



**Verified Carbon
Standard**

Grouped Rooftop Solar Project by Tata Power Renewable Energy Limited



Document Prepared by LGAI Technological Center S.A.
(Applus+ Certification)

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Work Carried Out By	Dr. Atul Takarkhede-Lead Auditor/Technical expert Mr. Denny Xue - Technical Reviewer

Summary:

Validation purpose: The main purpose of this grouped project activity is to reduce GHG emission by installing Solar Photovoltaic (SPV) Panels on rooftops of different industries in various states of India by Tata Power Renewable Energy Limited. All the rooftop solar panel units involved in the project are implemented under RESCO model where TPREL acts as a RESCO (Renewable Energy Service Company). Being the RESCO, TPREL has developed, installed, financed, operates, and owns the rooftop solar power units and supplies power generated from the project to the consumers on whose premises the rooftop SPV panels are set up at Industries. Among 13 industries under project, the power is purchased by the only two industries (details given below) are either consumed by themselves or injected to the grid of the Distribution Utility under the net metering mechanism.

Tata Power Renewable Energy Limited (hereafter referred as “project proponent”) is installing these facilities (hereafter referred as “proposed project activity”) at various locations across India as a grouped project activity. Tata Power Renewable Energy Limited is looking forward to earn carbon credits under VCS mechanism for these SPVs installed at various industries.

All the project instances i.e., SPV panels to be included in this grouped project will be from within India only. Hence the location and geographical boundary of the grouped project can be defined as India.

Sr. No.	Customer	Location	Installed Capacity (KW)	Commissioning date
1.	Tinplate Company of India Limited	Jamshedpur, Jharkhand state, India	200.64	01-October-2020
2.	Duraline India Private Limited	Hyderabad, Telangana State, India	980	07-October-2020
3.	GE T&D India Limited, Hosur	Hosur, Tamil Nadu State, India	832	11-October-2020
4.	Arya Anathalay I	Delhi, Delhi UT, India	80	20-December-2020
5.	Time of India, Airoli	Airoli, Maharashtra State, India	186.9	19-January-2021
6.	Asian Paints Limited	Mumbai, Maharashtra State, India	451	18-February-2021
7.	Time of India, Kolkata	Kolkata. West Bengal State, India	226.95	22-February-2021
8.	TATA Lockheed Martin Aerostructures Limited	Hyderabad, Telangana State, India	999.6	03-March-2021
9.	TSPDCL, Demag	Jamshedpur, Jharkhand State, India	318	31-March-2021
10.	Apollo Gleneagles Hospital Limited	Kolkata, West Bengal State, India	335	01-April-2021
11.	Tata Metaliks Limited	Kharagpur, West Bengal State, India	1059	15-May-2021
12.	Arya Anathalay II	Delhi, Delhi UT, India	202.29	03-June-2021
13.	Tata Motors Limited (Car Plant)	Pimpri, Maharashtra State, India	6250	18-June-2021

The details of project capacity and location details for all the project instances are as follows:

During the 7 years of first crediting period i.e., 01-October-2020 to 30-September-2027, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 15,171 tCO₂e per year, thereon total GHG emission reductions for the chosen 07-year crediting period will be 106,197 tonnes of CO₂e.

The objective of this validation activity is to have an independent third party for the assessment of the project design, estimated ER sheet and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- The project's monitoring plan is assessed against "AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0.
- The projects compliance with the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision

3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline and standard version 4.2

- CDM Validation and Verification Standard for project activities, version 03.0
- VCS standard v4.3
- VCS guideline v4.2

Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of estimated verified emission reductions (VCUs).

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A risk-based approach has been followed to perform this joint validation and verification activity. In the course of Joint Validation & Verification, 06 Corrective Action requests (CARs) and 02 Clarification Requests (CLs), 0 Forward action request (FARs) were raised and successfully closed (for joint validation & verification). The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and project owners have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence to verify the fulfilment of the stated criteria of VCS

Verification purpose:

The main purpose of this grouped project activity is to reduce GHG emission by installing Solar Photovoltaic (SPV) Panels on rooftops of different industries in various states of India by Tata Power Renewable Energy Limited (TPREL). All the rooftop solar panel units involved in the project are implemented under RESCO model where TPREL acts as a RESCO (Renewable Energy Service Company). Being the RESCO, TPREL has developed, installed, financed, operates, and owns the rooftop solar power units and supplies power generated from the project to the consumers on whose premises the rooftop SPV panels are set up at Industries. Among 13 industries under project, the power is purchased by the only two industries (details given below) are either consumed by themselves or injected to the grid of the Distribution Utility under the net metering mechanism.

Tata Power Renewable Energy Limited (hereafter referred as “project proponent”) is installing these facilities (hereafter referred as “proposed project activity”) at various locations across India as a grouped project activity. Tata Power Renewable Energy Limited is looking forward to earn carbon credits under VCS mechanism for these SPVs installed at various industries.

During the Current Monitoring Period from 01-October-2020 to 30-April-2022 (including first and last dates) the project activity contributed to the GHG reductions 12,966 tCO_{2e}.

During the current monitoring period, project activity undergoes continued operation. since their commissioning and no major breakdown had taken place.

The objective of this verification activity is to have an independent third party for the assessment of the project design, Actual ER sheet and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- The project's baseline is assessed against “AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0
- The project's monitoring plan is assessed against “AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0
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A risk-based approach has been followed to perform this joint validation and verification activity. In the course of validation + verification, 06 Corrective Action requests (CARs) and 02 Clarification Requests (CLs), 00 Forward action request (FARs) were raised and successfully closed. The review of the Monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and project owners have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence to verify the fulfillment of the stated criteria of VCS.

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1 INTRODUCTION

1.1 Objective

LGAI Technological Center S.A. (Hereinafter referred as Applus + Certification) has been appointed by “**Tata Power Renewable Energy Limited**” to perform the Joint validation and verification of the project entitled “Grouped Rooftop Solar Project by Tata Power Renewable Energy Limited under VCS standard V 4.3 and guideline version 4.2. The objective of this joint validation & verification activity is to have an independent third party for the assessment of the project design, ER sheet and to ensure a thorough assessment of the proposed project activity against the applicable CDM and VCS requirements. In particular;

- The project’s baseline is assessed against “AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0
- The project’s monitoring plan is assessed against “AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0
- The projects compliance with the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline V4.2 and standard version V4.3.
- CDM Validation and Verification Standard for project activities version 03.0
- VCS standard v4.3
- VCS guideline v4.2

Joint Validation& verification is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of estimated verified certified units (VCUs).

1.2 Scope and Criteria

The scope of the Joint validation and verification is the independent and objective review of the Joint Project Description & Monitoring Report. The Joint VCS PD & MR are reviewed against the relevant criteria (see 1.1) and decisions by the CDM Executive Board and VCS executive board, including the approved baseline and monitoring methodology. The validation and verification were based on the guidance given in the VCS guideline version 4.2 and standard version 4.3.

The assessment team has employed a risk-based approach to assess the completeness and accuracy of the claims and conservativeness of the assumptions in the Joint VCS PD & MR. The main focus of the assessment team is to identify the significant risks for the project implementation and the generation of VCUs. The validation and verification are not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design and monitoring report combined.

The only purpose of the validation and verification is its usage during the registration /issuance process as part of the VCS project cycle. Therefore, LGAI Technological Center S.A. (Applus+ Certification) can't be held liable by any party for decisions made or not made based on the validation/verification opinion, which will go beyond that purpose.

1.3 Level of Assurance

The verification and validation have been planned and organized to achieve a Reasonable Level of assurance as per the requirement of VCS.

1.4 Summary Description of the Project

The main purpose of this grouped project activity is to reduce GHG emission by installing Solar Photovoltaic (SPV) Panels on rooftops of different industries in various states of India by Tata Power Renewable Energy Limited (TPREL). All the rooftop solar panel units involved in the project are implemented under RESCO model where TPREL acts as a RESCO (Renewable Energy Service Company). Being the RESCO, TPREL has developed, installed, financed, operates, and owns the rooftop solar power units and supplies power generated from the project to the consumers on whose premises the rooftop SPV panels are set up at Industries. Among 13 industries under project, the power is purchased by the only two industries (details given below) are either consumed by themselves or injected to the grid of the Distribution Utility under the net metering mechanism.

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All the project instances i.e., SPV panels to be included in this grouped project will be from within India only. Hence the location and geographical boundary of the grouped project can be defined as India.

The details of project capacity and location details for all the project instances are as follows:

Sr. No.	Customer	Location	Installed Capacity (KW)	Commissioning date	Net Metering	Longitude	Latitude
1	Tinplate Company of India Limited	Jamshedpur, Jharkhand state, India	200.64	01-October-2020	No	22.7936	86.2295
2	Duraline India Private Limited	Hyderabad, Telangana State, India	980	07-October-2020	Yes	17.1699	78.2926
3	GE T&D India Limited, Hosur	Hosur, Tamil Nadu State, India	832	11-October-2020	No	12.7532	77.8098
4	Arya Anathalay I	Delhi, Delhi UT, India	80	20-December-2020	No	28.5558	77.2558
5	Time of India, Airoli	Airoli, Maharashtra State, India	186.9	19-January-2021	No	19.1643	73.0017
6	Asian Paints Limited	Mumbai, Maharashtra State, India	451	18-February-2021	No	19.0593	73.1221
7	Time of India, Kolkata	Kolkata. West Bengal State, India	226.95	22-February-2021	No	22.5748	88.4266
8	TATA Lockheed Martin Aerostructures Limited	Hyderabad, Telangana State, India	999.6	03-March-2021	Yes	17.2292	78.5523
9	TSPDCL, Demag	Jamshedpur, Jharkhand State, India	318	31-March-2021	No	22.7703	86.2198
10	Apollo Gleneagles Hospital Limited	Kolkata, West Bengal State, India	335	01-April-2021	No	22.5739	88.4011
11	Tata Metaliks Limited	Kharagpur, West Bengal State, India	1059	15-May-2021	No	22.3845	87.2849
12	Arya Anathalay II	Delhi, Delhi UT, India	202.29	03-June-2021	No	28.5575	77.2554
13	Tata Motors Limited (Car Plant)	Pimpri, Maharashtra State, India	6250	18-June-2021	No	18.6578	73.8207

During the 7 years of first crediting period i.e., 01-October-2020 to 30-September-2027, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 15,171 tCO_{2e} per year, thereon total GHG emission reductions for the chosen 07-year crediting period will be 106,197 tonnes of CO_{2e}.

During the Current Monitoring Period from 01-October-2020 to 30-April-2022 (First and last date included) the project activity has contributed 12,966 tCO₂e GHG reductions.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

Validation and Verification Scope: The scope is defined as an independent and objective review of the Joint project design document and Monitoring report. The Joint VCS PD and MR is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board and VCS standard version 4.3 and guideline version 4.2, including the approved baseline and monitoring methodology AMS-IF.: Renewable electricity generation for captive use and mini-grid, Version 5.0. The validation and verification were based on the requirements in the Validation and Verification Standard for project activities version 03.0, and VCS guideline version 4.2 and standard version 4.3.

The validation and verification are not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the combined project document and the Monitoring report.

Validation and Verification Process: The project assessment is based on the Clean Development Mechanism Validation and Verification Standard for project activities version 03.0 and VCS standard version 4.3 and guideline version 4.2 and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the VCS project activity are appointed.

