

Summary:

A brief description of the project:

The project activity is a Greenfield grouped project and it plans to utilize Solar energy to generate electricity and the electricity generated by renewable technology (solar), installed as part of the grouped project activity, will be supplied either to the regional grid and/or will be supplied to the national grid of India. The grouped project activity envisages implementation of a total of 381.5 MW solar power through projects located in different sites in India.

A brief description of the validation and verification:

The “ACME Cleantech Solutions Pvt. Ltd.” (hereinafter called ACME Group) has appointed Carbon Check (India) Pvt. Ltd. (CC IPL) for the validation and verification of GHG project: “Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01)”, as per the relevant requirements of the VCS Guidelines/VCSA Rules for project activities, as well as criteria for consistent project operations, monitoring and reporting. The grouped project activity is located in different parts of India. The grouped project activity involves implementation of a total of 381.5 MW Solar power project at eleven locations in India. The project activity utilises Solar power to generate clean power with a view to bring in Greenhouse Gas Emission Reductions.

The purpose and scope of validation and verification:

The purpose of a joint validation and verification is to have an independent third party assessment of the project design, monitoring plan and achieved GHG emission reductions. In particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS criteria are validated and GHG emission reductions are verified in order to confirm that the project design and achieved GHG emission reductions, as documented, are sound and reasonable and further meets the identified criteria. The Joint Validation & verification is a requirement for all VCS projects and is necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Verified Carbon Units (VCUs).

The validation & verification scope is defined as an independent and objective review of the joint project description & monitoring report. The Joint PD & MR is reviewed against the relevant criteria (see below) and decisions by the VCS Board, including the approved baseline and monitoring methodology. The joint validation & verification is not meant to provide any consulting towards the

project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The scope of the joint validation & verification is the independent and objective review and ex-post determination of the monitored reductions in GHG emission by the project activity. The joint validation & verification is based on the Joint PD & MR. The project is assessed against the requirements of the VCS standard 3.6 and guidance.

The method and criteria used for validation and verification:

The validation and verification consists of the following three phases:

- i. a desk review of the Joint Project Description & Monitoring Report and ER spreadsheet with all supportive documents.
- ii. on-site visit and follow-up interviews with project stakeholders.
- iii. the resolution of outstanding issues and the issuance of the final Joint Validation and Verification report and opinion.

The project compliance is checked against VCS Standard version 3.6, VCS Validation & Verification Manual version 3.2, VCS Program Guide version 3.6 and other VCS rules.

Any findings, restrictions of uncertainties related to the validation and verification:

There are no restrictions of uncertainties related to this joint validation and verification. There were 3 CARs and 2 CLs raised which were closed satisfactorily. The details of the findings (CARs & CLs) are provided in Appendix 2.

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1 INTRODUCTION

1.1 Objective

The “ACME Cleantech Solutions Pvt. Ltd.” (hereinafter called ACME) has appointed Carbon Check (India) Pvt. Ltd. (CC IPL) for the validation and verification of GHG project: “Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01)”.

The objective of joint validation & verification is to have an independent third party assessment of the project design, actual monitoring systems & procedures and achieved GHG emission reductions. In particular, the project's baseline, the monitoring plan and the project's compliance with

- VCS Program Guide (version 3.6) dated 19/10/2016/B01a/
- VCS Standard (version 3.6) dated 19/10/2016/B01b/
- VCS Program Definitions (version 3.6) dated 19/10/2016/B01c/
- VCS Registration and Issuance process (version 3.7) dated 19/10/2016/B01d/
- VCS Validation & Verification manual (version 3.2) dated 19/10/2016/B01e/
- Large-scale CDM methodology ACM0002 (version 17) dated 13/05/2016/B02a/
- Small-scale CDM methodology AMS-I.D (version 18) dated 28/11/2014/B02b/
- Other relevant rules, including the host country legislation

The project is jointly validated & verified to confirm that the VCS project design, actual monitoring systems & procedures and achieved GHG emission reductions as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation and Verification is necessary to provide assurance to stakeholders on the quality of the project and its intended generation of Verified Carbon Units (VCUs).

1.2 Scope and Criteria

The joint validation and verification scope is to have an independent and objective review of the project design, actual monitoring systems & procedures, achieved GHG emission reductions against the criteria as stated in VCS Standard (version 3.6) dated 19/10/2016/B01b/ and relevant decisions by CDM EB including the large scale consolidated methodology ACM0002, version 17 /B02a/ and small-scale methodology AMS-I.D version 18.0/B02b/. It also includes evaluation of the GHG emission reduction data and expresses a conclusion with a reasonable level of assurance about whether the reported GHG emissions reduction data is free from material misstatement and to verify that the reported GHG emissions data is sufficiently supported by evidence. The joint validation & verification scope is given as a thorough independent and objective assessment of the project design, actual monitoring systems & procedures and achieved GHG emission reductions including especially the correct application of the methodology, the project's baseline study, additionality justification, stakeholder involvement, environmental impacts and monitoring plan, achieved GHG emission reductions which are included in the Joint PD & MR/01/ and other relevant supporting documents, to ensure that the proposed VCS project activity meets all relevant and applicable criteria mentioned in VCS Standard (version 3.6) dated 19/10/2016/B01b/. The joint validation and verification consists of the following phases:

- Desk review of the VCS Joint PD & MR/01/,/02/, project financials/07/, emission reductions excel spreadsheet/03/,/04/ and the associated documents
- Physical site visit
- Follow-up interviews with representatives of project proponents and the stakeholders
- Resolution of issues and the issuance of the final joint validation & verification report and opinion.

The information included in the VCS Joint PD & MR/01/,/02/ and the supporting documents were reviewed and assessed against the requirements as set out by the VCS standard v 3.6/B01b/. Project compliance is checked against VCS Standard version 3.6, VCS Validation & Verification Manual version 3.2/B01e/, VCS Program Guide version 3.6/B01a/ and other VCS rules/B01/.

The joint validation and verification is based on the information made available to validation & verification team and on the contract conditions. The validation and verification is not meant to provide any consulting to the project participants. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design and accuracy of the achieved GHG emission reductions.

1.3 Level of Assurance

The joint validation and verification has been carried out by reviewing the VCS Joint PD & MR/01/,02/, project financials/07/, emission reductions spreadsheet/03/,04/ and supporting documents made available to the assessment team and information collected through performing interviews and document review. Based on review of above mentioned documents, the assessment team believes level of assurance is reasonable and that the GHG assertions and achieved GHG emission reductions are free of material errors, omissions and misrepresentations. The joint validation and verification opinion is assured provided the credibility of all above document.

1.4 Summary Description of the Project

The purpose of the grouped project activity is installation, commissioning and operation of multiple large and small-scale solar PV power projects at different locations in the India. Currently, the grouped project activity involves eleven different solar power plants (ten large scale and one small scale solar PV plants) located at different sites in states of India namely Punjab, Odisha, Andhra Pradesh, Chhattisgarh, Telangana and Uttarakhand in India. The total installed capacity of the grouped project activity is 381.5 MW/06/.

The project activity utilises solar energy to generate clean power with a view to bring in greenhouse gas emission reductions. The first project activity instance under this grouped project activity was commissioned and power generation started on 22/06/2015. This project activity instance is SPV- Acme Odisha Solar Power Pvt Ltd under ACME group having installed capacity of 25 MW, which is commissioned on 22/06/2015/08/. This was confirmed based on the review of commissioning certificate/08/ for project activity instance.

The project activity is a new facility (Greenfield) and it plans to utilize solar energy to generate electricity and supply it to distribution licences, which is a part of the Indian grid. In the absence of project activity, quantity of the electricity that would be delivered to the Indian grid would be sourced from the existing grid-connected fossil fuel based power plants and future capacity additions to meet the growing electricity requirements. As the project involves power generation through renewable sources of energy, it will result in emission reductions due to displacement of grid electricity primarily supplied by coal and other fossil fuel based power plants. This was based on the review of VCS Joint PD & MR/02/, DPRs/06/ and PPAs/10/.

The latitude and longitude as provided in the VCS Joint PD & MR/02/ is cross checked by the CCIPL assessment team at the project site during the site visit to the project locations and found correct. Further, cross-checks were also conducted through Google Earth/B10/ and location information of all initial project activity instances were found to be accurate.

The dates of commissioning as provided in the VCS Joint PD & MR/02/ were verified with commissioning certificates/08/ of the project activity and found to be correct. The technical specifications of solar power project instances as mentioned in VCS Joint PD & MR/02/ were verified with the technical specifications document/09/ and DPRs/06/ and were found to be correct. The description of the project mentioned by the PP in the Joint PD & MR/02/ was found to be accurate and complete.

The validation and verification team confirms that the technology implemented reflects the current good practice in the host country. Implementation of the project activity doesn't involve any technology transfer from Annex-1 countries to host country. The technology given in the VCS Joint PD & MR/02/ is consistent with the actual planning and implementation of the project activity.

The grouped project activity promotes environmental and social well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation. The design lifetime of all the solar panels installed under the grouped project activity is 25 years; which is accordance to the manufacturer's specification and state electricity regulatory norms.

The total estimated GHG emission reductions expected for the grouped project is 7,304,570 tCO₂e for the entire crediting period (of ten years). Thus, the estimated annual average emission reductions will be 730,457 tCO₂e.

The total actual GHG emission reductions for the grouped project are 475,380 tCO₂e for the current monitoring period ranging from 22/06/2015 to 31/01/2017 (inclusive of both the dates).

This was confirmed based on review of Joint PD & MR/02/, ER verification spreadsheet/04b/, Joint Metering Reading reports/14/ and Invoices issued to state DISCOM/15/.

The implementation status of the eleven individual project activities under the grouped project is given below:

Sl. No.	Project Location	State	Project Capacity (MW)	Project Proponent (PP)	Date of Commissioning/08/
1.	Kherakhurd	Punjab	25	Mihit Solar Power Pvt. Ltd.	21/03/2016
	Mankhera		25		21/03/2016
	Jandekalan		24		30/03/2016
2.	Raichotti	Andhra Pradesh	20	ACME Jaisalmer Solar Power Pvt. Ltd.	12/05/2016
3.	Hindupur	Andhra Pradesh	50	Aarohi Solar Pvt. Ltd.	29/03/2016
4.	Shantipuram	Andhra Pradesh	40	Dayanidhi Solar Power Pvt. Ltd.	01/04/2016
5.	Patthikonda	Andhra Pradesh	20	Niranjana Solar Energy Pvt. Ltd.	31/03/2016
6.	Yemmiganur	Andhra Pradesh	30	Vishwatma Solar Energy Pvt. Ltd.	30/04/2016
7.	Bagbera	Chattishgarh	30	Acme Raipur Solar Power Pvt. Ltd.	15/03/2016
8.	Maddur	Telangana	30	Dayakara Solar Power Pvt. Ltd.	21/06/2016
9.	Balanagar	Telangana	50	Grahati Solar Energy Pvt. Ltd.	20/07/2016
10.	Balongir,	Odisha	25	Acme Odisha Solar Power Pvt. Ltd.	22/06/2015
11.	Ratanpura	Uttarakhand	12.5	Eminent Solar Power Private limited	09/02/2017

During the joint validation & verification process, CCIPL can verify the appropriateness of all the documented evidences listed above, as well as those listed in all the relevant sections. It is further able to confirm that data and considerations are complete and accurate. Moreover, CCIPL confirms that the description of the proposed VCS project activity, as contained in the VCS Joint PD & MR/02/, sufficiently covers all relevant elements and is accurate and complete. Furthermore, the validation team believes that description of the proposed VCS project activity provides the reader with a clear understanding of the nature of the proposed VCS project activity.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

ACME Group has appointed Carbon Check (India) Private Ltd., to carry out joint validation and verification of the grouped project “Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01)”, with regards to the relevant requirements of VCS Standard Version 3.6 (dated 19/10/2016) /B01b/.

The method and criteria used for validation and verification consists of the following three phases:

1. Completeness check and desk review of the Joint PD & MR/02/, baseline and monitoring methodology, applicable tools and other relevant documents;
2. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary).
3. Resolution of outstanding issues and the issuance of the final Joint Validation & Verification report and if applicable the VCS Validation and Verification Deeds of Representation.

Validation Process:

The validation process includes thorough and independent assessment of the proposed grouped project activity against the applicable VCS requirements, in particular, the project’s baseline, additionality, monitoring plan and the project’s compliance with relevant VCS and host party criteria. The assessment is made to confirm whether the project meets the applicability conditions of the selected baseline and monitoring methodologies, ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/ and assess the claims and assumptions made in the Joint PD & MR/02/ without limitation on the information provided by the project proponents. The overall validation was conducted using CCIPL’s internal procedures.