Once the project is received by the assessment team, the members of the assessment team carried out:

- A desk review of the Joint project design documentation and monitoring report;
- Follow-up interviews with project stakeholders;
- The resolution of outstanding issues and the issuance of the final Joint -VAL & report and opinion.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. LGAI TECHNOLOGICAL CENTER S.A. (APPLUS+ CERTIFICATION) has developed a specific checklist customized for the project. The checklist demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating/verifying the identified criteria.

Appointment of the assessment team: -

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Dr. Atul Takarkhede	LA/TE	YES	YES	YES	YES
Denny Xue	TR	YES	YES	YES	NA

The complete list of CVs is included as Appendix 3 of this report.

Document Review: -

The Joint VCS PD & MR submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in this report below in appendix 1.

Follow -up Interviews: -

A remote audit is conducted by LGAI Technological Center S.A. (Applus+ Certification) assessment team who performed interviews, telephone conferences, and remote inspection with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in this report in the below sections.

Resolution of Clarification and Correction Action Request: -

The objective of this phase of the joint validation and verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for LGAI Technological Center S.A. (Applus+ Certification) positive conclusion on the project design and Monitoring report. The Corrective Action Requests and Clarification Requests raised by LGAI Technological Center S.A. (Applus+ Certification) were resolved during communications between the Client and Applus+ Certifications to guarantee the transparency of the validation process, the concerns raised and responses given are summarized below in the appendix 2.

The Joint VCS PD & MR Version 03 submitted by project owners on 27-September-2022 serves as the basis for the final assessment presented. Additional changes to the project during the joint validation and verification process are not considered to be significant with respect to the main CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Internal quality Control: -

As final step of a joint validation and verification of the final documentation including the final Joint validation and verification report and the checklist have to undergo an internal quality control by the technical review committee, i.e., each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the project owners, the positive validation/verification opinion and relevant documents are submitted to the VCS secretariat through the VCS web-platform.

2.2 Document Review

The details of the document observed during the joint validation and verification process are listed below in appendix 1 of this report.

2.3 Interviews

The names of the persons interviewed during site visit is given below;

Date of Interview: 19-September-2022		
Sr. No.	Name of Persons	Role/Designation
1.	Mr. Prashant Tiwari	Group Head, Carbon Asset Management
2.	Mr. George Vineet	Lead Engineer, Forecasting & Scheduling
3.	Mr. J C Jacob,	Regional Head- Customer Service and O&M Solar Rooftop
4.	Mr. Anil Kumar Nayakallu, EKI	EKI Energy
5.	Mr. Barun Sharma, EK	EKI Energy

2.4 Site Inspections

Duration of remote audit: 19-September-2022 (remote assessment)				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring.	Remote Assessment via video conference (Skype)	19-September-2022	Dr. Atul Takarkhede (Team Leader)

2.5 Resolution of Findings

The objective of this phase of the joint validation and verification was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for LGAI Technological Center S.A. (Applus+ Certification)'s positive conclusion on the project design and Monitoring report. The Corrective Action Requests and Clarification Requests raised by LGAI Technological Center S.A. (Applus+ Certification) were resolved during communications between the Client and LGAI Technological Center S.A. (Applus+ Certification) to guarantee the transparency of the validation process, the concerns raised and responses given are summarized below in the Appendix 2.

The final Joint VCS PD & MR Version 03 submitted by project owners on 27-September-2022 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 CDM/VCS objectives. The two CDM/VCS main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

Areas of validation and verification findings	No. of CL	No. of CAR	No. of FAR
Project design document and Monitoring report	00	01	00
Description of project activity	02	01	00
Application of selected baseline and monitoring methodology and selected standardized baseline			
- Applicability of methodology and standardized baseline	00	00	00
- Deviation from methodology	00	00	00
- Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
- Demonstration of additionality	00	00	00
- Emission reductions	00	01	00
- Monitoring plan	00	00	00
- Stakeholder's consultation process	00	01	00
- Public comments	00	00	00
Others (please specify)-Matter related to double counting- for validation	00	01	00
Others (please specify)-	00	00	00
ER achieved – Actual ER achieved calculations, Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines Compliance of monitoring activities with the registered monitoring plan Compliance with the calibration frequency requirements for measuring instruments Assessment of data and calculation of emission reductions or net removals Assessment of reported sustainable development co-benefits	00	01	00
Total (Validation+ Verification)	02	06	00

The list of findings and their resolution is presented in Appendix 2 of this report.

2.5.1 Forward Action Requests

No FAR was raised during this joint validation and verification process. Please refer Appendix 2 for details.

3 VALIDATION FINDINGS

3.1 Project Details

The main purpose of this grouped project activity is to reduce GHG emission by installing Solar Photovoltaic (SPV) Panels on rooftops of different industries in various states of India by Tata Power Renewable Energy Limited (TPREL). All the rooftop solar panel units involved in the project are implemented under RESCO model where TPREL acts as a RESCO (Renewable Energy Service Company). Being the RESCO, TPREL has developed, installed, financed, operates, and owns the rooftop solar power units and supplies power generated from the project to the consumers on whose premises the rooftop SPV panels are set up at Industries. Among 13 industries under project, the power is purchased by the only two industries (details given below) are either consumed by themselves or injected to the grid of the Distribution Utility under the net metering mechanism.

Baseline Scenario: -

The project intends to use the electricity generated from the solar rooftop units primarily for captive purpose and surplus (if any) is supplied to the grid as per the net metering mechanism. The solar plant unit is located at the respective rooftop of the mentioned site at section. The project activity will displace electricity from INDIAN Grid, which is supplied by predominantly fossil fuel plants. The project activity instances would replace equivalent quantum of fossil fuel dominated grid power that's being used prior to the project activity instances.

Hence, pre-project scenario and baseline scenario are the same.

Estimated Average GHG emission reductions from the project activity will be 15,171 tonnes of CO₂e per year and total GHG emission reductions for the chosen 10-year crediting period will be 106,197 tonnes of CO₂e.

This is a grouped project activity and geographical boundary of the project activity is Fixed as India only. Hence, all the project instances shall be located within the India only.

The grouped projects are located across the country. The geographical coordinates are as follows:

Sr. No.	Customer	Location	Installed Capacity (KW)	Commissioning date	Latitude	Longitude
1.	Tinplate Company of India Limited	Jamshedpur, Jharkhand state, India	200.64	01-October-2020	22.7936	86.2295
2.	Duraline India Private Limited	Hyderabad, Telangana State, India	980	07-October-2020	17.1699	78.2926

Sr. No.	Customer	Location	Installed Capacity (KW)	Commissioning date	Latitude	Longitude
3.	GE T&D India Limited, Hosur	Hosur, Tamil Nadu State, India	832	11-October-2020	12.7532	77.8098
4.	Arya Anathalay I	Delhi, Delhi UT, India	80	20-December-2020	28.5571	77.2552
5.	Time of India, Airoli	Airoli, Maharashtra State, India	186.9	19-January-2021	19.1641	73.0012
6.	Asian Paints Limited	Mumbai, Maharashtra State, India	451	18-February-2021	19.0593	73.1221
7.	Time of India, Kolkata	Kolkata. West Bengal State, India	226.95	22-February-2021	22.5748	88.4266
8.	TATA Lockheed Martin Aerostructures Limited	Hyderabad, Telangana State, India	999.6	03-March-2021	17.2292	78.5523
9.	TSPDCL, De mag	Jamshedpur, Jharkhand State, India	318	31-March-2021	22.7700	86.2200
10.	Apollo Gleneagles Hospital Limited	Kolkata, West Bengal State, India	335	01-April-2021	22.5739	88.4011
11.	Tata Metaliks Limited	Kharagpur, West Bengal State, India	1059	15-May-2021	22.3845	87.2849
12.	Arya Anathalay II	Delhi, Delhi UT, India	202.29	03-June-2021	28.5571	77.2552
13.	Tata Motors Limited (Car Plant)	Pimpri, Maharashtra State, India	6250	18-June-2021	18.6488	73.8165
TOTAL			12,121.38			

During the 7 years of first crediting period i.e., 01-October-2020 to 30-September-2027, the project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 15,171 tCO_{2e} per year, thereon total GHG emission reductions for the chosen 07-year crediting period will be 106,197 tonnes of CO_{2e}.

During the Current Monitoring Period from 01-October-2020 to 30-April-2022 (First and last date included) the project activity has contributed 12,966 tCO_{2e} GHG reductions.

The operational life of the SPV is 25 years based upon the standard operational and maintenance practices followed at site. Same is also verified from the PPA and technical details of the project activity.

Assessment team checked remotely and confirms that the details of the project proponent areas below

Organization name	Tata Power Renewable Energy Limited
Contact person	Prashant Kumar Tiwari
Title	Group Head - Carbon Asset Management
Address	Tata Power Renewable Energy Limited, Corporate Center B, 34 Sant Tukaram Road, Carnac Bunder, Mumbai 400 009, Maharashtra, India
Telephone	+91 9099006418
Email	prashant.tiwari@tatapower.com

Other entity involved is EKI Energy as project consultant and details are as below:

Organization name	EKI Energy Services Ltd.
Role in the project	Project Consultant
Contact person	Anil Kumar Nayakallu
Title	Senior Manager- Operations
Address	Office no. 201, Plot 48, Scheme 78 Part 2 Vijay Nagar, Near Brilliant Convention Centre Indore - 452010 (M.P, India) Website www.enkingint.org
Telephone	+91-7506167848
Email	saroj@enkingint.org / registry@enkingint.org

Project start Date: -

Project Start Date: 01-October-2020 which is the date of commissioning of the earliest commissioned rooftop solar unit involved in the project activity i.e., Tinsplate Company of India Limited.

Assessment team checked the commissioning details from the commissioning certificates provided by the project proponent and start date found correct.

Project crediting period: -

Assessment team confirms that the crediting period dates for the project is as below: -

Project crediting period: Renewal crediting period

Start date of Crediting period: 01-October-2020

End date of crediting period: 30-September-2027

Total number of years: 07

The project activity adopts renewable crediting period of 07 years which can be renewed for maximum 2 times.

Project scale & estimated GHG Emissions Reductions or Removals: -

Assessment team confirms that the project involves setting up with grouped project with small scale SPVs. The installed capacity of the grouped project is 12.121 MW.

As per the section 3.9.1 of VCS standard version 4.3, the projects are classified as follows:

1) Projects: Less than or equal to 300,000 tonnes of CO₂e per year

2) *Large Projects: Greater than 300,000 tonnes of CO₂e per year*

The grouped project activity instances being included currently have less than 300,000 tCO₂e Emission reductions, hence these project activity instances are classified as “Projects”

Project Scale	
Project	✓
Large project	

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
Year 1	15,494
Year 2	15,385
Year 3	15,277
Year 4	15,170
Year 5	15,064
Year 6	14,959
Year 7	14,854
Total estimated ERs	106,197
Total number of crediting years	7
Average annual ERs	15,171

However, emission reductions achieved as part of grouped project activity will increase as per addition of new project activity instances in the future.

Condition prior to project initiation: -

Assessment team during the desk review and remote assessment confirms that the project is a installations of solar SPVs by Tata Power Renewable Energy Limited and does not involve generation of GHG emissions for the purpose of their subsequent reduction, removal or destruction. The baseline as described in section 3.4.4 of this report will continue to be the baseline in the absence of project activity.

Project compliance with applicable laws, statutes and other regulatory framework: -

Assessment team confirms that the Project has received necessary approvals for development and commissioning for the proposed Solar PV project from the state Nodal agencies and is in compliance to the local laws and regulations. Assessment team checked the Commissioning certificates, power purchase agreements, Installation report for Solar Plants to confirm the project capacity and its relevant statutory requirements as per the host country regulations.

Assessment team noted that the project fulfils the norms put down by Central Pollution Control Board norms. As per Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India), final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (29/02/2016).

Being a renewable power project, it falls under the category of White and thus these projects do not need clearance for Consent to operate and only needs to inform the relative State Pollution Control Board. The same is done for the project and thus it can be confirmed that it follows the local laws of the host country.

The relevant national laws and regulations pertaining to generation of energy in India are:

- Electricity Act 2003
- National Electricity Policy 2005
- Tariff Policy 2006

The Project activity conforms to all the applicable laws and regulations in India:

- Power generation using solar energy is not a legal requirement or a mandatory option.
- There are state and sectoral policies, framed primarily to encourage solar power projects. These policies have also been drafted realizing the extent of risks involved in the projects and to attract private investments.
- The Indian Electricity Act, 2003 (May 2007 Amendment) does not influence the choice of fuel used for power generation.
- There is no legal requirement on the choice of a particular technology for power generation.

Thus, assessment team confirms that the project activity follows the National and local law and regulation of the host country.

Project ownership: -

Tata Power Renewable Energy Limited is project proponent (PP) of project activity and they have the legal right to control and operate the project activities.

The project ownership has been checked by the Assessment Team and demonstrated through below supporting documents:

- Power Purchase Agreement (PPA)
- Commissioning certificate issued by SECI

Further, individual compliance aspects will be provided for each of the project activity instance to be included in the grouped project activity based on the clearances/approval/certificates received for implementation of project instance.

Emission Trading programs & other binding limits: -

Assessment team confirms that the Net GHG emission reductions or removals generated by the Project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions in any Emission Trading program or other binding limits. Audit team checked the REC Mechanism database of India and found that the project activity is not accredited¹/ registered² under REC mechanism & also never rejected by other GHG programs. Further, Declaration in effect of the same has been submitted by project proponent to audit team and found to be correct. Thus, it is concluded that the project activity not involved on other Emissions trading programs and other binding limits.

Additional Information Relevant to the project: -

Eligibility criteria for the grouped project: -

This is a grouped project, the eligibility criteria for inclusion of new instances of each project activity has been defined by PP and found in line with VCS requirements as below:

Sr. No	Eligibility Criteria	Project Activity instances eligibility	VVB Assessment
1.	Applicability Conditions: The project activity instances shall meet applicability conditions for applicable methodology (AMS I.F Version 5.0) as defined in section 3.2	All project activity instances meet applicability conditions of methodology (AMS I.F Version 5.0 (project activity instances having capacity less than 15 MW), hence this eligibility criteria are fulfilled. Please refer section 3.2 of this document for methodology applicability criteria.	All the instances involved are capacity less than 15 MW thus fulfill the requirement.
2.	Geographical Area: The project activity instances to be included in the grouped project activity will be activities involving Renewable Electricity Generation for captive use and Mini-grid using solar technology located within India.	All 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.	All the instances involved are within geographical binaries of India. thus fulfill the requirement.

¹ https://www.recregistryindia.nic.in/index.php/publics/accredited_regens

² https://www.recregistryindia.nic.in/index.php/publics/accredited_regens

Sr. No	Eligibility Criteria	Project Activity instances eligibility	VB Assessment
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 criterion is fulfilled. Please refer section 3.4 of this document for baseline scenario.	All instances have same baseline i.e. grid electricity. Thus fulfill the requirement.
4.	Technology type: The project activity instances to be included in the grouped project activity will be Greenfield activities involving Renewable Electricity Generation for captive use and Mini-grid using solar PV technology. The electricity should be supplied to grid, or to third party or to be used for captive purpose etc.	All project activity instances are solar PV power plants supplying electricity for captive use, any surplus power after captive consumption shall be fed to the grid. All are Green field projects. Hence this condition is fulfilled.	All the instances involved are of same technology i.e., Greenfield Solar SPVs thus fulfill the requirement.
5.	Additionality: The project activity instances to be added as part of the grouped project will meet additionality criteria as set out in respective methodologies - for Small Scale Project instances the methodology applicable will be AMS-I.F. For small scale project, project activity instance will be auto additional.	The additionality for the all-project activity instances included in the grouped project has been demonstrated in section 3.5 of PD. As per CDM Tool for demonstration of additionality for small scale project activities, solar PV projects with capacity up to 15 MW fall in positive list of technologies termed as automatically additional. Here all the project activity instances are small scale projects and are automatically additional.	All the instances involved are all the project activity instances are small scale projects and are automatically additional thus fulfill the requirement.
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	The start date of grouped project is considered as the earliest commissioning date (i.e., 01-October-2020) of project activity instance and start date of all other project activity instances is after this date. Hence this condition is fulfilled.	Start date of all instances are after 01-October-2020 thus fulfill the requirement.

Sr. No	Eligibility Criteria	Project Activity instances eligibility	WB Assessment
	documentary evidence.	Please refer section 1.1 of this document or commissioning certificate for start date of grouped project activity.	
7.	Conditions that avoid double counting of emission reductions like unique identifications of project and claiming emission reduction only under one GHG program.	The existing and new project activity instances are identified by latitude and longitude and location of the plant. Declaration has been provided and these project activity instances are not participating in any other GHG program. Hence this condition is fulfilled.	Unique locations of the instances are provided in the Joint VCS PD & MR and PP have also submitted declaration for avoidance of double counting of the emission reductions achieved. Thus fulfill the requirement.
8.	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.	Local stakeholder consultation has been conducted at the project site for all the project activity instances. Details are mentioned in subsequent section of this PD. There is no requirement for carrying out EIA for these projects in India, hence this condition is fulfilled.	PP have conducted LSC meetings and details of the same are provided in Joint VCS PD & MR. Thus fulfill the requirement.
9.	The project activity using solar PV project will supply electricity to grid or to users through grid network or in house captive use.	The existing and new project activity instances are solar PV power plants supplying electricity to grid or user or in house captive use ³ . Hence this condition is fulfilled.	Solar PV projects generating electricity primarily to their captive consumption even though the project is grid-connected for net metering (if any electricity surplus during low in-house demand will be injected to grid). Thus, the main purpose is the delivery to the captive consumer.

Eligibility against Capacity limits:

Assessment team confirmed that the capacity limit of 15 MW of the project activity is not exceeded. Additionally, no project activity instance that surpasses one percent of the capacity limit was found. None of these instances exceeded the capacity limit, and there have been no additional project activity instances added to the project that would exceeding the capacity limit. Same is found inline with section 3.5.14 of VCS standard v4.3. thus accepted.

³ Email Clarification from VERRA is received for solar rooftop captive consumption projects.

In View of above discussion, the assessment team able to confirm that the project instances meet all the eligibility criteria.

Leakage Management for AFOLU project: -

Not applicable to the project activity.

Commercially Sensitive Information: -

No commercially sensitive information has been excluded from the public version of the project description. The details are presented transparently to the assessment team for analysis which lead to positive conclusion for this validation and verification.

Sustainable Development: -

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment, Forest and Climate Change (MoEFCC), has mentioned four indicators for the sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India. Thus, the project's contribution towards sustainable development has been addressed based on the following sustainable development aspects:

Social well being

The project activity will provide job opportunity to local people during erection, commissioning and maintenance of the project. This directly and indirectly positively effects the economy of nearby populace.

Environmental well being

There are no GHG emissions. The impact on land, water, air and soil is negligible. Thus, the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

Further the project leads to generation of energy from renewable energy sources thus solving a major environmental concern for fossil fuel consumption.

Economic well being

The project activity generates permanent and temporary employment opportunity within the vicinity of the project.

Technological well being

The successful operation of project activity would lead to promotion of Solar based power generation and would encourage other entrepreneurs to participate in similar projects.

Further, inline with VCS Standard Version 4.3, para 3.16.1, "The project proponent must demonstrate that a project contributes to at least three SDGs by the end of the first monitoring period, and in each subsequent monitoring period." As per the provision of implementation deadline, "Projects registered before 20 January 2023 shall demonstrate contributions to at

least three SDGs by 20 January 2025". However, PP have provided the information on the SDG contributions by the project activity for SDGs:

1. SDG 7.2.1: Renewable energy share in the total final energy consumption.
2. SDG 8: Employment
3. SDG 13.0: tonnes of greenhouse gas emissions avoided or removed.

VVB have assessed the SDG 7.2.1, SDG 08 and SDG 13.0 and supporting documents shared by PP and found values correct as provided in Section 1.17.2 of Joint VCS PD & MR version 03.

CL 01, CL 02, CAR 01 & CAR 04 were raised on this section and closed successfully. Please refer Appendix 1 for further details.

Hence, Assessment team confirms that the purpose of this grouped project activity is to reduce GHG emission by installing Solar Photovoltaic (SPV) Panels on rooftops of different industries in various states of India by Tata Power Renewable Energy Limited (TPREL). Same is confirmed through document review and remote interview with the project site personnel. Final joint PD & MR also reflect the same. Thus, found acceptable as joint PD & MR is accurate and provided complete project information.

3.2 Participation under Other GHG Programs

The project has neither been registered nor seeking registration under any other GHG programs. The project is seeking registration only in VCS program. Audit team checked the REC Mechanism database of India and found that the project activity is not accredited / registered under REC mechanism. Further, declaration for the same is checked and found correct by the assessment team. Also, assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

1. <https://www.recregistryindia.nic.in/>
2. <http://cdm.unfccc.int/>
3. <http://www.goldstandard.org/>

Rejection by other GHG program: -

The Project is not rejected by other GHG programs. A declaration for the same is checked and found correct by the assessment team. Also, assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

1. <https://www.recregistryindia.nic.in/>
2. <http://cdm.unfccc.int/>
3. <http://www.goldstandard.org/>

www.terra.org

The Project does not intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program.

Renewable energy certificates are available for trading in the host country. However, the same is not availed by the project participant. The undertaking regarding the same is submitted by PP which is acceptable to the assessment team and assessment team also checked the REC web site (<https://recregistryindia.nic.in/>) and found the declaration to be correct. CAR 03 was raised on this section and closed successfully. Please refer Appendix 1 for further details.

3.3 Safeguards

3.3.1 No Net Harm

The 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.

3.3.2 Local Stakeholder Consultation

As per the VCS requirements, it is necessary to invite the relevant stakeholders, prior of the validation process. Moreover, the stakeholder meeting took place prior to the start date of the project activity which fulfill the requirement VCS Standard 4.3. The VVB checked the relevance of the dates during the validation remote audit. The detail of the invitation date and stakeholder meeting date is as below:

Sr. No.	Local Stakeholder Meeting Date	Date of Local Stakeholders Meeting	Venue
1.	03-September-2019	Tinplate Company of India Limited	Jamshedpur, Jharkhand
2.	09-September-2019	Duraline India Private Limited	Hyderabad, Telangana
3.	04-June-2019	GE T&D India Limited, Hosur	Hosur, Tamil Nadu
4.	11-November-2019	Arya Anathalay I	Delhi, Delhi
5.	03-January-2020	Time of India, Airoli	Airoli, Maharashtra
6.	06-January-2020	Asian Paints Limited	Taloja, Maharashtra
7.	20-January-2020	Time of India, Kolkata	Kolkata, West Bengal
8.	27-January-2020	TATA Lockheed Martin Aerostructures Limited	Hyderabad, Telangana
9.	03-February-2020	TSPDCL, Demag	Jamshedpur, Jharkhand
10.	10-February-2020	Apollo Gleneagles Hospital Limited	Kolkata, West Bengal
11.	17-February-2020	Tata Metaliks Limited	Kharagpur, West Bengal
12.	16-March-2020	Arya Anathalay II	Delhi, Delhi
13.	23-March-2020	Tata Motors Limited (Car Plant)	Pimpri, Maharashtra

The local stakeholders' consultation meeting was attended by local persons including local villagers, local vendors, and technology suppliers.