Verification Process:

The verification process involves thorough review of the monitoring results and confirming that the monitoring methodologies were implemented according to the monitoring plan and monitoring data which is used to confirm the reductions in anthropogenic emissions by sources, is sufficient, definitive and presented in a concise and transparent manner.

In particular, the monitoring plan, emission reduction calculations and the project’s compliance with relevant VCS and host Party criteria are verified in order to confirm that the grouped project has been implemented in accordance with the Joint PD & MR/02/ and conservative assumptions, as documented. It is also confirmed if the monitoring plan is in compliance with the Joint PD & MR/02/ and approved monitoring methodologies/B02/.

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The joint validation and verification was performed primarily based on the review of the Joint PD & MR/02/ and the supporting documentation.

For validation, this process includes:

- A review of data and information presented to verify completeness and consistency in accordance with VCS Standard (version 3.6)/B01b/ requirements;
- A review of the project description and monitoring methodology, paying attention to the applicability conditions of the two methodologies and baseline and additionality related requirements
- A review of the monitoring plan and the project's compliance with relevant VCS criteria.

For verification, this process includes:

- A review of data and information presented by the PP to verify their completeness
- A review of the monitoring plan and monitoring methodologies, paying attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of ERs.

The Joint PD & MR/01/ (version 02 dated 12/04/2017) was initially reviewed and CCIPL requested the PP to present the supporting information and documents. The documents were reviewed by CCIPL. Through the assessment process, the revised VCS PD and MR/02/ and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the assessment team.

The list of documents referred during the course of this joint validation and verification has been provided in Appendix-1.

2.3 Interviews

The DOE assessment team has carried out interviews with the operational staff and representatives of project proponents in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for VCS.

During joint validation & verification, the assessment team has performed site visit and interviews to confirm selected information and to resolve issues identified in the document review. The details of persons interviewed and the topics of interview are provided below:

	Date	Name	Organization	Topic
/i/	24/04/2017	Deepak Bhandari	Mihit Solar Power Pvt. Ltd.	• Project Design and technical specifications • Project Implementation status • Project start date • Project Location(s) • Environmental Impacts
/ii/	24/04/2017	Naveen Sharma	Mihit Solar Power Pvt. Ltd.	• Project Design and technical specifications • Project Implementation status • Project start date • Project Location(s) • Environmental Impacts
/iii/	24/04/2017	Pushpinder Singh	Mihit Solar Power Pvt. Ltd.	• Project Design and technical specifications • Project Implementation status • Project start date • Project Location(s) • Environmental Impacts

	Date	Name	Organization	Topic
/iv/	24/04/2017	Kanwal Singh	Mihit Solar Power Pvt. Ltd.	- Project Design and technical specifications - Project Implementation status - Project start date - Project Location(s) - Environmental Impacts
/v/	24/04/2017	Akashdeep Singh	Mihit Solar Power Pvt. Ltd.	- Project Design and technical specifications - Project Implementation status - Project start date - Project Location(s) - Environmental Impacts
/vi/	24/02/2017 and 09/05/2017	Ramkrishna Patil	EKI Energy Services (carbon consultant) Ltd.	- Project Design and technical specifications - Project Implementation status - Project start date - Project Location(s) - Baseline Scenario - Baseline Identification and Additionality - Estimated ER calculations - Qualification and Training - Monitoring and reporting documentation - Quality Assurance- Management and operating system - Environmental Impacts - Compliance with relevant national and state laws - Roles and responsibility - Actual ER calculations
/vii/	03/05/2017	A. Sabrinath	Grahati Solar Energy Pvt. Ltd.	- Project Design and technical specifications - Project Implementation status - Project start date - Project Location(s) - Environmental Impacts
/viii/	03/05/2017	Y. Venkateshwar	Grahati Solar Energy Pvt. Ltd.	- Project Design and technical specifications - Project Implementation status - Project start date - Project Location(s) - Environmental Impacts
/ix/	03/05/2017	N. Thirunavukkaran	Grahati Solar Energy Pvt. Ltd.	- Project Design and technical specifications - Project Implementation status - Project start date - Project Location(s) - Environmental Impacts
/x/	03/05/2017	N. Akhil Babu	Grahati Solar Energy Pvt.	Project Design and technical specifications

	Date	Name	Organization	Topic
			Ltd.	- Project Implementation status - Project start date - Project Location(s) - Environmental Impacts

The site visits were carried out on 24/04/2017 and 03/05/2017.

2.4 Site Inspections

On 24/04/2017 & 03/05/2017, Mr. Sanjay Kumar Agarwalla (Lead Assessor) and Mr. Kranav Sharma (Assessor) visited the project sites to resolve question and issues identified during offsite review of documents and to gain additional information regarding the compliance of the project with the relevant criteria applicable for VCS. The assessment team has carried out interviews with operational staff and project proponents to assess the information included in the project documentation.

2.5 Resolution of Findings

This section summarizes the findings from the joint validation and verification of the grouped project activity. In this section, the findings from the document review, site visit, assessments and interviews are provided. Material discrepancies identified during the joint validation and verification process are addressed either as CARs and CLs. Carbon Check has identified, discussed these issues within the Joint Validation & Verification report in Appendix 2.

- Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.
- Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

The final Joint PD & MR (version 04/02/ submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the validation and verification process are not considered to be significant with respect to the main VCS objectives. The two VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

A total of three (03) CARs and two (02) CLs have been raised for the joint validation and verification of the grouped project activity and have been resolved.

Sl. No.	Reference Section	CAR	CL	FAR
1.	Project Details	02	0	0
2.	Application of Methodology	0	01	0
3.	Estimated GHG Emission Reductions and Removals	0	0	0
4.	Monitoring	0	01	0
5.	Safeguards	0	0	0
6.	Achieved GHG Emission Reduction and Removals	0	0	0
7	General	01	0	0
Sum		03	02	0

2.5.1 Forward Action Requests

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the next verification period. FARs does not relate to VCS requirements for issuance of ERs achieved during subject monitoring.

CC IPL has not raised any FAR during this joint validation and verification.

3 VALIDATION FINDINGS

3.1 Project Details

Project type, technologies and measures implemented, and eligibility of the project

The project activity involves implementation of 381.5 MW grouped Solar power project consisting of eleven project locations across India by ACME Group through their Special Purpose Vehicles (SPVs)/06/. The SPVs have been identified in the table provided in section 1.4 of this report.

The electricity generated by the project will be exported to the national grid of India. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The project proponents plan to avail the VCS benefits for the project activity.

The technical description given in the joint VCS PD and MR/02/ has been verified by the DOE during the site visit as well as review of the following supporting documents; DPRs/06/, signed CA certificates/07/ and manufacturer's technical specifications/09/. All the project activity instances under the grouped project activity are already commissioned and details have been verified by the DOE and found correct.

The grouped project activity is a large scale project activity and falls under sectoral scope as 01 - Energy Industry (Renewable/Non-Renewable Sources). Currently, the total installed capacity of the grouped project activity is 381.5 MW. The grouped project has applied the large scale consolidated methodology ACM-0002(version 17)/B02a/ for large scale project activity instances and small-scale methodology AMS-I.D (version 18.0)/B02b/ for small scale project activity instances.

CAR02 was raised in this regard and subsequently closed.

Project Proponent and other entities involved in the project

The eleven SPVs as identified in the table provided in section 1.4 of this report (operating under the ambit of ACME Group) are the project proponents for their project activity instances. This has been verified from the DPRs/07/ and commissioning certificates/08/. The project activity also involves another entity as part of the project activity; in the form of EKI Energy Services Ltd. as a Project Consultant. The same was confirmed after reviewing the joint VCS PD and MR/02/.

The right of use of PP for this project activity has been confirmed through the commissioning certificates/08/ of the solar PV plants installed under the project activity.

Project start date

The first project activity instance of the grouped project under consideration was commissioned and power generation started on 22/06/2015. The start date of project activity considered, as 22/06/2015 is correct. The same has been confirmed through the commissioning certificate/08/ of the project activity instance at Odisha and found appropriate.

CAR03 was raised in this regard and subsequently closed.

Project crediting period

The project has stated generating GHG emission reductions from 22/06/2015 i.e. earliest date of commissioning of a solar project instance. Hence, the crediting period for VCS project begins on 22/06/2015 and ends on 21/06/2025 i.e. 10 years crediting period which can be renewed for maximum two times.

Project scale and estimated GHG emission reductions or removals

The expected GHG emission reductions of this project activity are 730,457 tCO₂e per year/04/, which is greater than 3,00,000 tCO₂e/year. Hence it comes under “Large project” scale as per version 3.6 of VCS standard/B01b/.

Project location

The project activity is implemented in the states of Andhra Pradesh, Chhattisgarh, Orissa, Punjab, Telangana and Uttarakhand.

The geo-coordinates and commissioning date of the project instances under the grouped project activity has been checked by the DOE. Validation and Verification team has checked the location of project activity instances during physical site visit and geographical coordinates are checked through Google Earth/B10/ and were found to be correct.

Conditions prior to project initiation

The project activity is a Greenfield activity and involves the installation of 381.5 MW Solar energy based power plant for electricity generation. In the absence of the project activity, the equivalent power generation would have taken place from the fossil fuel dominated Indian grid. Prior to implementation of this project activity, there was no project activity by the project proponent at the location where the current project is located. Same amount of electricity was generated from other grid connected power plant. This was confirmed based on the review of joint VCS PD and MR/02/ and the DPRs/06/.

Project compliance with applicable laws, statutes and other regulatory frameworks

The project has received necessary approvals for development and commissioning of each solar PV plant from the state Nodal agencies and is in compliance to the local laws and regulations. The assessment team has checked the commissioning certificates/08/ and power purchase agreements/10/ of all the solar PV plants and found correct. The EIA is not required for the proposed project activity since it is renewable energy generation from solar PV resources and it is clean in nature. This was based on the review of Central Pollution Control Board/20/ *directions No. B-29012/ESS (CPA) /2015-16 dated 07/03/2016* which classifies solar projects as white projects which do not require consent to operate.

Ownership and other programs:

- **Right of use:** Signed CA certificates/07/ and the commissioning certificates/08/ were reviewed by assessment team as rights of use accorded to the project proponents (Private Limited) and it is found to be acceptable.
- **Emissions trading programs and other binding limits:** The solar PV plants under proposed project activity are not part of any other project activity and also not applied with any other emission trading programs. Furthermore, PPs have provided declaration letters/16/ that the project is not involved in emission trading programs and other binding limits.
- **Other forms of environmental credit sought or received and eligible to be sought or received:** The project has not sought any other form of environmental credit. The declarations/16/ provided by the PP mentions that project has not sought any other environmental credits and will not claim in future and the same is acceptable to the assessment team.

- **Participation under other GHG programs:** The project has not participated under any other GHG programs. The declaration/16/ provided by the PP mentions that project has not participated under other GHG programs and same is acceptable to the assessment team.
- **Rejection by other GHG programs:** Other GHG programs have not rejected the project. Any other GHG programs have not rejected the project and the same was confirmed through review of declaration/16/ provided by the PP. The DOE has accepted the same.
- **Additional information relevant to the project, including:**
- **Eligibility criteria for grouped projects:**

The eligibility criteria have been provided in section 1.13 of the joint PD and MR/02/ and which includes justification for inclusion of project instances to the grouped project. The assessment of the same has been provided in the table below:

Sl. No.	Eligibility Criteria	Eligibility of Project Activity instances	Assessment by DOE
1.	Applicability conditions: The project activity instances shall meet applicability conditions for applicable methodology (either AMS I.D version 18 or ACM0002 Version 17) as defined in section 2.2	All initial project activity instances meet respective applicability conditions of methodology ACM0002 Version 17 (for initial 12 project activity instances) and AMS I.D Version 18 (for initial 1 project activity instance), hence this eligibility criteria is fulfilled. Please refer section 2.2 of this document for applicability criteria.	The assessment team reviewed section 2.2 of joint PD and MR/02/ including supporting documents and further conducted interviews with representatives of PP/i/-/x/ to confirm that the initial project activity instance complies with the requirements of their applied methodologies ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0) /B02b/. Refer to assessment provided in section 3.2.2 of this report for more details. Conclusion: Based on the above assessment, the validation team concludes that all the new project instances comply with this eligibility criterion of the grouped project activity. Moreover, the assessment team deems this eligibility criteria to be appropriate as it complies with the requirements of eligibility criteria no. 1 (concerning applicability of methodology) stated in section 3.4.9 of VCS Standard (version 3.6)/B01b/. Thus, the inclusion of applicability

			conditions as one of the eligibility criteria is appropriate to the grouped project activity. The applicability conditions (constituting this eligibility criteria) as set out in the methodology have been duly described in section 2.2 of Joint VCS PD & MR/02/. The same shall be applied while checking for inclusion of all new project activity instances. Thus, the eligibility criterion for applicability conditions is found to be appropriate.
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2.	Geographical Area: The project activity instances to be included in the grouped project activity will be activities involving grid connected renewable electricity generation using solar technology located within India.	All initial project activity instances being included in the grouped project are located within geographic boundaries of India. Hence this condition is fulfilled. Please refer commissioning certificate, PPA for Geographical area of project activity.	The validation team studied the GPS coordinates provided in sections 1.8 and 1.9 of joint VCS PD and MR/02/, commissioning certificates/08/ and PPAs/10/, and further based on conducting physical inspections and interviews during OSV with representatives of PP/i/-/x/ confirms that all the initial project activity instances included under the current grouped project are located within the geographical boundary of India. This is deemed appropriate to the validation team. Conclusion: Based on the above assessment, the validation team concludes that all the new project instances comply with this eligibility criterion of the grouped project activity. Moreover, the assessment team deems this eligibility criteria to be appropriate as it complies with the requirements of eligibility criteria no. 5 (concerning geographic area) stated in section 3.4.9 of VCS Standard (version 3.6)/B01b/. Thus, the inclusion of geographical area as one of the eligibility criteria is appropriate to the grouped project activity. The grouped project activity has considered India as a geographical area and range of co-ordinates of India are mentioned in Section 1.9 of Joint VCS PD & MR/02/. Moreover, the baseline scenario and additionality demonstration is consistent with geographical area. The same shall be applied while checking for inclusion of all new project activity
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			instances. Thus, the eligibility criterion for geographical area is found to be appropriate.
3.	Baseline Scenario: All Project Activity Instances shall meet the baseline definition as defined in respective methodology and as explained in section 2.4.	All initial project activity instances have same baseline as per methodology as detailed in subsequent sections. Hence this eligibility criteria is fulfilled. Please refer section 2.4 of this document for baseline scenario.	The assessment team reviewed section 2.4 of the joint PD and MR/02/, conducted physical inspections during OSV and further based on its sectoral expertise confirms that the description of baseline scenario as mentioned in the aforementioned section is accurate and meets the requirements of the applied methodologies/B02/. Conclusion: Based on the above assessment, the validation team concludes that all the initial project instances comply with this eligibility criterion of the grouped project activity. Moreover, the assessment team deems this eligibility criteria to be appropriate as it complies with the requirements of eligibility criteria no. 4 (concerning baseline scenario) stated in section 3.4.9 of VCS Standard (version 3.6)/B01b/. Thus, the inclusion of baseline scenario as one of the eligibility criteria is appropriate to the grouped project activity. The baseline scenario considered for the project activity as mentioned in section 2.4 of Joint VCS PD & MR/02/ is appropriate for the India as geographical area. The same shall be applied while checking for inclusion of all new project activity instances. Thus, this eligibility criterion of baseline scenario is found to be appropriate.
4.	Technology type:	All initial project activity	The assessment team

	The project activity instances to be included in the grouped project activity will be Greenfield activities involving grid connected renewable electricity generation using solar PV technology. The electricity should be supplied to grid, or to third party or to be used for captive purpose etc.	instances being included in the grouped project activity are solar PV power plants connected to grid and are green field activities. The generated electricity is supplied to grid. Hence this condition is fulfilled. Please refer PO / Commissioning certificate/PPA for the technology of project activity.	reviewed the signed CA certificates/07/, commissioning certificates/08/ and PPAs/10/ to confirm that the initial project activity instances are greenfield, grid-connected solar PV power plants which supply electricity to the Indian grid. Conclusion: Based on the above assessment, the validation team concludes that all the initial project instances comply with this eligibility criterion of the grouped project activity. Moreover, the assessment team deems this eligibility criteria to be appropriate as it complies with the requirements of eligibility criteria no. 2 and 3 (concerning application and usage of specific technology type) stated in section 3.4.9 of VCS Standard (version 3.6)/B01b/. Thus, the inclusion of technology type as one of the eligibility criteria is appropriate to the grouped project activity. The type of technology (Solar PV) has been listed in section 1.1 of the Joint VCS PD & MR/02/. Only solar PV project activity instances shall be applicable to be included in the grouped project activity. The same shall be applied while checking for inclusion of all new project activity instances. Thus, this eligibility criterion of technology type is found to be appropriate.
5.	Additionality: The project activity instances to be added as part of the grouped project will meet additionality criteria as set out in	The initial 10 project activity instances being included in grouped project activity are large scale projects and their additionality is demonstrated as discussed in section 2.5 of	The assessment team reviewed section 2.5 of the joint PD and MR/02/ (and all additionality related supporting documents) to confirm that:

	respective methodologies - for Small Scale Project instances the methodology applicable will be AMS-I.D and for Large Scale Project instances methodology applicable will be ACM0002.	this document. The initial 1 project activity instance is small scale project and is auto additional as discussed in section 2.5 of this document. Hence this condition is fulfilled. Please refer section 2.5 of this document for additionality.	• All large-scale initial project activity instances have been demonstrated to be additional in regard to the requirements laid out in section 5.3.2 of the applied methodology ACM0002 (version 18.0)/B02a/ and relevant requirements of the “Tool for the demonstration and assessment of additionality”, Version 07.0.0/B06/ and methodological tool Investment Analysis (version 07.0)/B07/. • The small scale initial project activity instance has been demonstrated to be additional in regard to the requirements laid out in §11(a)(i) of the Methodological tool: Demonstration of additionality of small-scale project activities (version 11.0)/B09/. Refer to assessment provided in section 3.3.5 of this report for more details. Conclusion: Based on the above assessment, the validation team concludes that all the initial project instances comply with this eligibility criterion of the grouped project activity. Moreover, the assessment team deems this eligibility criteria to be appropriate as it complies with the requirements of eligibility criteria no. 5 (concerning additionality) stated in section 3.4.9 of VCS Standard (version 3.6)/B01b/. Thus, the inclusion of additionality as one of the eligibility criteria is appropriate to the grouped
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			project activity. The additionality criterion has been appropriately described in section 2.5 of VCS PD & MR/02/. The same shall be applied while checking for inclusion of all new project activity instances. Thus, this eligibility criterion of additionality is found to be appropriate.
6.	Start date: The start date of each project activity instance under the grouped project should not be prior to the start date of the grouped project. The start date of each project activity instance will be determined through documentary evidence.	The start date of grouped project is considered as 22/06/2015 which is commissioning date of project activity instance Acme Odisha Solar Power Pvt Ltd and start date of all other project activity instances is after this date. Hence this condition is fulfilled. Please refer section 1.5 of this document or commissioning certificate for start date of grouped project activity.	The assessment team reviewed the joint PD and MR/02/ and the commissioning certificate for Odisha SPV/08/ and confirms that the start date of the project activity (i.e. 22/06/2015) has been accurately identified and mentioned. The start date is the earliest date of commissioning of solar PV power plant. Conclusion: Based on the above assessment, the validation team concludes that all the initial project instances comply with this eligibility criterion of the grouped project activity. Based on the above criterion, all new project activity instances having start date after 22/06/2015 will be included to the grouped project activity. Thus, this eligibility criterion of start date is found to be appropriate.
7.	Double counting of ERs: Conditions that avoid double counting of emission reductions like unique identifications of project and claiming emission reduction only under one GHG program.	For initial project activity instances being included in grouped project activity, PP declaration has been provided and these project activity instances are not participating in any other GHG program. Hence this condition is fulfilled. Please refer PP declaration for no double accounting of GHG emission reductions.	The assessment team reviewed the declarations/16/ provided by PP and confirms that a confirmation has been provided that the grouped project activity is not participating in any other emission trading programme and other binding limits. In addition, the unique identification of the initial project activities can be

			demonstrated form the commissioning certificates/09/, which details the electricity meter serial numbers which are unique for each project activity instance. Thus, all the initial project activity instances are successfully able demonstrate their avoidance of double counting of emission reductions. Conclusion: Based on the above assessment, the validation team concludes that all the initial project instances comply with this eligibility criterion of the grouped project activity. Based on the above criterion, the double counting of ER will be confirmed for inclusion of new project activity instances. Thus, this eligibility criterion of double counting of ERs is found to be appropriate.
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8.	Environmental Impact Assessment and Local Stakeholder Consultation: The Grouped Project specific requirements stipulated by the Entity responsible for coordinating and managing grouped project for conducting local stakeholder consultations and environmental impact assessment (EIA), as applicable.	For initial project activity instances being included in grouped project activity, EIA and local stakeholder consultation is not mandatory, hence this is not mentioned in VCS PD. The DOE validation contract is already signed prior to 19/04/2017. For new future project activity instances, local stakeholder consultation is required.	The assessment team reviewed the joint validation and verification contract signed between DOE and PP/19/ and confirms that it is dated 09/09/2016, which is before the VCS deadline of 19/04/2017. Thus, carrying out of LSC and EIA is not mandatory for the initial project activity instances under the grouped project as per VCS Standard (version 3.6)/B01b/. Considering this, PP has not carried out an LSC and EIA, which is acceptable to the assessment team. However, for future project activity instances (having signed validation contracts after 19/04/2017) carrying out LSC and EIA will be mandatory as per relevant requirements of section 3.17 of the VCS Standard (version 3.6) /B01b/. Conclusion: This eligibility criterion is not applicable for initial project activity instances. However, the requirement of EIA and Local Stakeholder Consultation will be checked for inclusion of all new project activity instances. Thus, this eligibility criterion is found to be appropriate.
9.	Others: The project activity using solar PV project will supply electricity to grid or to users through grid network.	For initial project activity instances being included in grouped project activity, are supplying electricity to grid. Please refer PPA of the project activity for same.	The assessment team reviewed the PPAs/10/ signed between the PP and state DISCOMS to confirm that the electricity generated from the operation of the solar power plant (first project activity instance) will be supplied to the regional grid, which is part of the national grid of India. This was further confirmed based on conducting interviews with representatives of PP/i/-/x/ during OSV. Conclusion:

			Based on the above assessment, the validation team concludes that all the initial project instances comply with this eligibility criterion of the grouped project activity.
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Based on the above assessment, the assessment team confirms that all the initial project activity instances comply with the requirements of the eligibility criteria identified above.

Moreover, the assessment further confirms that the eligibility criteria matrix described above is sufficient for inclusion of the initial as well as future project activity instances and meets the requirements listed in serial no. 1 to 5 of section 3.4.9 of the VCS Standard (version 3.6)/B01b/.

- **Leakage management for AFOLU projects:** The project activity is not an AFOLU project. Thus, it is not applicable to this project activity.
- **Commercially sensitive information:** All the information required for the VCS joint validation & verification of this project activity has been provided by the PP and thus, there is no commercially sensitive information in this project activity, which has been excluded from the public version of the VCS Joint PD & MR/02/.

CC IPL is able to verify all the documented evidence listed above in relevant sections during the joint validation & verification process and is further able to confirm that data and considerations are complete and accurate. Moreover, CC IPL confirms that the description of the proposed VCS project activity, as contained in the VCS Joint PD & MR/02/ sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed VCS project activity

3.2 Participation under Other GHG Programs

The project has not participated under any other GHG programs. The declaration provided by the PP mentions that project has not participated under other GHG programs and same is acceptable to the assessment team.

3.3 Application of Methodology

3.3.1 Title and Reference

The grouped project uses the following two CDM methodologies:

- ACM0002: Grid-connected electricity generation from renewable sources (version 17.0)/B02a/ (large scale methodology)
- AMS-I.D: Grid connected renewable electricity generation (version 18.0)/B02b/ (small scale methodology)

In addition, the project activity also uses the following tools:

- Tool for the demonstration and assessment of additionality --- Version 07.0.0, EB 70, Annex 8/B06/.
- Tool to calculate the emission factor for an electricity system --- Version 05.0, EB 87, Annex 09/B04/.
- Methodological Tool: Demonstration of additionality of small-scale project activities --- Version 11.0, EB 94 Annex 11/B09/

The methodologies and the tools referenced are valid at the time of joint validation and verification of the grouped project activity have been checked and confirmed by the assessment team.