The stakeholders identified by the project participant were local people/ NGOs who are the major population of the area, local communities, and gram panchayat (Village head), technology supplier, project proponent representatives, O&M Team and other people involved in the project. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. The validation team also verified the minutes of meeting to note that no negative comments were received and the same was cross checked with the information obtained during follow up interviews with the stakeholders. Moreover, assessment team during the validation site visit also noted that a grievance register is also put onsite for the stakeholder to comment on any grievances during the operation lifetime of the project activity, the grievances from the stakeholder if found suitable

will be addressed immediately by the top management and thus the approach is found appropriate for the project activity.

Further, Complaint/suggestion/feedback register is maintained at site as a part of ongoing communication with stakeholders in line with clause 3.16.17 of VCS Standard, ver. 4.3 and appropriate actions taken time to time by PP.

Assessment team checked the grievance register provided by PP and found that local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project. During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.

CAR 02 was raised on this section and closed successfully. Please refer Appendix 1 for further details.

3.3.3 Environmental Impact

The project activity is expected to have positive impacts and no significant adverse environmental impacts are foreseen. Since, the project activity is an electricity generation from renewable source (i.e., solar energy) therefore no negative impact are envisaged. There is no mandatory legal requirement for carrying out an environmental impact assessment in the host country. The Ministry of Environment, Forests & Climate change (MoEFCC), Government of India (GoI) notification⁴ dated 14/09/2006 regarding the requirement of Environment Impact Assessment (EIA) studies states that any project developer in India needs to file an application to the Ministry of Environment and Forests (including a public hearing and an EIA) in case the proposed industry or project is listed in a predefined list. The list includes thirty-nine project activities that require EIA studies. The solar power projects are not included in this list and thus an EIA study is not required.

3.3.4 Public Comments

Assessment team noted that this project was open for public comment from 17-August-2022 to 16-September-2022. No comments were received.

The details were checked by the assessment team in the following web platform⁵.

3.3.5 AFOLU-Specific Safeguards

The grouped project is not AFOLU project; Hence this section is not required.

3.4 Application of Methodology

3.4.1 Title and Reference

⁴<http://envfor.nic.in/legis/eia/so1533.pdf>

⁵ <https://registry.terra.org/app/projectDetail/VCS/3556>

Assessment team checked that following methodology and tools are applicable for the grouped project activity. The details are as below:

Methodology:

Methodology: AMS-I.F.: Renewable Electricity Generation for Captive use and mini-grid, version 5.0

Project Type : Type-I

Sectoral scopes: 1

Title : RENEWABLE ELECTRICITY GENERATION FOR CAPTIVE USE AND MINI-GRID

The methodology refers to following CDM tools:

- Tool to calculate the emission factor for an electricity system - Version 07.0

3.4.2 Applicability

The applied baseline methodology is justified as it has been demonstrated that the proposed project activity is:

For AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0

Applicability Condition of AMS I F Version 5.0	Project activity in relation to applicability Conditions	VVB Assessment
This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e., in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below: - A national or a regional grid (grid hereafter); - Fossil fuel fired captive power plant; - A carbon intensive mini-grid.	The project intends to use the electricity generated from the solar rooftop units primarily for captive purpose⁶ and surplus (if any) is supplied to the grid as per the net metering mechanism. The solar plant unit is located at the respective rooftop of the mentioned site at section 1. The project activity will displace electricity from INDAN Grid, which is supplied by predominantly fossil fuel plants. The project activity instances would replace equivalent quantum of fossil fuel dominated grid power that's being used prior to the project activity instances. Hence, the project activity instances justify this applicability conditions.	Solar PV projects generating electricity primarily to their captive consumption even though the project is grid-connected for net metering (if any electricity surplus during low in-house demand will be injected to grid). Thus, the main purpose is the delivery to the captive consumer.

⁶ Email Clarification from VERRA is received for solar rooftop captive consumption projects.

Applicability Condition of AMS I F Version 5.0	Project activity in relation to applicability Conditions	VVB Assessment
Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) applies is included in Table.	The project activity applies methodology AMS I.F and the detailed scenario has been explained after end of this table.	PP have explained scenarios appropriately in the Joint VCS PD & MR and found correct.
Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: a. The project activity is implemented in an existing reservoir with no change in the volume of reservoir; b. 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 project emissions section is greater than 4 W/m² c. 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.	Project activity instances does not include hydro power generation.	Not applicable being Solar SPV.
This methodology is applicable for project activities that: a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); b) Involve a capacity addition, c) Involve a retrofit of (an) existing plant(s); or d) Involve a replacement of (an) existing plant(s).	All project activity instances are installation of greenfield power plants. Hence the condition (a) justifies by the project activity instances.	All SPVS are greenfield project activities. Thus, fulfil criteria.
In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the	Project instances are not capacity addition. All instances are green filed installation.	All SPVS are greenfield project activities. Thus, fulfil criteria.

Applicability Condition of AMS I F Version 5.0	Project activity in relation to applicability Conditions	VVB Assessment
project should be lower than 15 MW and should be physically distinct from the existing units.		
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.	This Project activity instances are not a retrofit or replacement of existing project activity	All SPVS are greenfield project activities. Thus, fulfil criteria.
If the unit added has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project activity instances does not have a non-renewable component.	All SPVS are greenfield solar PV project activities. Thus, fulfil criteria.
Combined heat and power (co-generation) systems are not eligible under this category.	The project activity instances does not involved with co-generation.	All SPVS are greenfield solar PV project activities. Thus, fulfil criteria.
If electricity and/or steam/heat produced by the project activity is delivered to a third party, i.e., another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered that ensures that there is no double counting of emission reductions.	Every project activity instance having a contractual agreement between supplier and consumers in order to specifically avoid double counting.	PPAs for 25 Years are signed between project developer and consumer i.e. Tata Power Renewable Energy Limited and each customer.
In the case the project activities utilize biomass, the "TOOL16: Project and leakage emissions from biomass" shall be applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues.	The project activity instances does not involved with biomass usage.	All SPVS are greenfield solar PV project activities. Thus, fulfil criteria.

LGA Technological Center S.A. (Applus+ Certification) confirms that the application of the baseline methodology is transparent and conservative and confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

The grouped project activity qualifies as Type I during every year of the crediting period in accordance with applicable provisions for project activity eligibility as discussed above. Also, the total installed capacity of project activity is 12.121 MW which is applicable as per small scale project activities methodologies.

CAR 07 was raised on this section and closed successfully. Please refer Appendix 1 for further details.

3.4.3 Project Boundary

As per AMS I.F, Version 5.0 “The spatial extent of the project boundary includes industrial, commercial facilities consuming energy generated by the system. In the case of electricity generated and supplied to distributed users (e.g., residential users) via mini/isolated grid(s) the project boundary may be confined to physical, geographical site of renewable generating units. The boundary also extends to 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 includes the solar rooftop project installed at the user’s roof. Users might also be connected to the Indian grid. Therefore, the entire Indian grid and all connected power plants have been considered in the project boundary for the proposed VCS project activity. The grid is also part of the project boundary as the solar rooftop units are connected to the grid through net metering mechanism.

The sources and GHG gases involved for proposed Project activity are as below:

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	CO ₂	Yes	Main emission source
		CH ₄	NO	Minor emission source
		N ₂ O	NO	Minor emission source
Project	Greenfield Solar Power Project activity	CO ₂	NO	No CO ₂ emissions are emitted from the project
		CH ₄	NO	Project activity does not emit CH ₄
		N ₂ O	NO	Project activity does not emit N ₂ O

3.4.4 Baseline Scenario

As per AMS-I.F.: Renewable Electricity Generation For Captive Use And Mini-Grid, VERSION 5.0; “For project activities that displace grid electricity and fossil fuel fired on-site captive electricity, the baseline emission factor should reflect the emissions intensity of the grid and the captive power plant in the baseline scenario i.e. the weighted average emission factor for the displaced electricity is calculated using values based on the historical, prior three year ratios of electricity from captive plants and the grid. For new facilities, the most conservative (lowest) of the emission factor for the two power sources should be used.

Hence, the baseline for the project activity is the equivalent amount of power from the INDIAN grid. The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) (having weightage 75%) and build margin (BM) (having weightage 25%). Calculations for this combined margin must be based on data from an official source of CEA database (where available) and made publicly available.

The combined margin of the INDIAN National Grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9305 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 17.0 October - 21 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9522 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3-year (2018-19, 2019-20, 2020-21) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 17.0 October - 21 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8653 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 17.0, October - 21 published by Central Electricity Authority (CEA), Government of India

Assessment team conclude that the above mentioned baseline scenario is in line with the applied methodology “AMS-I.F.: Renewable Electricity Generation For Captive Use And Mini-Grid, VERSION 5.0”. Same is also reflected in final joint PD and MR version 03. Thus accepted.

3.4.5 Additionality

The project proponent is required to demonstrate the additionality of small-scale project activities in line with Applied Tool 21: "Demonstration of Additionality of Small-Scale Project Activities" Version 13.1. It should accomplish this by addressing at least one of the following obstacles:

- Investment barrier
- Technological barrier
- Barrier due to prevailing practice
- Other barriers

The PP has chosen investment barrier to prove additionality compared to other barriers given in the Tool 21. The same is elaborated in the following paragraphs.

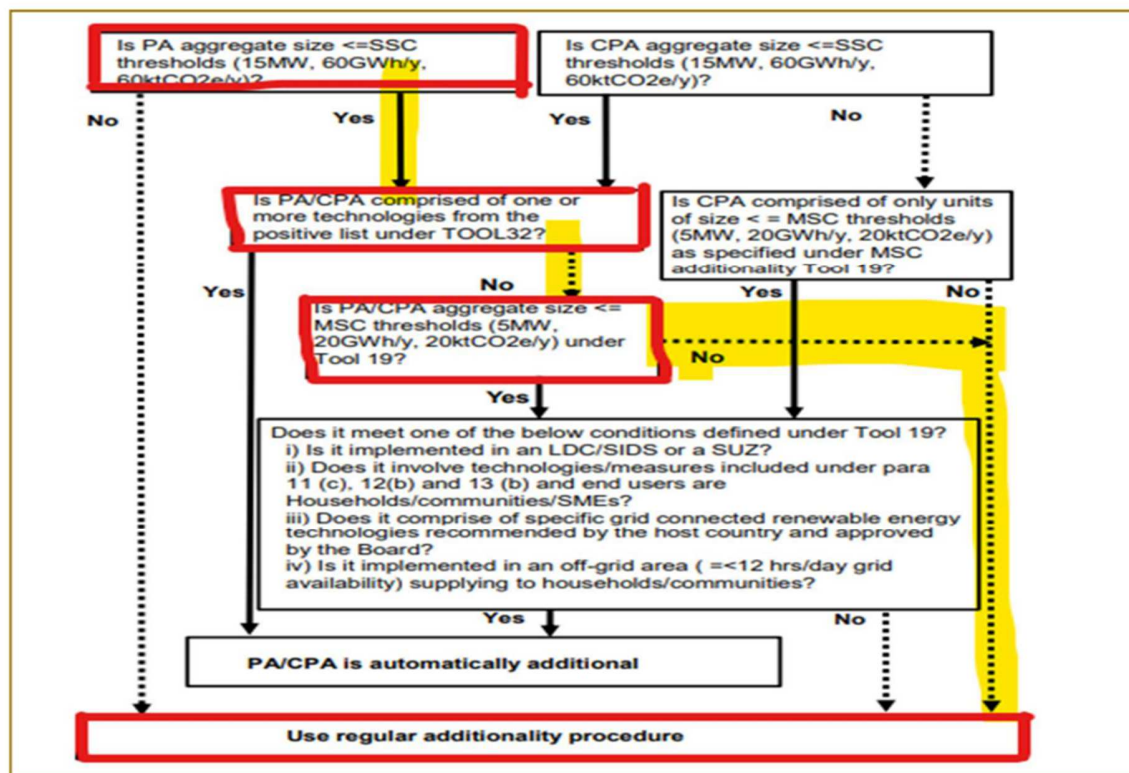
Investment barrier: -

A financially more viable alternative to the project activity would have led to higher emissions. This barrier is elaborated in the next subsequent section, wherein it is proven conclusively that without

carbon credits the project activity is unviable. Due to the prevailing market, regulatory barriers, lack of financial institutions giving favorable term loans, the project activity faces investment barrier. The equity IRR achieved by this project activity and the benchmark is listed below:

	Project Location	Board Notes date	Commissioning Date	Equity IRR	Benchmark
1	Tata Tinplate	22-Sep-2019	01-Oct-2020	11.64%	14.18%
2	Duraline India Private Limited	12-Feb-2020	07-Oct-2020	11.64%	14.65%
3	GE T&D INDIA Hosur	27-Apr-2018	11-Oct-2020	11.64%	15.71%
4	Arya Anathalay I	15-Nov-2019	20-Dec-2020	9.02%	14.65%
5	Time of India Airoli	07-Oct-2020	19-Jan-2020	11.66%	14.65%
6	Asian Paints Ltd	06-Aug-2020	18-Feb-2021	10.66%	14.65%
7	Time of India Kolkata	07-Oct-2020	22-Feb-2020	11.66%	14.65%
8	TATA Lockheed Martin Aerostructures Limited	05-Jun-2020	03-Mar-2021	11.71%	14.65%
9	TSPDCL, Demag	27-Nov-2019	31-Mar-2021	11.83%	14.18%
10	Apollo Gleneagles Hospital Limited	20-Aug-2020	01-Apr-2021	11.67%	14.65%
11	Tata Metaliks	06-Sep-2020	15-May-2021	11.67%	14.65%
12	Arya Anathalay II	12-Apr-2019	03-Jun-2021	11.67%	14.18%
13	TML Pimpri Carport	25-Jun-2020	18-Jun-2021	11.66%	14.65%

Hence it can be concluded based on the discussions that investment barriers are overwhelming for any PP to install solar PV. Based on the Tool 21, this project fails automatic additionality using provisions of SSC or MSC additionality tools. Hence uses the regular additionality procedure which is represented below:



INVESTMENT BARRIER:

The purpose of investment analysis is to determine whether the project activity is economically or financially less attractive than other alternatives without additional funding that may be derived from the sale of carbon credits. The investment analysis was conducted in accordance with guidelines on investment analysis. The purpose of investment analysis is to determine whether the feasibility of the project activity which is less attractive than other alternatives without additional funding that may be derived from the sale of carbon credits.

The project proponent has considered Equity IRR as the suitable financial indicator for investment analysis. The PP took the crucial decision to go ahead with this investment decision based on the board resolution which was recorded in board notes. Since the project is a bundled project, the board resolution is also different. This is discussed for each bundle in the subsequent sections.

Suitability of Benchmark:

As per Tool 27: Investment analysis, Version 12, EB 116, Annex 2 "In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial

lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. The investment analysis has been carried out in Nominal terms. Accordingly, Default value has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India). Project proponent has calculated Benchmark based on WPI mean inflation rate. As per paragraph 16 of the Tool 27: Investment analysis, Version 120, EB 116, Annex 2, the inflation forecast should be for the duration of the crediting period. However, since RBI provides forecast inflation only for 5 & 10 years, the project investor has calculated benchmark using 10 years durations and the same is considered as Benchmark for the project activity. Methodology deployed for arriving at a suitable value of Benchmark using Default Value has been described below:

- As the project activity generates power utilizing solar energy, Group 1 as per paragraph 5 of Appendix of EB 112, Annex 2 has been identified as a suitable category.
- The investment analysis has been carried out in Nominal terms. Accordingly, default value as given in paragraph 6, Appendix, Annex 2, EB 112 has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India).
- Project proponent has calculated Benchmark based on WPI mean inflation rate. As per paragraph 16 of Appendix of EB 112, Annex 2, the inflation forecast should be for the duration of the crediting period. The project investor has calculated benchmark using 10 years inflation as Benchmark for the project activity.

The benchmark has been computed in the following manner:

$$\text{Nominal Benchmark}^7 = \{(1 + \text{Real Benchmark}) * (1 + \text{Inflation rate})\} - 1$$

where, Real Benchmark = Default Value (Value given in below table)

Inflation rate = Projected Inflation Rate for India (Value given in below table)

	Project Location	Board Notes date	Inflation Rate (Available at the time of Decision Making)	Default Value (As per Tool 27 available at the time of decision making)	Nominal Benchmark Calculated
1	Tata Tinplate	22-Sep-2019	4.00%	9.79% ⁸	14.18%
2	Duraline India Private Limited	12-Feb-2020	4.00%	10.24% ⁹	14.65%

⁷As per Fisher Equation, https://en.wikipedia.org/wiki/Fisher_equation

⁸ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf>

3	GE T&D INDIA Hosur	27-Apr- 2018	4.50%	10.73% ¹⁰	15.71%
4	Arya Anathalay I	15-Nov- 2019	4.00%	10.24% ¹¹	14.65%
5	Time of India Airoli	07-Oct- 2020	4.00%	10.24% ¹²	14.65%
6	Asian Paints Ltd	06-Aug- 2020	4.00%	10.24% ¹³	14.65%
7	Time of India Kolkata	07-Oct- 2020	4.00%	10.24% ¹⁴	14.65%
8	TATA Lockheed Martin Aerostructures Limited	05-Jun- 2020	4.00%	10.24% ¹⁵	14.65%
9	TSPDCL, Demag	27-Nov- 2019	4.00%	9.79% ¹⁶	14.18%
10	Apollo Gleneagles Hospital Limited	20-Aug- 2020	4.00%	10.24% ¹⁷	14.65%
11	Tata Metaliks	06-Sep- 2020	4.00%	10.24% ¹⁸	14.65%

¹⁰ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v8.pdf>

¹¹ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

¹² <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

¹³ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

¹⁴ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

¹⁵ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

¹⁶ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v9.0.pdf>

¹⁷ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

¹⁸ <https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-27-v10.0.pdf>

12	Arya Anathalay II	12-Apr-2019	4.00%	9.79% ¹⁹	14.18%
13	TML Pimpri Carport	25-Jun-2020	4.00%	10.24% ²⁰	14.65%

The Post tax Equity IRR is evaluated for the entire lifetime of the project activity, i.e., 25 years.

It is calculated based on the cash outflows from and cash inflows into the project activity. The IRR and Benchmark analysis are calculated in excel spreadsheet and same is submitted to the VVB during verification of project activity. Based on result of IRR excel spreadsheets, equity IRR is less than Benchmark. This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark). Thus, it can be easily concluded that project activity is additional & is not business as usual scenario. Input values used in all investment analysis shall be valid and applicable at the time of the investment decision taken by the project proponent which can be clearly verified;

The financial spread sheets for the key assumption (source of parameters) for all project instances included in bundle project activity supporting the financial projections are tabulated below:

1. For Tinplate Company of India Limited:

Details of the project		Source	Link
State where the project is situated	Jharkhand		
Total Capacity (MW)	0.180		
Date of Commissioning	31-Oct-20		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	2,99,592	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

¹⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

²⁰ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf>

Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.13	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.10	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses			-
Financial parameters			
TOTAL COST (INR Mn.)	9.54	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	9.54		
Term loan			
Loan Amount (INR Mn.)	-	-	-
Interest rate (%)	-	-	-
Loan Tenure (Qtr.)	-	-	-
Moratorium Period (Qtr.)	-	-	
Repayment Period (Qtr.)	-	-	-
Repayment instalments value (INR Mn.)	-	-	-
1st instalment from (Qtr. end)	-	-	-
Book Depreciation (SLM Method)			
Land	-	-	-
Gross Depreciable Value (INR Mn.)	9.54	Calculated Value	-

Salvage Value (%)	10.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Salvage value (INR Mn.)	0.95	Calculated Value	-
Net Depreciable Value (INR Mn.)	8.59	Calculated Value	-
Residual Value (INR Mn.)	0.95	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdoCS-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
11.64%	14.18%

2. For Duraline India Private Limited;

Details of the project		Source	Link
State where the project is situated	Telangana		
Total Capacity (MW)	0.75		
Date of Commissioning	31-Oct-20		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	12,48,300	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.53	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.40	As per CERC Order	http://www.cercind.gov.in/2016/orders/S017.pdf
Administrative expenses			-
Financial parameters			

TOTAL COST (INR Mn.)	39.75	As per CERC Order	http://www.cercind.gov.in/2016/orders/S017.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	39.75		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-
Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		
Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	39.75	Calculated Value	
Salvage Value (%)	10.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Salvage value (INR Mn.)	3.98	Calculated Value	
Net Depreciable Value (INR Mn.)	35.78	Calculated Value	
Residual Value (INR Mn.)	3.98	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%		

MAT (%)	15.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdocscbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
11.64%	14.65%

3. For GE T&D India Limited, Hosur:

Details of the project		Source	Link
State where the project is situated	Tamil Nadu	As per DPR	
Total Capacity (MW)	0.660	As per DPR	
Date of Commissioning	31-Oct-20	As per DPR	
Life of the plant (Yrs.)	25	As per DPR	-
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	10,98,504	Calculated Value	

Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per PPA	-
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.46	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.35	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses			-
Financial parameters			
TOTAL COST (INR Mn.)	34.98	As Per DPR	
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	34.98		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-
Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		
Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-
Book Depreciation (SLM Method)			
Land	-		

Gross Depreciable Value (INR Mn.)	34.98	Calculated Value	
Salvage Value (%)	10.00%		-
Salvage value (INR Mn.)	3.50	Calculated Value	
Net Depreciable Value (INR Mn.)	31.48	Calculated Value	
Residual Value (INR Mn.)	3.50	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
11.64%	15.71%

4. For Arya Anathalay I:

Details of the project		Source	Link
State where the project is situated	New Delhi		
Total Capacity (MW)	0.08		
Date of Commissioning	31-Dec-20		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	1,33,152	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.06	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	-		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.04	CERC order	http://www.cercind.gov.in/2016/orders/S017.pdf
Administrative expenses			-
Financial parameters			

TOTAL COST (INR Mn.)	4.24	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	4.24		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-
Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		
Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	4.24	Calculated Value	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	0.42	Calculated Value	
Net Depreciable Value (INR Mn.)	3.82	Calculated Value	
Residual Value (INR Mn.)	0.42	Calculated Value	-
IT Depreciation			
IT Depreciation(%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%		

MAT (%)	15.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdoCS-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
9.02%	12.97%

5. For Time of India, Airoli:

Details of the project		Source	Link
State where the project is situated	Maharashtra		
Total Capacity (MW)	0.155		
Date of Commissioning	31-Jan-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