3.3.2 Applicability

The proposed project activity is an installation of 381.5 MW of solar PV power project activities in India. The project applies approved large-scale consolidated methodology titled “Grid-connected electricity generation from renewable sources” “ACM0002” (version 17/B02a/) and small scale methodology “Grid connected renewable electricity generation” “AMS-I.D” (version 18/B02b/). The assessment of the compliance of all the initial project activity instances to their respective methodologies is provided below:

Applicability of “ACM0002” (version 17.0) is illustrated as below:

Sl. No	Applicability criteria as per ACM0002 (version 17.0)/B02a/	Response by PP	DOE Assessment
<u>1.</u>	This methodology is applicable to grid-connected renewable energy power generation project activities that: - Install a Greenfield power plant; - Involve a capacity addition to (an) existing plant(s); - Involve a retrofit of (an) existing operating plants/units; - Involve a rehabilitation of (an) existing plant(s)/unit(s); or - Involve a replacement of (an) existing plant(s)/unit(s).	The project activity instances under grouped project activity is installation of a new grid connected renewable energy power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable.	The proposed project activity is a Greenfield, grid connected solar PV power generation project. The project activity uses renewable solar energy source to generate electricity that will be fed into the national grid of India. The above has been confirmed through the commissioning certificates/08/, signed CA certificates/07/ and based on the site visit inspection carried out for the project activity. Hence, this applicability criterion is met by the grouped project activity.
<u>2.</u>	The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, solar PV power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.	The proposed project activity instances under grouped project activity will be an installation of a new grid connected solar renewable energy power plant and hence this condition is met.	The proposed grouped project activity is the installation of a Greenfield, solar PV power plants. This has been confirmed through the technical specifications of the installed solar PV power plants/09/, signed CA certificates/07/ and commissioning certificates/08/ of the solar PV plants installed under the project activity. Hence, this applicability criterion is met by the grouped project activity.

3.	In the case of capacity additions, retrofits, rehabilitations or replacements (except for solar PV, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The proposed project activity instances under grouped project activity does not involve any capacity additions, retrofits or replacements and therefore this condition is not applicable.	The proposed grouped project activity is the installation of a Greenfield, solar PV power plants. Hence, this applicability criterion is not applicable to the grouped project activity.
4.	In case of hydro power plants, one of the following conditions shall apply: • The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or • The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m²; or • The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m²;	The proposed project activity instances under grouped project activity is a grid connected solar renewable energy power project. This condition is applicable only for hydro power plants and not applicable for solar projects. Hence this criteria is not applicable.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. Hence, this applicability criterion is not relevant to the grouped project activity.

5.	The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m², all of the following conditions shall apply: • The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m²; • Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; • Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be: ✓ Lower than or equal to 15 MW; and ✓ Less than 10 per cent of the total installed capacity of integrated hydro power project.	The proposed project activity instances under grouped project activity is a grid connected solar renewable energy power project. This condition is applicable only for hydro power plants and not applicable for solar projects.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. Hence, this applicability criterion is not relevant to the grouped project activity.
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6.	In the case of integrated hydro power projects, project proponent shall: • Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or • Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The proposed project activity instances under grouped project activity is a grid connected solar renewable energy power project. This condition is applicable only for hydro power plants and not applicable for solar projects.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. Hence, this applicability criterion is not relevant to the grouped project activity.
7.	Methodology is not applicable to the following: • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; • Biomass fired power plants/units.	The project activity instances under grouped project activity will be installation of a new grid connected solar renewable energy power project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the grouped project activity. This grouped project activity does not involve any biomass based power plants and hence this criterion is not applicable to the project activity.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. Hence, this applicability criterion is not relevant to the grouped project activity.

8.	In the case the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	The project activity instances under grouped project activity will be a new grid connected solar renewable energy power plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. The project does not involve any retrofits, rehabilitations, replacements, or capacity additions. Hence, this applicability criteria is not relevant to the project activity.
“Applicability conditions of “Tool to calculate the emission factor for an electricity system”			
9.	This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	This condition is applicable. OM, BM and CM are estimated using the tool for calculating baseline emissions.	Based on the review of joint PD and MR/02/ and physical inspections during OSV/i/-/x/, the validation team confirms that the grouped project activity is installation of solar PV power plants which supply electricity to the grid. Thus, this tool is applicable. Moreover, the validation team reviewed the joint PD and MR/02/, the ER and EF estimation spreadsheet/04a/ and further based on understanding of the Tool to calculate the emission factor for an electricity system (version 5.0)/B04/ confirms that the tool has been appropriately applied to estimate OM, BM and CM for calculating baseline emissions. Hence, this applicability criterion is met by the grouped project activity.

10.	Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	Since project activity instances under grouped project activity is grid connected, this condition is applicable and the emission factor has been calculated accordingly.	The validation team reviewed the joint PD and MR/02/ and the ER and EF estimation spreadsheet/04a/ to confirm that the emission factor for the project electricity system has been calculated for grid power plants only. This is deemed appropriate by the validation team. Hence, this applicability criterion is met by the grouped project activity.
11.	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity instances under grouped project activity will be located in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.	Based on the review of joint PD and MR/02/, physical inspections and interviews during OSV/i/-/x/, the validation team confirms that the grouped project activity instances are located in India which is a non-Annex I country. Moreover, based on the eligibility criteria and supporting evidences it shall be ensured that all future project activity instances added to the grouped project shall be located in India. This is deemed appropriate by the validation team. Hence, this applicability criterion is met by the grouped project activity
12.	Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	Each project activity instances under grouped project activity will be grid connected renewable energy project and CO ₂ emission factor is not considered for biofuels.	The grouped project activity involves installation of a Greenfield solar PV power projects. The project does not involve any biofuels. Hence, this applicability criterion is not relevant to the grouped project activity.

Applicability of "AMS.I-D" (version 18) is illustrated as below:

Sl. No	Applicability criteria as per AMS-I.D (version 18.0)/B02b/	Response by PP	DOE Assessment
1.	1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, solar PV, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid. (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity is a Renewable Energy Project i.e. Solar Photo Voltaic Power Project which falls under applicability criteria option 1(a) or option 1 (b). Hence the project activity meets the given applicability criterion.	The proposed project activity is a Greenfield, grid connected solar PV power generation project. The project activity uses renewable solar energy to generate electricity that will be fed into the national grid of India. The same has been confirmed through the review of commissioning certificates/08/, signed CA certificates/07/ and based on the site visit carried out for the project activity. Hence, this applicability criterion is met by the grouped project activity.
2.	2. Illustration of respective situations under which each of the methodology (i.e. “AMS-I.D.: Grid connected renewable electricity generation”, “AMS-I.F.: Renewable electricity generation for captive use and mini-grid” and “AMS-I.A.: Electricity generation by the user) applies is included in the appendix.	The 1st option or 3rd option (of Table 2 of AMS I.D. Version 18, EB 61 is applicable (please refer footnote) as project supplies electricity to national grid.	The validation team based on the review of the of joint PD and MR/02/ and sectoral expertise confirms that the illustration of respective situations under which each of the methodology (i.e. “AMS-I.D.: Grid connected renewable electricity generation”, “AMS-I.F.: Renewable electricity generation for captive use and mini-grid” and “AMS-I.A.: Electricity generation by the user) applies has been correctly made for the current grouped project activity. Hence, this applicability criterion is met by the grouped project activity
3.	This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	The project activity instance is installation of new solar based electricity generation green field plants (not addition to existing system). Option a is applicable.	The proposed grouped project activity is a Greenfield, grid connected solar PV power generation project. The same has been confirmed through the commissioning certificates/08/, signed CA certificates/07/ and based on the site visit carried out for the project activity. Hence, this applicability criterion is met by the grouped project activity.

	Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: - The project activity is implemented in an existing reservoir with no change in the volume of reservoir; - The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m²; The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m².	The project is solar power project and thus the criterion is not applicable to this project activity.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. Hence, this applicability criterion is not relevant to the grouped project activity.
4.	If the new unit has both renewable and non-renewable components (e.g., a solar PV/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The small scale project activity instances involves only renewable component with capacity less than 15 MW. Unit does not co-fire fossil fuels. Hence the criterion is not applicable to the project activity.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. Thus, only renewable component is involved in the current grouped project activity. Hence, this applicability criterion is not relevant to the grouped project activity.
5.	Combined heat and power (co-generation) systems are not eligible under this category.	The Project activity is a renewable solar energy project and is not a combined heat and power system. Hence the criteria is not applicable to the project activity	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. No combined heat and power systems are installed under the current grouped activity. Hence this applicability criterion is not relevant to the grouped project activity.

	In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The project activity is Greenfield and there is no existing power generation facility at the site. Hence the criteria is not applicable to the project activity	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. The current grouped project activity does not involve addition of renewable energy generation units at an existing renewable power generation facility. Hence this applicability criterion is not relevant to the grouped project activity.
6.	In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	Not applicable, the solar project is a Green field project activity and this project is not the enhancement or up gradation project.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. The current grouped project activity does not involve retrofit or replacement. Hence this applicability criterion is not relevant to the grouped project activity.
7.	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	The Project activity is a renewable solar Photovoltaic power project and is not a landfill gas, waste gas, waste water treatment and agro-industries projects or recovered methane emissions project. Hence the criteria is not applicable to the project activity	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. The current grouped project activity does not involve installation of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions. Hence this applicability criterion is not relevant to the grouped project activity.
8.	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The Project activity is a renewable solar Photovoltaic power project and is not a biomass project. Hence the criteria is not applicable to the project activity.	The proposed grouped project activity involves installation of a Greenfield solar PV power projects. There is no usage of biomass under the current grouped project activity. Hence, this applicability criterion is not relevant to the grouped project activity.

Based on the above assessment the validation team concludes that the grouped project activity (with all included project activity instances) comply with the all the relevant requirements of their respective methodologies; ACM002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/.

3.3.3 Project Boundary

As per the §22 of the large-scale applicable methodology ACM0002 (Version 17.0.0)/B02a/ the project boundary is given as:

“The spatial extent of the project boundary includes the project power plant/unit and all power plants/units connected physically to the electricity system that the CDM project power plant is connected to”.

And

As per §18 of the small-scale applicable methodology AMS-I.D (Version 18.0)/B02b/ the project boundary is given as:

“The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.”

The project boundary as considered for the project activity in the Joint PD & MR/02/ consists of solar PV plants installed, the connected substation, metering instruments and the national grid of India. This may include all the solar PV plants installed as part of the project activity and the solar PV plants of other project proponents connected to the sub-station, which is further connected to the network of the national grid of India. The project boundary also includes all the power plants physically connected to the national grid of India.

The greenhouse gases and emission sources included in or excluded from the project boundary is provided as below which has been assessed by the joint validation & verification team.

Source		Gas	Included	Justification/Explanation
Baseline Scenario	CO ₂ emissions from electricity generation in fossil fuel fired power plants that is displaced due to the project activity	CO ₂	Yes	Major emission source
		CH ₄	No	Minor Emission Source. Same has been excluded from consideration for simplification.
		N ₂ O	No	Minor Emission Source. Same has been excluded from consideration for simplification.
Project Scenario	For geothermal power plants, fugitive emissions of CH ₄ and CO ₂ from non-condensable gases contained in geothermal steam	CO ₂	No	The project activity is a solar PV power project and not a geothermal project. Thus, these emission sources are not applicable to the proposed project.
		CH ₄	No	
		N ₂ O	No	
	CO ₂ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO ₂	No	The project activity is a solar PV power project and not a geothermal project. Thus, these emission sources are not applicable to the proposed project.
		CH ₄	No	
		N ₂ O	No	
	For hydro power plants, emissions of CH ₄ from the reservoir	CO ₂	No	The project activity is a solar PV power project and not a geothermal project. Thus, these emission sources are not applicable to the proposed project.
		CH ₄	No	
		N ₂ O	No	

During the site visit, the project boundary was physically verified and found to be correct and in line with the applied methodologies. Based on the document review and site visit, DOE assessment team confirms that the project boundary and emission sources described in the VCS Joint PD & MR/02/ are accurate and complete, and that the selected sources and gases are justified for the proposed project activity. The joint validation & verification team further confirms that identification of project boundary is in line with selected methodologies ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/.

3.3.4 Baseline Scenario

As per §24 of ACM0002 (version 17.0)/B02a/, if the project activity is the installation of a Greenfield power plant, the baseline scenario is the following:

“Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”/B04/.

As per §19 of AMS-I.D (version 18.0)/B02b/ if the project activity is the installation of a Greenfield power plant, the baseline scenario is the following:

“The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.”

As that the current grouped project involves installation and operation of greenfield, grid-connected solar PV power plants, the above assigned baseline scenarios are deemed to be consistent and accurate. This was confirmed based on sectoral expertise of the assessment team and further by reviewing the Joint PD & MR/02/, Signed CA certificates/07/, Power purchase agreements/10/ and conducting physical inspections during OSV combined with interviewing representatives of PP/ii-/x/.

Thus, the baseline scenarios have been identified in line with the requirements of the applied methodologies ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/ is deemed to be appropriate and justified.