Annual generation (kWh)	2,57,982	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.11	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.08	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses			-
Financial parameters			
TOTAL COST (INR Mn.)	8.22	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	8.22		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-
Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		
Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-

Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	8.22	Calculated Value	
Salvage Value (%)	10.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Salvage value (INR Mn.)	0.82	Calculated Value	
Net Depreciable Value (INR Mn.)	7.39	Calculated Value	
Residual Value (INR Mn.)	0.82	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts/%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets/%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets/%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	

MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
11.66%	14.65%

6. For Asian Paints Limited:

Details of the project		Source	Link
State where the project is situated	Maharashtra		
Total Capacity (MW)	0.460		
Date of Commissioning	18-Feb-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	7,65,624	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.32	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

Insurance (INR Mn.)	0.24	CERC order	http://www.cercind.gov.in/2016/orders/S017.pdf
Administrative expenses	0.23		-
Financial parameters			
TOTAL COST (INR Mn.)	24.38	CERC order	http://www.cercind.gov.in/2016/orders/S017.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	24.38		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-
Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		
Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	24.38	CERC order	http://www.cercind.gov.in/2016/orders/S017.pdf
Salvage Value (%)	10.00%	Calculated Value	
Salvage value (INR Mn.)	2.44	Calculated Value	
Net Depreciable Value (INR Mn.)	21.94	Calculated Value	-
Residual Value (INR Mn.)	2.44		
IT Depreciation			
IT Depreciation(%)	7.69%	As Per Depreciation Rates for Power	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm

		Generating Units	
Income Tax			
Financial Year	FY 2020-21		-
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//hdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
10.66%	14.65%

7. For Time of India, Kolkata:

Details of the project		Source	Link
State where the project is situated	West Bengal		
Total Capacity (MW)	0.225		
Date of Commissioning	31-Jan-21		

Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	3,74,490	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.16	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.12	CERC order	http://www.cercind.gov.in/2016/orders/S017.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	11.93	CERC order	http://www.cercind.gov.in/2016/orders/S017.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	11.93		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-
Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		

Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	11.93	Calculated Value	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	1.19	Calculated Value	
Net Depreciable Value (INR Mn.)	10.73	Calculated Value	
Residual Value (INR Mn.)	1.19	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/chart s%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//h tdocs-cbec/gst/Work%20Contracts%20in %20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		

		domestic company	
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	-
MAT (%)	16.69%	Calculated Value	-
Service Tax (%)	18.72%	Calculated Value	-

Conclusion:

Equity IRR without	Benchmark (Equity IRR)
11.66%	12.97%

8. For Tata Lockheed Martin Aerostructures Limited

Details of the project		Source	Link
State where the project is situated	Telangana		
Total Capacity (MW)	0.78		
Date of Commissioning	1-Mar-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	12,98,232	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.55	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.41	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	41.34	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	41.34		
Term loan			
Loan Amount (INR Mn.)	-	-	-
Interest rate (%)	-	-	-
Loan Tenure (Qtr.)	-	-	-
Moratorium Period (Qtr.)	-	-	
Repayment Period (Qtr.)	-	-	-
Repayment instalments value (INR Mn.)	-	-	-
1st instalment from (Qtr. end)	-	-	-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	41.34	Calculated Value	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	4.13	Calculated Value	
Net Depreciable Value (INR Mn.)	37.21	Calculated Value	
Residual Value (INR Mn.)	4.13	Calculated Value	-
IT Depreciation			

IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/char%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without CDM	Benchmark (Equity IRR)
11.71%	14.65%

9. For TSPDCL, Demag

Details of the project		Source	Link
State where the project is situated	Jharkhand		

Total Capacity (MW)	0.240		
Date of Commissioning	31-Mar-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	3,99,456	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.17	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.13	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	12.72	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	12.72		
Term loan			
Loan Amount (INR Mn.)	-		-
Interest rate (%)	-		-

Loan Tenure (Qtr.)	-		-
Moratorium Period (Qtr.)	-		-
Repayment Period (Qtr.)	-		-
Repayment instalments value (INR Mn.)	-		-
1st instalment from (Qtr. end)	-		-
Book Depreciation (SLM Method)			-
Land	-	-	
Gross Depreciable Value (INR Mn.)	12.72	-	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	1.27	Calculated Value	-
Net Depreciable Value (INR Mn.)	11.45	Calculated Value	-
Residual Value (INR Mn.)	1.27	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2020-21		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//hdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%		

Education cess (%)	4.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	-
MAT (%)	16.69%	Calculated Value	-
Service Tax (%)	18.72%	Calculated Value	-

Conclusion:

Equity IRR without CDM	Benchmark (Equity IRR)
11.83%	14.18%

10. For Apollo Gleneagles Hospital Limited

Details of the project		Source	Link
State where the project is situated	West Bengal		
Total Capacity (MW)	0.290		
Date of Commissioning	1-Apr-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	4,82,676	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.20	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.15	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	15.37	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	15.37		
Term loan			
Loan Amount (INR Mn.)	-	-	-
Interest rate (%)	-	-	-
Loan Tenure (Qtr.)	-	-	-
Moratorium Period (Qtr.)	-	-	-
Repayment Period (Qtr.)	-	-	-
Repayment instalments value (INR Mn.)	-	-	-
1st instalment from (Qtr. end)	-	-	-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	15.37	Calculated Value	
Salvage Value (%)	10.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

Salvage value (INR Mn.)	1.54	Calculated Value	
Net Depreciable Value (INR Mn.)	13.83	Calculated Value	
Residual Value (INR Mn.)	1.54	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2021-22		
Income tax rate (%)	30.00%	Tax rated applicable @ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//hdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable @ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without CDM	Benchmark (Equity IRR)
11.67%	14.65%

11. For Tata Metaliks Limited

Details of the project		Source	Link
State where the project is situated	West Bengal		
Total Capacity (MW)	0.850		
Date of Commissioning	31-May-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	14,14,740	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.60	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf

Insurance (INR Mn.)	0.45	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	45.05	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	45.05		
Term loan			
Loan Amount (INR Mn.)	-	-	-
Interest rate (%)	-	-	-
Loan Tenure (Qtr.)	-	-	-
Moratorium Period (Qtr.)	--	-	-
Repayment Period (Qtr.)	-	-	-
Repayment instalments value (INR Mn.)	-	-	-
1st instalment from (Qtr. end)	-	-	-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	45.05	Calculated Value	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	4.51	Calculated Value	
Net Depreciable Value (INR Mn.)	40.55	Calculated Value	
Residual Value (INR Mn.)	4.51	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power	https://incometaxindia.gov.in/chart s%20%20tables/depreciation%20rates.htm

		Generating Units	
Income Tax			
Financial Year	FY 2021-22		
Income tax rate (%)	30.00%	Tax rated applicable @ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources/hdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable @ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without CDM	Benchmark (Equity IRR)
11.67%	14.65%

12. For Arya Anathalay II

Details of the project		Source	Link
State where the project is situated	New Delhi		

Total Capacity (MW)	0.210		
Date of Commissioning	3-Jun-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	3,49,524	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-
Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	0.15	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	0.11	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	11.13	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	11.13		
Term loan			
Loan Amount (INR Mn.)	-	-	-
Interest rate (%)	-	-	-

Loan Tenure (Qtr.)	-	-	-
Moratorium Period (Qtr.)	-	-	-
Repayment Period (Qtr.)	-	-	-
Repayment instalments value (INR Mn.)	-	-	-
1st instalment from (Qtr. end)	-	-	-
Book Depreciation (SLM Method)			
Land	-		
Gross Depreciable Value (INR Mn.)	11.13	Calculated Value	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	1.11	Calculated Value	
Net Depreciable Value (INR Mn.)	10.02	Calculated Value	
Residual Value (INR Mn.)	1.11	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2021-22		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY	https://incometaxindia.gov.in/Booklets%20%20Pamphlets/e-Pdf-
Education cess (%)	4.00%		

		2020-21 for a domestic company	INCOME-TAX-RATES-english-2022.pdf
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without CDM	Benchmark (Equity IRR)
11.67%	14.18%

13. For Tata Motors Limited

Details of the project		Source	Link
State where the project is situated	Maharashtra		
Total Capacity (MW)	5.20		
Date of Commissioning	18-Jun-21		
Life of the plant (Yrs.)	25	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Generation of electricity			
PLF (%)	19.00%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Annual generation (kWh)	86,54,880	Calculated Value	
Annual Degradation per year	0.50%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Tariff rate at the decision making (INR/kWh)	5.68	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Escalation in tariff rate	0.0%		-
Transmission & Wheeling Losses (%)	0.0%		-

Operation and maintenance cost and Insurance			
O & M Expenses (INR Mn.)	3.64	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
O & M free for (Yr.)	2.00		
Escalation in the operational expenses (%)	5.72%	As per CERC Order	https://cercind.gov.in/2016/orders/sm_3.pdf
Insurance (INR Mn.)	2.76	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Administrative expenses	-		-
Financial parameters			
TOTAL COST (INR Mn.)	275.60	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Loan Amount (INR Mn.)	-		
Equity Investment (INR Mn.)	275.60		
Term loan			
Loan Amount (INR Mn.)	-	-	-
Interest rate (%)	-	-	-
Loan Tenure (Qtr.)	-	-	-
Moratorium Period (Qtr.)	-	-	-
Repayment Period (Qtr.)	-	-	-
Repayment instalments value (INR Mn.)	-	-	-
1st instalment from (Qtr. end)	-	-	-
Book Depreciation (SLM Method)			
Land	-	-	-
Gross Depreciable Value (INR Mn.)	275.60	Calculated Value	
Salvage Value (%)	10.00%	CERC order	http://www.cercind.gov.in/2016/orders/SO17.pdf
Salvage value (INR Mn.)	27.56	Calculated Value	-

Net Depreciable Value (INR Mn.)	248.04	Calculated Value	-
Residual Value (INR Mn.)	27.56	Calculated Value	-
IT Depreciation			
IT Depreciation (%)	7.69%	As Per Depreciation Rates for Power Generating Units	https://incometaxindia.gov.in/charts%20%20tables/depreciation%20rates.htm
Income Tax			
Financial Year	FY 2021-22		
Income tax rate (%)	30.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Corporate Tax / MAT (%)	15.00%		
GST	18.00%	As Per Income Tax Rule	https://old.cbic.gov.in/resources//htdocs-cbec/gst/Work%20Contracts%20in%20GST.pdf
Surcharge (%)	7.00%	Tax rated applicable@ FY 2020-21 for a domestic company	https://incometaxindia.gov.in/Books%20%20Pamphlets/e-Pdf-INCOME-TAX-RATES-english-2022.pdf
Education cess (%)	4.00%		
Final Tax rates			
Income tax rate (%)	33.38%	Calculated Value	
MAT (%)	16.69%	Calculated Value	
Service Tax (%)	18.72%	Calculated Value	

Conclusion:

Equity IRR without CDM	Benchmark (Equity IRR)
11.66%	14.65%

Therefore, the project activity cannot be considered as financially attractive as the equity IRR for the bundle project activity is less than the Benchmark.

Sub-step 2d: Sensitivity Analysis

The sensitivity analysis done to identify the percentage variation at which the financial indicators will equal/breach the benchmark and the probability of its occurrence.

Addressing section 7 of EB 112, Annex 2, following factors has been subjected to sensitivity analysis:

1. PLF
2. O&M Cost
3. Project Cost
4. Tariff Rate

The rationale of sensitivity is, "The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the investment analysis."