3.3.5 Additionality

The grouped project activity involves a combination of both large and small scale project activity instances and thus different methodological approaches have been used to demonstrate their additionality. For large scale project activity instances, the additionality has been demonstrated based on the valid version of the methodological tool “Tool for demonstration and assessment of additionality” (version 7.0)/B06/ and the “Methodological Tool: Investment analysis” (version 7.0) /B07/. For small scale project activity instances, the additionality has been demonstrated based on the valid version of the methodological tool “Demonstration of additionality of small scale project activities” (version 11.0)/B09/.

Assessment of additionality of small scale project activity instances:

The grouped project consists of a single initial small project activity instance which has an installed capacity of 12.5 MW. As the initial project activity instance is a solar PV power project, it is part of the positive list of projects and is deemed to be automatically additional as per the requirements of §11(a)(i) of the methodological tool “Demonstration of additionality of small scale project activities” (version 11.0)/B09/. Thus, the initial small project activity instance is deemed to be automatically additional.

The validation team reviewed the joint PD and MR/02/, DPRs/06/ and conducted interviews with representatives of PP/i/-/x/ to conform the above.

Assessment of additionality of large scale project activity instances:

Prior consideration:

During conceptualization of the grouped project activity (and project activity instances therein) board of directors of the project proponents considered the GHG revenue to improve the project financials. During the board meetings for ACME Solar (and their respective SPVs) respectively, board of Directors decided that they would consider GHG revenue for their project activity. The dates of board meeting and decision taking/05/ for each individual project activity are provided below:

Sl. No.	Project Proponent Name	Date of board meeting and decision/05/
1.	Mihit Solar Power Private Ltd. (Kherakhurd)	15/03/2015
2.	Mihit Solar Power Private Ltd. (Mankhera)	15/03/2015
3.	Mihit Solar Power Private Ltd. (Jandekalan)	25/02/2015
4.	ACME Jaisalmer Solar Power Pvt. Ltd.	05/01/2015
5.	Aarohi Solar Pvt. Ltd.	30/09/2015
6.	Dayanidhi Solar Power Pvt. Ltd.	30/09/2015
7.	Niranjana Solar Energy Pvt. Ltd.	30/09/2015
8.	Vishwatma Solar Energy Pvt Ltd.	25/08/2015
9.	Acme Raipur Solar Power Pvt. Ltd.	25/10/2015
10.	Dayakara Solar Power Pvt Ltd	25/10/2015
11.	Grahati Solar Energy Pvt Ltd	25/10/2015
12.	Acme Odisha Solar Power Pvt Ltd	30/03/2014

In continuation to the board decision, PP received DPRs/06/ and then after subsequent decision with the manufacturer placed the purchase orders for the solar projects. In the above background, the Validation Team concludes that the additionality justification regarding the serious CDM/VCS consideration given by the project developer is in accordance with the requirements derived from VVS version 09/B01i/.

Alternatives:

This is a solar PV power grouped project and is based on the methodology ACM0002 (version 17.0)/B02a/.

The methodology ACM0002 (version 17.0)/B02a/ states that:

“Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system” (version 05.0)/B04/.

Now since the approved methodology ACM0002 (version 17.0)/B02a/, used by the grouped project activity, prescribes an applicable baseline scenario, no further analysis of alternatives is required for the project activity.

Investment Analysis:

a) Suitability of investment analysis, financial indicator and benchmark:

PP had demonstrated that the financial returns of the proposed VCS grouped project activity would be insufficient to justify the required capital investment as per VVS (version 09.0)/B01i/. PP has adopted a conservative approach to identify the benchmark for the project activity. The project is earning revenue from sale of electricity to the regional grid and hence has another source of revenue apart from revenue from sell of VERs. Thus, simple cost analysis is not appropriate. Also in the absence of the project activity grid electricity would have been the obvious choice for the project, which requires no investment. Hence investment analysis is also not appropriate for the project activity. Therefore, benchmark analysis is used for the project activity as per project type and decision making context. The choice of post-tax equity IRR and the corresponding benchmark is considered appropriate by the validation team.

PP identified the benchmark using the guideline vide “Methodological Tool: Investment analysis”, version 06.0/B07/, “The values in the table in Appendix A may also be used, as a simple default option”. However, since RBI (Reserve Bank of India, India Central Bank) provides forecast inflation for both 5 & 10 years, the project investor has calculated benchmark using 10-year duration and the calculated value is considered as benchmark for the project activity. The WPI median inflation forecast for 10 years are added to the default values for the project participants as below:

Project Participant	Default value (in real terms)/12/	Inflation forecast (WPI Mean) as per RBI for 10 years	Final benchmarks (in nominal terms)
Mihit Solar Power Private Ltd. (Kherakhurd) & Mihit Solar Power Private Ltd. (Mankhera)	11.75%	4.10%	16.33%
Mihit Solar Power Private Ltd. (Jandekalan)	11.75%	4.10%	16.33%
ACME Jaisalmer Solar Power Pvt. Ltd.	11.75%	4.60%	16.89%
Aarohi Solar Pvt. Ltd.	11.10%	3.60%	15.10%
Dayanidhi Solar Power Pvt. Ltd.	11.10%	3.60%	15.10%
Niranjana Solar Energy Pvt. Ltd.	11.10%	3.60%	15.10%
Vishwatma Solar Energy Pvt Ltd.	11.10%	3.50%	14.99%
Acme Raipur Solar Power Pvt. Ltd.	11.10%	3.60%	15.10%
Dayakara Solar Power Pvt Ltd	11.10%	3.60%	15.10%
Grahati Solar Energy Pvt Ltd	11.10%	3.60%	15.10%

Acme Odisha Solar Power Pvt Ltd	11.75%	5.60%	18.01%
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b) Parameters and assumptions used:

The grouped project involves installation of grid connected solar PV power plants with the following installed capacities:

S.No.	Project Proponent Name	State	Installed capacity (MW)
1.	Mihit Solar Power Private Ltd. (Kherakhurd)	Punjab	25
2.	Mihit Solar Power Private Ltd. (Mankhera)	Punjab	25
3.	Mihit Solar Power Private Ltd. (Jandekalan)	Punjab	24
4.	ACME Jaisalmer Solar Power Pvt. Ltd.	Andhra Pradesh	20
5.	Aarohi Solar Pvt. Ltd.	Andhra Pradesh	50
6.	Dayanidhi Solar Power Pvt. Ltd.	Andhra Pradesh	40
7.	Niranjana Solar Energy Pvt. Ltd.	Andhra Pradesh	20
8.	Vishwatma Solar Energy Pvt Ltd.	Andhra Pradesh	30
9.	Acme Raipur Solar Power Pvt. Ltd.	Chattishgarh	30
10.	Dayakara Solar Power Pvt Ltd	Telangana	30
11.	Grahati Solar Energy Pvt Ltd	Telangana	50
12.	Acme Odisha Solar Power Pvt Ltd	Odisha	25

The important parameters, which determine the equity IRR of the project, are project cost, PLF, financing pattern and profitability estimates.

The project cost is based on the DPRs/06/ submitted by third party agencies based on which further action was taken. The DPRs /06/ were available during decision making and financial profitability of the project was decided based on the DPRs /06/. Validation team checked all the DPRs/06/ of the project activity and found that consideration of the project cost is correct and justified.

Further, signed CA certificates/07/ have been checked by the assessment team as the actual cost available during the validation. The variation in purchase and offer is taken care in sensitivity analysis and the approach is considered correct by the assessment team. In India, infrastructure projects are generally entitled to a debt equity ratio of 70:30, however the PPs have not necessarily followed this rule and have chosen a debt equity ratio suitable to its financing requirements and budgetary concerns. This is deemed appropriate by the validation team.

The profitability of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, electricity tariff, O&M cost, depreciation and taxation. The installed capacity is based on the capacity of solar PV projects, which is evidenced by the DPRs/06/ and signed CA certificates/07/ issued subsequently.

c) Assessment of PLF:

PP considered the Plant load factors from DPRs/06/ submitted by third party agencies, for expected electricity generation estimation. PP has submitted the copies of the DPRs/06/ to the assessment team. This is deemed acceptable.

d) Assessment of Electricity Tariff:

The tariffs for the projects were taken from the DPRs/06/ or government tariff orders available at the time of decision-making. The tariff was further cross-checked from the PPAs/10/ signed for the eleven project activity instances and hence deemed acceptable.

e) Assessment of O&M Cost:

PP considered the O&M cost based on a conservative assumption of INR 8 lakhs/MW¹. This assumption and the resulting O&M values have been used in the financial calculations, as it was available during decision-making and hence applicable.

f) Assessment of Tax computation:

The project developers have adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision. Hence, these assumptions are appropriate during decision-making context.

g) Cross checking of parameters:

The cost of solar PV projects, electricity tariff, O&M cost, depreciation, salvage value and tax rate have been checked with DPRs/06/, Income Tax Act and power purchase agreements/10/. The offer value has been used in the financial calculation is the same as was available during decision-making and hence applicable. The same is acceptable to the assessment team. The project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country.

The documents supporting the financial calculations, in the opinion of Validation Team, are therefore authentic and conform to the guidance given by CDM EB. All the input parameters considered in computation, the basis, correctness and appropriateness thereof are checked and found correct.

h) Assessment of correctness of computation

The assessment involved checking the data input taken from DPRs/06/, power purchase agreements/10/ adoption of correct accounting principle and arithmetical accuracy. Validation Team checked the documents and ensured that appropriate input has been taken in the project cost and projections. The arithmetical accuracy was also found to be correct. The equity IRR has been computed for a period of 25 years, which is the life time of the project and is in conformity with the Methodological Tool: Investment Analysis, (version 07.0)/B07/. In computing the IRR, the project developer has taken into account profit after tax, depreciation tax shield and salvage value (in the terminal year). The principle adopted conforms to the accepted accounting and taxation principles. Validation team also confirms that rest of the input parameters is considered appropriately and are in line with the Methodological Tool: Investment Analysis, (version 07.0)/B07/.

Sensitivity Analysis:

¹ http://www.cercind.gov.in/2016/draft_reg/Exp16.pdf

The Methodological Tool: Investment Analysis, (version 07.0)/B07/ requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developers have identified Plant Load Factor (PLF), Project cost, Electricity tariff and O&M cost as critical assumptions. These critical parameters constitute more than 20% of either total project costs or total project revenues. The sensitivity analysis reveals that even under more favourable conditions, the IRR without VCUs revenue would not cross the benchmark return as given in the following tables:

- **Mihit Solar Power Private Ltd. (Kherakhurd) and Mihit Solar Power Private Ltd. (Mankhera) – 50 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	7.93%	10.10%	12.27%
O&M cost	10.38%	10.10%	9.83%
Project cost	12.15%	10.10%	8.43%
Electricity Tariff	7.93%	10.10%	12.27%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 28.40%
- Project cost goes down by 24.90%
- O&M cost goes down by 269.50%
- Tariff goes up by 28.40%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 19%. Therefore, to achieve a PLF of 47.40% (which tantamount to an escalation of 28.40%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 3470 million which is only ~14% less than the cost assumed in financial indicator calculation (including service tax). Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• Mihit Solar Power Private Ltd. (Jandekalan)– 24 MW

Input Parameters	-10%	Base IRR	+10%
PLF	8.08%	10.26%	12.42%
O&M cost	10.53%	10.26%	9.99%
Project cost	12.30%	10.26%	8.55%
Electricity Tariff	8.08%	10.26%	12.42%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if :

- Generation goes up by 27.60%
- Project cost goes down by 24.32%
- O&M cost goes down by 265.50%
- Tariff goes up by 27.60%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 19%. Therefore, to achieve a PLF of 46.60% (which tantamount to an escalation of 27.60%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 1735 million which is only ~11% less than the cost assumed in financial indicator calculation (including service tax). Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• ACME Jaisalmer Solar Power Pvt. Ltd.- 20 MW

Input Parameters	-10%	Base IRR	+10%
PLF	10.17%	12.23%	14.27%
O&M cost	12.41%	12.23%	12.05%
Project cost	14.23%	12.23%	10.57%
Electricity Tariff	10.17%	12.23%	14.27%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 22.98%
- Project cost goes down by 20.53%
- O&M cost goes down by 266.00%
- Tariff goes up by 22.98%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 25.34%. Therefore, to achieve a PLF of 48.32% (which tantamount to an escalation of 22.98%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 1773.5 million which is only 4% less than the cost assumed in financial indicator calculation (including service tax). Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• **Aarohi Solar Pvt. Ltd.- 50 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	9.58%	11.69%	13.66%
O&M cost	11.87%	11.69%	11.51%
Project cost	13.62%	11.69%	10.05%
Electricity Tariff	9.58%	11.69%	13.66%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 17.20%
- Project cost goes down by 16.35%
- O&M cost goes down by 193.00%
- Tariff goes up by 17.20%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 24.52%. Therefore, to achieve a PLF of 41.72% (which tantamount to an escalation of 17.20%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 4096 million which is only ~12% less than the cost assumed in financial indicator calculation (including service tax). Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• Dayanidhi Solar Power Pvt. Ltd.- 40 MW