Sensitivity analysis for each instance of bundle project is provided below:

Consumer Name	Tinplate Company of India Limited			
Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.83%	11.64%	13.39%	14.65%
O&M	11.82%	11.64%	11.46%	-153.00%
Project Cost	13.39%	11.64%	10.18%	-13.95%
Tariff Rate	9.83%	11.64%	13.39%	14.65%

Consumer's Name:		Duraline India Private Limited		
Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.83%	11.64%	13.39%	17.40%
O&M	11.82%	11.64%	11.46%	-184.00%
Project Cost	13.39%	11.64%	10.18%	-16.10%
Tariff Rate	9.83%	11.64%	13.39%	17.40%

Consumer's Name: GE T&D India Limited				
Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.83%	11.64%	13.39%	20.40%

O&M	11.82%	11.64%	11.46%	-219.00%
Project Cost	13.39%	11.64%	10.18%	-18.40%
Tariff Rate	9.83%	11.64%	13.39%	20.40%

Consumer's Name: Times of India

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.87%	11.66%	13.38%	17.50%
O&M	11.84%	11.66%	11.47%	-184.00%
Project Cost	13.39%	11.66%	10.21%	-16.20%
Tariff Rate	9.87%	11.66%	13.38%	17.50%

Consumer Name Asian Paints Limited

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	8.83%	10.66%	12.42%	23.11%
O&M	10.84%	10.66%	10.47%	-243.15%
Project Cost	12.30%	10.66%	9.28%	-21.45%
Tariff Rate	8.83%	10.66%	12.42%	23.11%

Consumer Name Times of India

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.87%	11.66%	13.38%	17.50%
O&M	11.84%	11.66%	11.47%	-183.58%
Project Cost	13.39%	11.66%	10.21%	-16.20%
Tariff Rate	9.87%	11.66%	13.38%	17.50%

Consumer Name TATA Lockheed Martin Aerostructures Limited

Sensitivity Analysis	Equity IRR			
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Variation %	-10%	Normal	10%	Breaching Value
PLF	9.92%	11.71%	13.45%	17.06%
O&M	11.89%	11.71%	11.53%	-180.01%
Project Cost	13.45%	11.71%	10.26%	-15.85%
Tariff Rate	9.92%	11.71%	13.45%	17.06%

Consumer Name TSPDCL, Demag

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	10.02%	11.83%	13.58%	13.52%
O&M	12.01%	11.83%	11.65%	-141.50%
Project Cost	13.58%	11.83%	10.37%	-13.01%
Tariff Rate	10.02%	11.83%	13.58%	13.52%

Consumer Name Apollo Gleneagles Hospital Limited

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.86%	11.67%	13.41%	17.26%
O&M	11.85%	11.67%	11.48%	-181.53%
Project Cost	13.42%	11.67%	10.21%	-16.01%
Tariff Rate	9.86%	11.67%	13.41%	17.26%

Consumer Name Tata Metaliks Limited

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.86%	11.67%	13.41%	17.23%
O&M	11.58%	11.67%	11.48%	-181.51%
Project Cost	13.42%	11.67%	10.20%	-16.01%
Tariff Rate	9.86%	11.67%	13.41%	17.23%

Consumer Name Arya Anathalay II

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.86%	11.67%	13.41%	14.47%
O&M	11.48%	11.67%	11.48%	-150.57%
Project Cost	10.20%	11.67%	10.20%	-13.81%
Tariff Rate	9.86%	11.67%	13.41%	14.47%

Consumer Name Tata Motors Limited

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value
PLF	9.86%	11.66%	13.41%	17.23%
O&M	11.85%	11.66%	11.48%	-181.61%
Project Cost	13.42%	11.66%	10.20%	-16.01%
Tariff Rate	9.86%	11.66%	13.41%	55.69%

- **Plant Load Factor (PLF):** PLF considered for financial estimation is as per Central Electricity Regulatory Commission database (available at the time of board notes) in line with “Guidelines for the reporting and validation of Plant load factors” stated in EB 48 Annex11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data.
- **Project Cost:** The project is already commissioned. The actual project cost can be verified by the actual purchase order. Hence, there is no chance of any increase/ decrease in the project cost.
- **Tariff charges:** As the project is operational and the power purchase agreement (PPA) and actual invoices for the project is already signed, the actual tariff applicable for the project could be verified. Hence, there is no probability to get variation for the same.
- **Operation & Maintenance:** The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is generally subject to escalation and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. Hence, the reduction in the O&M cost is highly unlikely. This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark Equity IRR) for any of the investor. Thus, it can be easily concluded that project activity is additional and is not business as usual scenario.

This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark Equity IRR) for any of the investor. Thus, it can be easily concluded that project activity is additional and is not business as usual scenario.

CAR 08 was raised on this section and closed successfully. Please refer Appendix 1 for further details.

3.4.6 Quantification of GHG Emission Reductions and Removals

Assessment team checked the baseline, project and leakage calculation and confirm that the evaluation of baseline, project and leakage is as per the approved methodology and formula used to calculate the same is correct. The detail analysis is as below:

Baseline Emissions:

As per para 19 of AMS-I.F.: *Renewable Electricity Generation for Captive Use and Mini-Grid, Version 5.0*, the Baseline emissions for other systems are the product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor.

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

Where:

BE_y = Baseline emissions in year y (tCO₂/yr)

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

$EF_{CO2,y}$ = Emission factor(tCO₂/MWh)

Project Emissions: -

As per the approved consolidated Methodology AMS-I.F.: *Renewable Electricity Generation for Captive Use and Mini-Grid, Version 5.0* "For most renewable energy power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y = Project emissions in year y (t CO₂e/yr)

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO₂/yr)

$PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal powerplants in year y (t CO₂e/yr)

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO₂e/yr)

As the project activity is the installation of a new grid-connected solar Power plant and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ are equal to zero and thus, $PE_y = 0$.

Leakage Emissions: -

Since the project activity instances to be included into the grouped project activity are renewable energy projects based on solar PV technology, no leakage emissions are considered - in line with paragraph 29 of the small-scale methodology AMS-I.F.: Renewable Electricity Generation for Captive Use and Mini-Grid, Version 5.0.

The net emission reduction is calculated as

$$ER_y = BE_y - PE_y - LE_y$$

Year	Estimated baseline emissions or removals (tCO ₂ e)	Estimated project emissions or removals (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions or removals (tCO ₂ e)
Year 1	15,494	0	0	15,494
Year 2	15,385	0	0	15,385
Year 3	15,277	0	0	15,277
Year 4	15,170	0	0	15,170
Year 5	15,064	0	0	15,064
Year 6	14,959	0	0	14,959
Year 7	14,854	0	0	14,854
Total	106,197	0	0	106,197

3.4.7 Methodology Deviations

Assessment team confirms that No methodology deviation is applicable for the present project activity.

3.4.8 Monitoring Plan

Assessment team checked the monitoring practice onsite and checked the guideline of respective State electricity regulatory commission. The detail analysis is as below:

Parameters determined ex-ante:

Baseline emission factor of INDIAN Grid is established ex-ante based on Tool to calculate the grid emission factor, using a combined approach consisting 75 % operating margin and 25 % build margin. The emission coefficient from official data published in Central Electricity Authority (CEA) CO₂ Baseline database available to the project participant at the time of submission of joint VCS PD & MR for joint validation & Verification and global stakeholder's consultation process. CEA is an official source of Ministry of Power; Government of India have worked out baseline as CO₂ baseline database. The assumption was verified by the validation team and found to be correct.

Parameters determined ex-post:

The parameters monitored ex-post involves net electricity supplied to the respective consumers by the project activity.

As per the Joint VCS PD & MR Version 03, Joint Energy Meter Reading Report will be the source of data during verification. The VVB will use the same source for verification of emission reductions.

In accordance with the methodology requirement, net electricity supplied by the project activity is obtained from Joint Energy Meter Reading Report issued by State electricity authority which provide input values used for calculation of $EG_{BL,y}$ by the project activity and forms the basis for emission reduction calculation. Electricity export to the grid and import from the grid is metered by main energy meter. The main meter reading is taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of project developer and customer.

The agency is experienced in the monitoring system and is managing O&M of numerous other solar projects. The validation team therefore is of the opinion that the project participant through the developer/O&M agency can implement the monitoring plan in the context of the project activity.

Calibration of all the meters is done by TPREL as per the industry/CEA standards. However, the calibration will be done once in a 5 year²¹ for all the project activity.

It is reported that the data will be kept for 2 years following the end of the crediting period or till the last issuance of VERs for the project activity whichever occurs later.

The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the site visit.

3.5 Non-Permanence Risk Analysis

Not applicable for the present project activity.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

During the remote assessment, it was concluded that the project is implemented as per the requirement of the VCS PD & MR and mentioned monitoring plan, during the current monitoring period; it was observed that no unforeseen incident/event evolved which can impact the

²¹http://powermin.nic.in/whats_new/pdf/Metering_Regulations.pdf, page 12

operation of the project activity which was verified from breakdown records. The project undergone continuous operation and only scheduled maintenance is observed as per the manufactures specification which is acceptable to the assessment team and evident from JMRs.

The project activity is an installation of Solar Photovoltaic (SPV) Panels on rooftops in various states of India. The sole purpose of project activity is to install solar power plant for captive purpose and surplus generated electricity can be supplied to grid and further equivalent energy will be consumed from grid through net metering arrangement with state electricity board, same is confirmed by the verification team during the remote assessment.

Verification team confirmed that the location of the project activity including the coordinates is same as mentioned in the VCS joint PD & MR.

Assessment team checked the commissioning certificate/^{1/} and confirmed that the dates of Commission for the solar power plant are correct. Assessment team also conform during remote audit with the PPs representatives that there is no change in project design and the project is implemented as per the description provided in the VCS PD & MR. The project boundary includes the electricity generation equipment at the project site.