Input Parameters	-10%	Base IRR	+10%
PLF	9.51%	11.64%	13.60%
O&M cost	11.82%	11.64%	11.43%
Project cost	13.56%	11.64%	9.98%
Electricity Tariff	9.51%	11.64%	13.60%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 17.60%
- Project cost goes down by 16.60%
- O&M cost goes down by 196.00%
- Tariff goes up by 17.60%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 23.01%. Therefore, to achieve a PLF of 40.61% (which tantamount to an escalation of 17.60%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 3266 million which is only ~12% less than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• **Niranjana Solar Energy Pvt. Ltd.- 20 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	9.82%	11.91%	13.89%
O&M cost	12.09%	11.91%	11.73%
Project cost	13.85%	11.91%	10.27%
Electricity Tariff	9.82%	11.91%	13.89%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 15.90%
- Project cost goes down by 15.25%
- O&M cost goes down by 180.50%
- Tariff goes up by 15.90%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 24.48%. Therefore, to achieve a PLF of 40.38% (which tantamount to an escalation of 15.90%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 1640 million which is only ~12% less than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

- **Vishwatma Solar Energy Pvt. Ltd.- 30 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	6.98%	8.81%	10.55%
O&M cost	8.99%	8.81%	8.60%
Project cost	10.48%	8.81%	7.35%
Electricity Tariff	6.98%	8.81%	10.55%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 36.20%
- Project cost goes down by 29.25%
- O&M cost goes down by 368.00%
- Tariff goes up by 36.20%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 22.22%. Therefore, to achieve a PLF of 58.42% (which tantamount to an escalation of 36.20%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 2456 million which is only ~18% less than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

- **ACME Raipur Solar Power Pvt. Ltd.- 30 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	5.91%	7.95%	9.88%
O&M cost	8.21%	7.95%	7.67%
Project cost	9.76%	7.95%	6.41%
Electricity Tariff	5.91%	7.95%	9.88%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 37.00%
- Project cost goes down by 30.20%
- O&M cost goes down by 325.50%
- Tariff goes up by 37.00%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 20.07%. Therefore, to achieve a PLF of 57.07% (which tantamount to an escalation of 37.00%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 2070 million which is only ~21% less than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

- **Dayakara Solar Power Pvt. Ltd.- 30 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	10.17%	12.48%	14.79%

O&M cost	12.69%	12.48%	12.27%
Project cost	14.73%	12.48%	10.70%
Electricity Tariff	10.17%	12.48%	14.79%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 11.40%
- Project cost goes down by 11.46%
- O&M cost goes down by 123.50%
- Tariff goes up by 11.40%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 23.32%. Therefore, to achieve a PLF of 34.72% (which tantamount to an escalation of 11.40%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 2588 million which is only 1% less than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• Grahati Solar Energy Pvt. Ltd.- 50 MW

Input Parameters	-10%	Base IRR	+10%
PLF	9.59%	11.79%	14.05%
O&M cost	12.04%	11.79%	11.55%
Project cost	13.98%	11.79%	10.40%
Electricity Tariff	9.59%	11.79%	14.05%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 14.80%
- Project cost goes down by 14.45%

- O&M cost goes down by 155.50%
- Tariff goes up by 14.80%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 23.00%. Therefore, to achieve a PLF of 37.80% (which tantamount to an escalation of 14.80%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 4453 million which is only ~2% greater than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

• **ACME Odisha Solar Power Pvt. Ltd.- 25 MW**

Input Parameters	-10%	Base IRR	+10%
PLF	9.86%	12.00%	14.14%
O&M cost	12.19%	12.00%	11.81%
Project cost	14.10%	12.00%	10.33%
Electricity Tariff	9.86%	12.00%	14.14%

Validation Team further carried out its own independent assessment, which reveals that the project would become non-additional if:

- Generation goes up by 27.58%
- Project cost goes down by 23.65%
- O&M cost goes down by 330.50%
- Tariff goes up by 27.58%

PP has submitted that such a reduction in project cost or increase in PLF or tariff is highly unrealistic and unlikely to happen and reasoned out as follows:

Generation: The generation capacity of a solar power plant is computed on a system performance model, taking in to account the working temperature, voltage generation, and losses within the system as well as operator defined factors such as grid interaction and transmission losses, etc. The value of PLF is supported by a report from third-party engineering consultancy company contracted by PP. Moreover, the weighted average PLF achieved by the plants is only around 23.03%. Therefore, to achieve a PLF of 50.61% (which tantamount to an escalation of 27.58%) on a sustained basis is not possible.

Project cost: Project developer has already signed the Supply & Service Agreement as per which the cost works out to INR 2025 million which is only ~13% less than the cost assumed in financial indicator calculation. Therefore, any reduction in the cost is hypothetical.

O&M cost: O&M cost is based on conservative assumptions based on nationally accepted rule of thumb and consist of mainly wages & salaries, travel & conveyance, repairs & maintenance, stores & spares, communication, printing & stationary – all of which are subject to inflationary pressure. With the country experiencing inflation at the rate of ~5% p.a. any reduction in O&M cost is ruled out.

Tariff: The tariff is governed by PPA, which is fixed during the lifetime of the project. Therefore, any increase in tariff is unrealistic.

Validation Team is in agreement with the reasoning given by the PP and hence concludes that such an increase in tariff or generation or reduction in project cost or O&M cost is unrealistic and hypothetical.

Having regard to the assessment of conformity of additionality demonstration and benchmark selection to the latest version of the guidance issued by CEM EB on the assessment of investment analysis, plausibility and appropriateness of parameters used and correctness of financial calculations, Validation Team concludes that the project scenario is not economically feasible without benefits from VCUs sales.

Common Practice analysis:

PP has carried out separate common practice analysis for all the ten initial large-scale project activity instances and has followed the requirements of Common Practice tool (version 03.1)/B08/ to perform the same.

The validation team reviewed the Joint PD & MR/02/ and Common practice analysis spreadsheets/22/ to conform that PP has appropriately complied with all of the step-wise requirements listed in section 5 of the aforementioned tool/B08/ for conducting common practice analysis.

The step-wise results summary of the common practice analysis has been provided in the table below:

S.No.	Project Activity Instance	Installed capacity (MW)	Results of Common Practice Analysis as per section 5 of the Common Practice tool (version 03.1)/B08/					
			Outcome of Step 1 (-/+50% capacity range in MW)	Outcome of Step 2 (Total number of similar projects) ²	Outcome of Step 3 (N _{all})	Outcome of Step 4 (N _{diff})	Outcome of Step 5 (F = 1 - N _{diff} /N _{all})	N _{all} - N _{diff}
1.	Mihit Solar	74	37-111	1	1	0	1	1

² This has been determined by considering the conditions outlined in §14 of the Common practice tool and referring the MNRE Solar database, available at the link below:

<http://mnre.gov.in/file-manager/UserFiles/state-wise-commissioned-grid-connected-solar-power-projects.htm>

	Power Private Ltd.							
2.	ACME Jaisalmer Solar Power Pvt. Ltd.	20	10-30	2	2	0	1	2
3.	Aarohi Solar Pvt. Ltd.	50	25-75	2	1	1	0	0
4.	Dayanidhi Solar Power Pvt. Ltd.	40	20-60	3	2	1	0.5	1
5.	Niranjana Solar Energy Pvt. Ltd.	20	10-30	3	3	0	1	3
6.	Vishwatma Solar Energy Pvt Ltd.	30	15-45	2	1	0	1	1
7.	Acme Raipur Solar Power Pvt. Ltd.	30	15-45	1	1	0	1	1
8.	Dayakara Solar Power Pvt Ltd	30	15-45	0	0	0	NA	0
9.	Grahati Solar Energy Pvt Ltd	50	25-75	0	0	0	NA	0
10.	Acme Odisha Solar Power Pvt Ltd	25	12.5-37.5	0	0	0	NA	0

The above step-wise results have been validated by reviewing the Joint PD & MR/02/ and Common practice analysis spreadsheets/22/ and deemed to be accurate.

From the table above it can be observed that none of the initial ten large-scale project activity instances meet the below mentioned required conditions for being a common practice project activity (as per §18 of Common Practice analysis tool, version 03.1/B08/):

$F > 0.2$ and
 $N_{all} - N_{diff} > 3$

Thus, it is concluded that all initial ten large-scale project activity instances are not common practices within the country. The details of the projects, the source of data and the calculations are given in the Joint PD & MR/02/ and Common practice analysis spreadsheets/22/.

CL01 was raised in this regard and subsequently closed.

In the above background, the assessment team concludes that the project is not a business-as-usual scenario and is additional. The VCS benefits would enable the project to become financially attractive.

Thus, based on the above assessment all the initial project activity instances under the grouped project activity are deemed to be additional.

3.3.6 Quantification of GHG Emission Reductions and Removals

The equations and choices provided in the applied methodologies ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/ and all other methodological tools are correctly quoted in the Joint PD & MR/02/. The emission reductions of the grouped project activity project would be calculated using the formulae mentioned in the applied methodologies/B02/

Validation team based on the review of the Joint PD & MR/02/, confirms that the formulae are correctly presented for the determination of emissions reductions. The parameters and equations presented in the Joint PD & MR/02/, as well as other applicable documents, have been compared with the information and requirements presented in the applied methodology/B02/. An equation comparison has also been made to ensure consistency between all the formulae presented in the Joint PD & MR/02/ and ER validation spreadsheet/04a/ and the applied methodologies/B02/.

Baseline Emissions:

The baseline emissions associated with the applied methodology are calculated as:

$$BE_y = EG_{PJ, y} * EF_{grid, CM, y} \quad (1)$$

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 estimation of the baseline energy generation was done by using the total installed capacity of the project activity, yearly generation hour and plant load factor. The project activity involves installation of 381.5 MW grid connected power plant in the states of Punjab, Odisha, Andhra Pradesh, Chhattisgarh, Telangana and Uttarakhand in India. This was confirmed based on assessment of Joint PD & MR/02/ and ER validation spreadsheet/04a/.

Assessment of calculation of the Grid Emission Factor ($EF_{grid, CM, y}$):

Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors according to the procedure prescribed in the “Tool to calculate the emission factor for an electricity system” (version 05.0)/B04/. The data for calculation of the grid emission factor is sourced from CEA data base (version 11.0)/B05/, Govt. of India which is the latest available data. The baseline emission factor calculation is checked by the validation team and found that the calculation is transparent and conservative.

For estimating the operating margin emission factor, PP calculated ex-ante Simple Operating Margin (OM). As per the “Tool to calculate the emission factor for an electricity system” (version 05.0)/B04/: for grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission to the DOE for validation. Hence, PP considered the weighted average of latest net electricity generation and import of electricity and associated emission from CEA data base (version 11.0)/B05/.

The value of operating margin considered as 0.9941 tCO₂/MWh and the value of build margin as 0.9285 tCO₂/MWh (based on the latest one year data). The weighting for both operating margin is taken as 0.75 and build margin as 0.25 for solar power generation projects. Validation team checked the estimation procedure and considered data and found transparent and conservative.

Thus, the emission factor for the project is calculated to be $EF_y = 0.9777$ tCO₂e/MWh and it is fixed ex ante for the crediting period. Considering this process, combined margin emission factor has been considered and same value is confirmed correct.

Project Emissions:

The current grouped project involves solar technology, which is a renewable energy source. Thus, as per §36 of ACM002 (version 17)/B02a/ and §39 of AMS-I.D (version 18)/B02b/ there are no project related emissions associated with the current project. Thus,

$$PE_y = 0.$$

Leakage Emissions:

As per the section 5.6 of the applied methodology ACM0002 (version 17)/B02a/ and section 5.7 of the applied methodology AMS-I.D (version 18)/B02b/, no other leakage emissions are considered. Thus, the leakage is considered as zero, therefore:

$$LE_y = 0$$

Emission Reductions:

The emissions reductions associated with the applied methodology are calculated as:

$$ER_y = BE_y - PE_y \quad (2)$$

Where:

ER_y	=	Emission reductions in year y (t CO ₂ e/yr)
BE_y	=	Baseline emissions in year y (t CO ₂ /yr)
PE_y	=	Project emissions in year y (t CO ₂ e/yr)

Thus, as $PE_y = 0$

$$ER_y = BE_y \quad (3)$$

The assessment team confirms that the applied methodologies/B02/ and the referenced tools have been applied correctly to calculate baseline emissions and net GHG emission reductions the project crediting period.

3.3.7 Methodology Deviations

No methodology deviations applied to this GHG project. The DOE has confirmed the same.

3.3.8 Monitoring Plan

The project activity uses the approved consolidated large scale methodology, ACM0002 (version 17)/B02a/ and small-scale methodology AMS-I.D (version 18)/B02b/.

Assessment team has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant to the project activity have been found in the plan.

Assessment team confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed project activity can be reported ex post and verified.

The parameters to be monitored ex-post are given below:

Data and parameters monitored:

The ex-post parameters that are mentioned in the methodology are included in the VCS Joint PD & MR/02/ and are provided in compliance with the methodology, and they will be monitored during the crediting period. The monitoring parameters are mentioned below:

Sl. No.	Parameter(s) ^{/02/}	Units	Description ^{/B02/}	Source of monitoring data ^{/02/}	Monitoring frequency
1	EG _{PJ,y}	MWh	Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y	Joint meter readings	Continuous monitoring and monthly reporting

To measure the net export electricity supplied to the grid, two bi-directional tri-vector electricity meters (main meter and check meter) have been installed per feeder by the regional DISCOM at each project site. The installed electricity meters would of accuracy class 0.5s or higher. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point (sub-station) and signed by the representatives of state utility and O&M personnel of the power plant. In the event of failure of main meter, the check meter will be used in monitoring the electricity data.

All electricity data will be archived electronically and further maintained for the entire crediting period plus two years.

As the initial project activity instances under the current grouped project do not involve common metering (instead it has a dedicated substation at plant side), the apportioning mechanism will not be applicable in this case. This was confirmed based on interviews/i/-x/ and physical inspections conducted during OSV.

In cases where dates of monitoring period don't match with the dates of billing cycle the PP shall calculate the net electricity exported to the grid on pro rata basis. This approach is deemed to be appropriate. This was confirmed based on conducting interviews/i/-x/ during OSV.

The calibration of all electricity meters is under the jurisdiction of the state electricity board and shall be conducted as per the existing industry standards. The calibration frequency for the electricity meters installed under the current grouped project is 5 years. All installed electricity meters have undergone an initial calibration by the state electricity boards. The calibration certificates/11/ have been provided and were further reviewed by the assessment team and found to be appropriate.

The dated of calibration of all the electricity meters for all initial project activity instances have been provided below:

PP Name	Installed capacity (MW)	Calibration Date
Mihit Solar Power Private Ltd.	25	06/12/2016
Mihit Solar Power Private Ltd.	25	06/12-/016
Mihit Solar Power Private Ltd.	24	10/12/2015
ACME Jaisalmer Solar Power Pvt. Ltd.	20	26/04/2016
Aarohi Solar Pvt. Ltd.	50	29/12/2015
Dayanidhi Solar Power Pvt. Ltd.	40	28/03/2016
Niranjana Solar Energy Pvt. Ltd.	20	19/03/2016
Vishwatma Solar Energy Pvt Ltd.	30	19/03/2016
Acme Raipur Solar Power Pvt. Ltd.	30	07/12/2015
Dayakara Solar Power Pvt Ltd	30	31/05/2016
Grahati Solar Energy Pvt Ltd	50	09/06/2016
Acme Odisha Solar Power Pvt Ltd	25	24/06/2016

The above dates were cross-checked with the calibration certificates/11/ and found to be accurate.

The representatives of the O&M team were interviewed at both the sites to verify the correctness of the procedure mentioned in the VCS Joint PD & MR/02/. The assessment team confirms that the description in the VCS Joint PD & MR/02/ correctly represents the metering system available at the project activity sites and that the defined monitoring plan can be implemented in the context of the project activity. The operational and management structure along with detailed responsibilities are mentioned in VCS Joint PD & MR/02/.

Based on the review of the Joint PD & MR/02/, the assessment team confirms that detailed monitoring procedures, monitoring structure, management team, monitoring items and functions have been clearly demonstrated.

CC IPL confirms that the monitoring plan mentioned in the latest VCS Joint PD & MR/02/ is in accordance with the requirements mentioned in the monitoring methodology and the local regulatory requirements of the state utility. The monitoring arrangements described in the monitoring plan are feasible within the project design. CC IPL believes the monitoring plan will give opportunity for real measurement of achieved emissions reductions.

CL02 was raised in this regard and subsequently closed.

3.4 Non-Permanence Risk Analysis

The complete and transparent monitoring plan of the project activity has been described in VCS Joint PD & MR/02/. The monitoring plan conforms to the requirement of the applied methodologies ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/. The same has been validated by the assessment team and it is found that there is no non-permanence risk found at this stage of the project activity.

4 SAFEGUARDS

4.1 No Net Harm

No potential negative environmental and socio-economic impacts have been identified by the project proponents. The grouped project activity promotes environmental and socio-economic well-being as it results in zero GHG emissions due to installation and operation of clean, renewable energy technology for electricity generation.

Moreover, No Net Harm analysis has not been carried out as is not mandatory since the date of contract signing for validation is prior to 19/04/2017. The assessment team reviewed the joint validation and verification contract/19/ to confirm the same.

This is as per the requirements laid out in Appendix-1 of the VCS Standard (version 3.6)/B01b/ and deemed acceptable to the validation team.

4.2 Environmental Impact

The current grouped project activity is the installation and operation of solar PV power plants which would result in generation of clean, renewable energy. Thus, the project activity is not expected to have any significant adverse environmental impacts. Moreover, the project activity would help promote environmental and socio-economic well-being in the region. Also, there is no mandatory legal requirement in the host country to carry out environmental impact assessment of such projects types. The assessment team reviewed the official government notification in the form of 'Schedule I of the EIA notification S.O.1533 (E)' dated 14th September 2006 and further affirmation provided by MOEF in the form of 'OM J-11013/41/2006 - IA II (I)' dated 13th May 2011 to confirm that solar PV power projects are not included in the list of project activities for which EIA is mandatory.

Thus, no EIA has been carried out by the PP which is deemed acceptable to the validation team.

4.3 Local Stakeholder Consultation

No Local Stakeholder Consultation has been carried out as is not mandatory since the date of contract signing for validation is prior to 19/04/2017. The assessment team reviewed joint validation and verification contract/19/ to confirm the same.

This is as per the requirements laid out in Appendix-1 of the VCS Standard (version 3.6)/B01b/ and deemed acceptable to the validation team.

4.4 Public Comments

The current grouped project has not undergone Public Comment period as is not mandatory since the date of contract signing for validation is prior to 19/04/2017. The assessment team reviewed the joint validation and verification contract/19/ to confirm the same.

This is as per the requirements laid out in Appendix-1 of the VCS Standard (version 3.6)/B01b/ and deemed acceptable to the validation team.

5 VERIFICATION FINDINGS

5.1 Accuracy of GHG Emission Reduction and Removal Calculations

The data and parameters used to calculate the GHG emission reductions and removals have been listed below:

Parameters with Default Values (ex-ante parameters):

Parameter ^{/01/}	Description ^{/01/}	Value ^{/01/}	Unit ^{/01/}	Source ^{/01/}
EF _{grid,OM,y}	Operating Margin CO ₂ emission factor in year y	0.9941	tCO ₂ /MWh	Calculated as per "Tool to calculate the emission factor for an electricity system (version 05.0.0)/B04/"
EF _{grid,BM,y}	Build Margin CO ₂ emission factor in year y	0.9285	tCO ₂ /MWh	Calculated as per "Tool to calculate the emission factor for an electricity system (version 05.0.0)/B04/"
EF _{grid,CM,y}	Combined Margin CO ₂ emission factor in year y	0.9777	tCO ₂ /MWh	Calculated as per "Tool to calculate the emission factor for an electricity system (version 05.0.0)/B04/"

Parameter(s) monitored ex-post:

Monitoring Parameter Requirement ^{/B05-a/}	Assessment by the DOE	
Data / Parameter:	EG _{PJ,y}	
Measuring frequency/Time Interval:	Continuous monitoring, hourly measurement and at least monthly recording	
Reporting frequency:	Continuous	
Reporting value:	Year	Net electricity exported to the

			grid (MW)	
		2015	20,853	
		2016	411,020	
		2017	54,350	
		Total	486,223	
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes			
Details of monitoring equipment:	The monitoring of this parameter has been done through recording of electricity (import and export) data by bi-directional electricity meters at the sub-station. The electricity data has been recorded in monthly JMR reports/14/ and Invoices issued to state utility/15/. The same are maintained by PP and the state utility. The generation data has been exported and collated in ER verification spreadsheet/04b/ provided to the assessment team.			
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes, the accuracy of the electricity meters (monitoring equipment) is as stated in the Joint PD & MR/02/.			
Calibration frequency /interval: Is it monitoring methodology /CDM EB guidance / local or national standards / manufacturers specification	Yes, the calibration frequency is 5 years which is in conformance with national standards.			
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes, the calibration interval is in line with the monitoring plan provided in the Joint PD & MR/02/.			
Company performing the calibration (internal or external calibration):	External calibration. The calibration of all electricity meters is under the jurisdiction of the state electricity board and shall be conducted as per the existing industry standards.			
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes			
Is (are) calibration(s) valid for the whole reporting period?	Yes, calibration is valid for the whole reporting period.			
If applicable, has the reported data been cross-checked with other available data?	Yes, the assessment team cross-checked the electricity data provided in the ER verification spreadsheet/04b/ with the monthly JMR reports/14/ and Invoices issued to state utility/15/.			
How were the values in the monitoring report verified?	Through review of the ER verification spreadsheet/04b/ provided by PP. In addition, the verification team performed further cross checks with monthly JMR reports/14/ and Invoices issued to state utility/15/.			
Does the data management (from data generation to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and all necessary QA/QC procedures are in place.			
In case only partial data are available because activity levels or non-activity parameters have not been monitored in	NA			

accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	
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The equations for calculation of emission reduction as provided in the Joint PD & MR/02/ and confirmed with the applied methodologies ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/ have been checked and found to be correct. The values as provided in the Joint PD & MR/02/ have been compared with ER verification sheet/04b/ and raw values from monthly Joint Meter Reading reports/14/ and Invoices issued to state utility/15/ to ensure that no manual transposition errors between data sets have occurred. The assessment team confirms that that all electricity generation values are matching between the above three documents. Moreover, the formulae applied in the ER verification spreadsheet/04b/ were also reviewed and found to be consistent with the applied methodologies.

The assessment team confirms that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the formulae laid out in the applied methodology ACM0002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/ and requirements of the monitoring plan.

The total number of emission reductions for the monitoring period is 475,380 tCO₂e.

5.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

The quality of supporting documents that are provided by the PP as evidence is adequate. Raw values from Joint Meter Reading reports/14/ and Invoices issued to state utility/15/ is provided, which tallies with the data provided in the ER verification spreadsheet/04b/.

Competent employees are recruited for the management and operation of the project. The quality of supporting evidences submitted to DOE for verification is adequate and found to be verifiable. Joint Meter Reading reports/14/ and Invoices issued to state utility/15/ and other supporting documents related to quality and maintenance were checked by the assessment team to confirm the authenticity of the documents and to check the correctness of the calculations. The assessment team for the records and future reference also obtains copies of these documents. The detailed information flow with the roles and responsibilities of the individuals and the monitoring system have been discussed and found to be appropriate.

CC IPL verified that the emission calculations are based on the authentic data. The source and reliability of the baseline ER sheet used to calculate the monthly emission reduction was checked and found to be correct.

Based on the above, the assessment team confirms the sufficiency and appropriateness of the quality of evidence provided by the PP to determine the GHG reductions and further deems them to be acceptable.

6 VALIDATION AND VERIFICATION CONCLUSION

CC IPL has performed a joint validation and verification of the VCS grouped project activity “Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01” in India.

The joint validation and verification process was performed on the basis of all guidance and criteria as provided in VCS Standard (version 3.6)/B01b/, VCS Program Guide (version 3.6)/B01a/, VCS Validation and Verification Manual (version 3.2)/B01e/ and Registration & Issuance Process (version 3.7)/B01d/.

The conclusions of validation and verification process can be individually summarised as follows:

Validation Conclusion:

The conclusions of validation process are:

The grouped project activity provides the information in Joint PD & MR/02/ as required by VCS Standard, version 3.6/B01b/ and Validation and Verification Manual, version 3.2/B01e/ and in CC IPL’s opinion meets the requirements of the applied baseline and monitoring methodologies, ACM002 (version 17.0)/B02a/ and AMS-I.D (version 18.0)/B02b/ and is likely to achieve the estimated emission reductions. The validation has been performed using a risk-based approach, as described above. The expected emission reductions from the project activity during its crediting period (ten years) will be 7,059,710 tCO₂e.

CC IPL concludes the validation with a positive opinion and confirms that the VCS Project Activity “Solar Grouped project by ACME Group (EKIESL-VCS-Aug-16-01” in India, as described in the Joint PD & MR/02/ meets all applicable VCS requirements, including those specified in the CDM Project Standard/B01h/, relevant methodologies, tools and guidelines.

The selected baseline and monitoring methodologies (ACM002 (version 17.0)/B02/) and AMS-I.D (version 18.0)/B02b/ are applicable to the project and correctly applied. CC IPL therefore requests the registration of the project as a VCS project activity.

Verification Conclusion:

The conclusions of verification process are:

- All components of the project are implemented and installed as planned and described in the Joint PD & MR/02/ and the project activity conforms with the verification and validation criteria for project and their GHG emission reductions or removals set out in the VCS Standard (version 3.6) /B01b/.
- The monitoring plan is in accordance with the applied approved methodologies, i.e. ACM002 (version 17.0)/B02/ and AMS-I.D (version 18.0)/B02b/ and monitoring plan as sought out in the Joint PD & MR/02/.
- The monitoring system is in place and functional. The project has generated verifiable GHG emission reductions.

As the result of the verification of VCS VERs, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. CCIPL herewith confirms that the project has achieved emission reductions in the below mentioned reporting period. The project complies with the verification criteria for projects and their GHG emissions reductions or removals set out in VCS Standard (version 3.6) /B01b/.

Verification period: From 22/06/2015 to 31/01/2017 (both days included)

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)
2015	20,388	0	0	20,388
2016	401,854	0	0	401,854
2017	53,138	0	0	53,138
Total	475,380	0	0	475,380

CCIPL confirms a positive verification opinion confirming that the grouped project complies with the applicable VCS requirements, thus recommending the project for issuance.

APPENDIX 1.1: REFERENCE DOCUMENTS

Sl. No.	List of pertinent documents
/01/	a) Initial Joint PD & MR, version 02, dated 12/04/2017 b) Interim Joint PD & MR, version 03, dated 22/05/2017
/02/	Final Joint PD & MR, version 04, dated 17/07/2017
/03/	Emission reduction spreadsheets corresponding to /01/ a) ER estimation and EF calculation spreadsheet (validation) b) Actual ER calculation spreadsheet (verification)
/04/	Emission reduction spreadsheets corresponding to /02/ a) ER estimation and EF calculation spreadsheet (validation) b) Actual ER calculation spreadsheet (verification)
/05/	Prior consideration evidence of VCU for the project activity- Board Resolutions of PPs
/06/	Detailed Project Reports prepared by third party companies
/07/	Signed CA certificates acting as evidences of the actual project costs of all the initial project activity instances
/08/	Commissioning certificates issued by respective state electricity board (also acting as proof of start date of grouped project)
/09/	Evidence for the Technical specifications of the projects
/10/	Copy of Power Purchase Agreements
/11/	Electricity meters Calibration Certificates
/12/	IRR spreadsheet(s) along with evidences for all the input parameters
/13/	MNRE State wise commissioning status of grid connected Solar Power Projects: http://mnre.gov.in/file-manager/UserFiles/state-wise-commissioned-grid-connected-solar-power-projects.htm
/14/	Monthly Joint Meter Reading (JMR) statements for the entire monitoring period
/15/	Invoices raised by the PPs to the respective state electricity boards for the monitoring period
/16/	Declaration(s) from Project proponents on the following (for section 1.12 of the Joint PD & MR): a) Project not registered or under process of registration in any other Emissions Trading Programs and Other Binding Limits. b) Project not registered or under process of getting and Other Forms of Environmental Credit c) The project has not been registered and is not seeking registration under any other GHG program. d) Projects not Rejected by Other GHG Programs
/17/	Declaration from PP that no Government incentive is being taken for the project (like GBI, REC etc..)
/18/	ODA declaration
/19/	Joint validation and verification contract signed between CCCIPL and ACME Group
/20/	Statutory clearance notification from Central Pollution Control Board
/21/	Undertaking for input assumptions for performing financial analysis
/22/	Common practice analysis spreadsheets for all large-scale project activity instances

APPENDIX 1.2: BACKGROUND DOCUMENTS

Sl. No.	List of pertinent documents
/B01/	VCS Requirements: a) Verified Carbon Standard Program Guide, v3.6; b) Verified Carbon Standard, v3.6; c) VCS Program Definitions, Ver. 3.6 d) VCS Registration and Issuance Process, v3.7 e) VCS Validation and Verification Manual, v3.2 f) VCS Joint Project Description & Monitoring Report Template, v3.1 g) VCS Joint Validation & Verification Report Template, v3.1 CDM Requirements: h) CDM Project Standard, v9.0 i) CDM Validation and Verification Standard, v9.0
/B02/	a) Approved CDM monitoring methodology: ACM0002: Grid-connected electricity generation from renewable sources - Version 17.0 b) Approved CDM monitoring methodology: AMS-I.D: Grid connected renewable electricity generation -Version 18.0
/B03/	CDM Validation and Verification Standard, version 09.0 CDM Project Standard, version 09.0
/B04/	Tool to calculate the emission factor for an electricity system, version 05.0
/B05/	Baseline CO2 Emission Database, Version 11.0 published by Central Electricity Authority (CEA), Government of India.
/B06/	Methodological Tool: Tool for the demonstration and assessment of additionality, version 07.0
/B07/	Methodological Tool: Investment analysis, version 07.0
/B08/	Methodological Tool: Common practice, version 03.1
/B09/	Methodological tool: Demonstration of additionality of small-scale project activities (version 11.0)
/B10/	Google Earth: https://earth.google.com/web/

APPENDIX 2: LIST OF FINDINGS

CARs:

Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (DOE)	The following findings have been raised due to non-conformance with the form filling requirements of VCS joint PD and MR template: a) In section 1.1, the PP has not provided the following information (provided in bold): “An estimate of annual average and total GHG emission reductions and removals for the project crediting period”. b) In section 1.10, PP has not provided a response to the following requirement: “Demonstrate that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction.”		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	a) Section 1.1 of Joint PD & MR is revised with mention of annual estimation of GHG emission reductions and estimation of GHG emission reductions over the crediting period. b) Section 1.10 of Joint PD & MR is revised accordingly.		
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	a) The validation team reviewed the revised joint PD and MR and confirms that the value of ‘total GHG emission reductions and removals for the project crediting period’ has now been provided. The same was cross checked with the ER spreadsheet and found to be accurate. This is deemed appropriate to the validation team. This finding is closed. b) The validation team reviewed the revised joint PD and MR and confirms that an appropriate response to the above VCS form filling requirement has been provided. The project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction, removal or destruction. This is deemed appropriate		

	to the validation team. This finding is closed. This CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 02		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (DOE)	As required by VCS, PP has not added at least one specific small scale project activity instance corresponding to the methodology AMS-I.D considering that grouped project design contains a provision for inclusion of small scale project activities under methodology AMS-I.D as well.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	Since current grouped project activity involves small scale and large scale project activity instances, with AMS I.D and ACM0002 methodology respectively, the small scale project activity instance is added in the grouped project activity.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The validation team reviewed the revised joint PD and MR and confirms that one specific small scale project activity instance corresponding to the methodology AMS-I.D has now been added. The small-scale project activity is a 12.5MW solar PV plant located in Uttarakhand and owned by Eminent Solar Power Pvt Ltd. The same was confirmed based on review of DPR and commissioning certificate provided by PP. This is deemed appropriate to the validation team. This CAR is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 03		
Classification	☒ CAR	☐ CL	☐ FAR

Description of finding (DOE)	In section 1.5, the start date of the project activity listed is not consistent with the start date provided in the supporting document (commission certificate).
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The start date is earliest commission date of project activity instance which is 22/06/2015 for Acme Odisha Solar Power Pvt Ltd. This date is made consistent in revised Joint PD & MR.
DOE Assessment #1 The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.	The validation team reviewed the revised joint PD and MR and confirms that the start date has now been rectified to 22/06/2015, and is accurate. The same is now consistent with supporting document (commission certificate). This is deemed appropriate to the validation team. This CAR is closed.
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

CLs:

Finding	CL 01
Classification	☐ CAR ☒ CL ☐ FAR
Description of finding (DOE)	In section 2.5 while conducting the Common Practice analysis (step 2) PP states that: <i>“There is no any single project found having capacity between 184.50 MW to 553.50 MW.”</i> PP is requested to transparently clarify and further demonstrate (using appropriate evidence) how it arrived at the above conclusion. Moreover, PP is requested clarify on the appropriateness of conducting a single Common Practice analysis for all the ten initial large scale project activity instances together. In other words, PP is requested to clarify why Common Practice analysis has not been conducted separately for all the ten initial large scale project activity instances.
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	All SPVs included in the initial large scale project activity instances are developed under ACME group, hence common practise analysis is determined considering all SPVs together

	considering ACME Group. Ministry of New & Renewable Energy (MNRE) have publically available list of grid connected solar projects till 30/11/2015 for each states. Based on this publically available web link, it is observed that there is no similar project similar to proposed VCS project activity. Hence initial large scale project activity instances are not a common practise. http://mnre.gov.in/file-manager/UserFiles/state-wise-commissioned-grid-connected-solar-power-projects.htm
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The validation team reviewed the link provided by the PP and confirms that the above conclusion drawn is appropriate. As per the MNRE database, there are no projects having capacity between 184.50 MW to 553.50 MW and satisfying the conditions laid out in step 1 and step 2 of the Common Practice analysis. Moreover, the justification provided by the PP in conducting a single Common Practice analysis for all the ten initial large-scale project activity instances is deemed to appropriate considering that all the SPVs are part of a single parent company (ACME Solar). This is deemed appropriate to the validation team. This CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 02		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (DOE)	PP is requested to provide the energy meter details in the Joint PD & MR used during the monitoring period.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The meter calibration details are provided in Appendix 1 of revised Joint PD & MR.		

Finding	CL 02
DOE Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The validation team reviewed the revised joint PD and MR and confirms that appropriate energy meter details have now been provided. The same were cross-checked with the calibrations certificates and found to be accurate. This is deemed appropriate to the validation team. This CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Ltd.

Sanjay Agarwalla

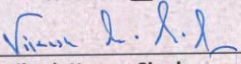
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For following functions:

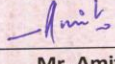
Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Expert ¹	☒

In the following Technical Areas:

TA 1.1	☒	TA 3.1	☒	TA 5.2	☒	TA 9.2	☒	TA 13.2	☐
TA 1.2	☒	TA 4.1	☒	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
TA 2.1	☒	TA 5.1	☒	TA 9.1	☒	TA 13.1	☒		



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
23/12/2016

Valid Till
22/12/2017

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision

¹India

CARBON CHECK (INDIA) PRIVATE LIMITED
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Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: G 49 & 50, 3rd Floor, Sector - 3, NOIDA (Uttar Pradesh) - 201301
Tel: +91 120 4373114 / +91 120 2520027 | URL: www.carboncheck.co.in
e-mail: info@carboncheck.co.in



Carbon Check (India) Private Ltd.

Kranav Sharma

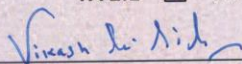
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

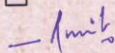
For following functions:

Validator	☐	Team Leader	☐	Technical reviewer	☐
Verifier	☐	Technical Expert	☒	Local Expert ¹	☒

In the following Technical Areas:

TA 1.1	☐	TA 3.1	☒	TA 5.2	☐	TA 9.2	☐	TA 13.2	☐
TA 1.2	☒	TA 4.1	☐	TA 8.1	☐	TA 10.1	☐	TA 14.1	☐
TA 2.1	☐	TA 5.1	☐	TA 9.1	☐	TA 13.1	☐		


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Carbon Check (India) Private Ltd.

Amit Anand

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Expert ¹	☒

In the following Technical Areas:

TA 1.1	☐	TA 3.1	☒	TA 5.2	☐	TA 9.2	☐	TA 13.2	☐
TA 1.2	☒	TA 4.1	☐	TA 8.1	☒	TA 10.1	☐	TA 14.1	☒
TA 2.1	☐	TA 5.1	☐	TA 9.1	☐	TA 13.1	☒		

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Tel: +91 120 4373114 / +91 120 2520027 | URL: www.carboncheck.co.in

e-mail: info@carboncheck.co.in

APPENDIX 4: ABBREVIATIONS

BAU	Business As Usual
CA	Corrective Action / Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entities
DVR	Draft Verification Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Verification Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MOEF	Ministry of Environment and Forests
MWh	Mega Watt Hour
OSV	On Site Visit
QC/QA	Quality control/ Quality assurance
TA	Technical Area
TR	Technical Review
SPV	Special Purpose Vehicle
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VVB	Validation / Verification Body