Assessment team also checked the technical details of the solar power plant installed onsite from documents submitted by PP. The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period. The project design as mentioned in the VCS joint PD & MR is implemented and thus the same is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the VCS joint PD & MR version 03 are available and implemented in an appropriate manner.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Means of verification	The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the Joint VCS PD & MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the Joint VCS PD & MR.
Findings	CAR 05 raised on this section and closed successfully. Please refer Appendix 1 for further details
Conclusion	The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the regional grid emission factor. The grid in this case would be the 'INDIAN Grid' Formula Used:- $BE_y = EG_{BL,y} \times EF_{grid,CM,y}$ Where: BE_y = Baseline emissions in year y (t CO₂/yr) $EG_{BL,y}$ = Quantity of net electricity displaced as a result of the implementation of the CDM project activity in year y (MWh)

	$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system Version 7.0” (tCO₂/MWh) $BE_y = 13,936 \times 0.9305 = 12,966 \text{ t CO}_2\text{e}$ (for this monitoring period) EG_{BL,y} : The verification team has checked the entire monthly JMR report and invoices applicable for the monitoring period as per the project activity applied for verifications and found all the parameters are monitored and recorded as per the monitoring plan in the Joint VCS PD & MR. During monitoring period, value is taken as 13,936 MWh. The verification team has crosschecked the emission reduction sheet and monitoring report data with the JMR sheet and invoice bills and found all the values are matching. Bidirectional Energy meters were used at each instances location to measure energy net generated and supplied to industries in order to displace to energy which will be utilized from Indian grid. Installed energy meters are totally in control of Tata Power Renewable Energy Limited. During current monitoring period, meter readings were taken by the individual project instance site employees and the same was forwarded to the central office of the Tata Power Renewable Energy Limited. Out of 13 instances, two instance is operational on net metering mechanism hence, the meter readings were taken by the individual project instance site employees and the same will be forwarded to the central office of the Tata Power Renewable Energy Limited. The electricity supplied to grid, the same will be reflected in the consumer bill of the SPV. Same is verified by validation and verification team. Thus accepted.
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4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

Means of verification	The verification team checked the break down log for the monitoring period. During the verification site visit each meter location of the solar plants is also checked. The Calibration details of the monitoring meters are also checked with calibration certificates.
Findings	CAR 06 was raised on this section and closed successfully. Please refer Appendix 1 for further details
Conclusion	The verification team checked the break down log for the monitoring period. During the audit meter location of SPVs is also checked. Quantity of net electricity displaced as a result of the implementation of this project activity is the monitoring parameter as per the Joint VCS PD & MR. The metering arrangement is bi-directional energy meters (Main meter) of accuracy class 0.5s or 1.0s at SPVs. These electricity meters are being used by TPREL for JMR preparation. These meters record several parameters including electricity exported. These electricity meters are being used by TPREL for preparation of monthly generation reports. The details like make, Serial number, Calibration dates etc. are provided in appendix 05 of this report. Verification team confirms that all the energy meters (main meter) installed at each building/block are of accuracy class of 0.5s/1.0s and are calibrated as per the calibration

	frequency mentioned in monitoring plan in VCS PD & MR i.e. The calibration frequency of meters is once in 5 years. No delayed calibrations were observed in the project activity for this monitoring period. All the meters are of same accuracy class i.e., 0.5s & 1.0s as per the requirement of the VCS approved PD & MR. In future meter change may happen with same accuracy class or with better accuracy class. Interview during Site visit with O&M personnel also confirms the same. Calibration details of the monitoring meters checked with calibration certificates submitted by PP and found that calibration frequency of 5 years is complied. Thus, no delayed calibration is observed and thus the same is found appropriate. Details related energy meters and its calibration is provided in appendix 05 below. The break down log is checked and there is no major breakdown during the monitoring period. No unforced error observed. No sampling procedure applied for monitoring of the data parameter and entire documents were checked by the assessment team to arrive at positive verification conclusions. The monitoring plan is followed at the project site. The monitoring meters were calibrated in line with the registered monitoring plan and there was no delay in calibration observed. Thus, assessment team concluded that the evidences are sufficient in quantity, and appropriate for the quality, to determine the GHG reductions and removals. Assessment team checked the calculation of estimated VER vs. Actual VER. As per the VCS PD & MR the amount of VERs annually is 15,171 tCO₂e. The days involved in present monitoring period are different for each SPV due to different commissioning dates. Therefore, on pro-rata basis, the estimated VERs for the monitoring period are different. Thus, comparison is done on the estimated ERs for the operational days of each SPV and actual ERs achieved during this monitoring period. The actual emission reduction has been observed to be 27.17% less (Overall project) in comparison with the ex-ante estimations due to low plant load factor (PLF) and other parameters like climatic conditions which are not in the control of project proponent. Same was confirmed with PP during remote assessment.
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5 VALIDATION AND VERIFICATION CONCLUSION

Validation Conclusion: -

Applus+ Certification has been engaged by “**Tata Power Renewable Energy Limited**” to perform the Joint validation and verification of the “**Grouped Rooftop Solar Project by Tata Power Renewable Energy Limited**”

The management of the project participant/owner is responsible for the preparation of the GHG emissions data and the reported/estimated GHG emissions reductions on the basis set out within the project's Monitoring Plan in the Joint VCS PD & MR and the approved methodologies; AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0

Our Validation approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and VCS board. Our approach is risk-based, drawing on an understanding of the risks associated with estimated GHG emissions data and the controls in place to mitigate these. The validation can confirm that:

- The project's description compliance with, the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country legislation and sustainability criteria along with VCS guideline V4.2 and standard version 4.3.
- The project's baseline and additionality are assessed against "AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0. and Tool for demonstration of additionality for small scale project activities, Version 13.1.0 (EB 105, Annex 4),
- The project's monitoring plan is assessed against "AMS-I.F.: Renewable electricity generation for captive use and mini-grid, Version 5.0.
- A risk-based approach has been followed to perform this validation activity. The review of the project description and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews with Project Owner have provided LGAI Technological Center S.A. (Applus+ Certification) with sufficient evidence for positive validation opinion as per the requirement of VCS.

The project is expected to generate 106,197 tCO₂e during the length of entire crediting period (01-October-2020 to 30-September-2027).

Verification Conclusion: -

Our Verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that

- The project is operated as planned and described in the project document;
- The monitoring plan is as per the applied methodology;
- The monitoring process in Monitoring Report is as per the PD
- The development and maintenance of records and reporting procedures are in accordance with the monitoring plan;
- The installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately
- The monitoring system is in place and generates GHG emission reductions data;
- The GHG emission reductions are calculated without material misstatements.
- No limitation observed for the present verification

Verification period: 01-October-2020 to 30-April-2022 (first and last date 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)
01-October-2020 to 31-December-2020	440	0	0	440
01-January-2021 to 31-December-2021	8,607	0	0	8,607
01-January-2022 to 30-April-2022	3,919	0	0	3,919
Total	12,966	0	0	12,966

APPENDIX 1: DOCUMENTS REVIEW UNDER VALIDATION & VERIFICATION

No.	Author	Title	References to the document	Provider
1.	TATA Power Solar System	Commissioning certificates	Commissioning certificates of the Solar Panels implemented in the project site issued by TATA Power Solar System.	Project participant
2.	Applus	Contract of the PP with the DOE	Contract of the PP with the DOE	Project participant
3.	NA	Technical specifications	Technical specifications of each SPV from manufacturers	Project participant
4.	PP	Draft Joint VCS PD&MR Version 01 Revised Joint VCS PD&MR Version 02 Final Joint VCS PD & MR version 04	18-July-2022 23-September-2022 23-October-2022	Project participant
5.	PP	Emission Calculation sheet- version 01- Estimated ER	18-July-2022	Project participant
6.	PP	Emission Calculation sheet- version 02- Actual ER Emission Calculation sheet- version 04- Actual ER	23-September-2022 23-October-2022	Project participant
7.	NA	The operational lifetime of the project activity from the manufacturer= (Technical specifications)	Manufacturer technical specifications	Project participant
8.	NA	Reference link is provided.	SERC order of the respective states RBI: Reserve Bank of India www.rbi.org.in Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in Income tax act 1961 http://law.incometaxindia.gov.in/DI T/ VCS: Verified Carbon Standard www.v-c-s.org	Independent Search
9.	UNFCCC VERRA	Tools/ guidelines used in the project activity	UNFCCC CDM web site • Tool to calculate the emission factor for an electricity system version 07 • UNFCCC Methodology: AMS-I.F.: Renewable electricity generation for	UNFCCC

No.	Author	Title	References to the document	Provider
			captive use and mini-grid, Version 5.0 - Guidelines on the demonstration of Additionality of small-scale Project Activity (version 9.0) - Tool: Demonstration of additionality of small-scale project activities – Version 13.1 - Tool: Methodological tool: Positive lists of technologies – Version 03.0 - Glossary of CDM terms version 07 - VCS joint validation and verification report template Version 4.1	
10.	NABL Accredited agency	Calibration details of the project activity undergoing verifications	Please refer to Appendix 5	Project participant
11.	PP	Plant records + log book	JMR records+Invoices for the respective SPVs	Project participant
12.	PP	VCS Declaration	Declaration from PP for Participation under Other GHG Programs	Project participant
13.	PP	LSC	Local stakeholders' consultation supporting; Notices, MoM's & photographs etc.	Project participant
14.	PP	PPA	Power purchase agreements for all sites signed by TPREL & each customer	Project participant
15.	Government of India	Operational Guidelines for Implementation Of Off-Grid And Decentralised Solar Applications Sub Scheme "Off-Grid And Decentralised Solar PV Applications" During 12 th Plan Period	Dated 26th May 2014	
16.	PP	IRR Calculation Sheet	-	Project participant
17.	PP	Board Notes for each instances	-	Project participant

APPENDIX 2: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS, FORWARD ACTION REQUESTS (CAR/CL/FAR)

Table 1. Remaining FAR from previous validation/verification

FAR ID	NA	Section no.		Date : DD/MM/YYYY
Description of FAR				
NA				
Project participant response				Date: DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this validation and verification

CL ID	01	Section no.	3.1	Date: 20-September-2022
Description of CL				
During remote audit it was noted that net metering is applied to only two SPVs i.e., Duraline India Private Limited & TATA Lockheed Martin Aerostructures Limited. Thus, PP is requested to clarify the same and clear information found missing on the same in the Joint VCS PD & MR. Kindly clarify and submit evidences along with revised joint VCS PD & MR.				
Project participant response				Date: 22-September-2022
Kindly refer to section 1.1 of the revised Joint VCS PD & MR for the mentioning of net metering for 2 SPVs out of 13 SPVs. Also, attached the revised Joint PD & MR along with the PPA.				
Documentation provided by project participant				
1. Revised Joint VCS PD & MR 2. Power Purchase Agreements				
DOE assessment				Date: 22-September-2022
PP have installed the Solar SPVs/rooftop panels primarily for the captive consumption in the industry premises. The net metering arrangement provision is allowed in only two instances out of total 13 instances to inject excessive generation if any during low demand of electricity in the campus. VERRA have also provided clarification for allowing project activity instances primarily installed to cater inhouse demand. PP have revised VCS PD & MR. and same is verified with power purchase agreement CL thus closed.				

CL ID	02	Section no.	3.1	Date: 20-September-2022
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Description of CL	
Instance inclusion criteria is found not clear about the inclusion on future expansion projects under the same premises as mentioned in section 1.4 of MR. Kindly clarify.	
Project participant response	Date: 22-September-2022
The project activity instances to be included in the grouped project activity will be activities involving renewable electricity generation power plants connection using solar technology located within India that would be generating electricity for captive purpose. Along with the new instances at different locations of India, there will be new installations in the same premises of the same SPV (at different building rooftops), which will be included as phase 2 of the same SPV. Now, this is updated in the section 1.4 of the revised Joint VCS PD & MR	
Documentation provided by project participant	
Revised Joint VCS PD & MR	
DOE assessment	Date: 26-September-2022
PP revised VCS PD & MR for inclusion of the new instances in future and provided criteria in section 1.4. Same found correct. CL thus closed.	

Table 3.CAR from this validation and verification

CAR ID	01	Section no.	3.1	Date: 20-September-2022
Description of CAR				
During review of Joint PD & MR following inconsistencies observed: - MR is not in compliance with latest MR template. PP is requested to take the corrective action. - Application of latest version of applicable VCS standard i.e. Version 4.3 found missing in the joint VCS PD & MR. Corrective action requested. - PP is requested to submit the technical specifications of project instances. Kindly submit. - Host country policy related rooftop solar generation project, is not mentioned in the MR. Corrective action sought. - Section 2.4 Public Comments of the Joint VCS PD & MR, found not in-line with guideline to complete Joint VCS PD & MR template. Thus, corrective action sought. - Location coordinates mentioned in section 1.12 of MR found not in compliance with the actual ones for some SPVs as commented in joint VCS PD & MR. Moreover, map mentioned in MR is not showing any location. Corrective action sought. - Weblinks provided under various sections of MR found not working. Corrective action requested.				
Project participant response				Date: 22-September-2022
- The latest joint VCS PD & MR version is 4.1 and PP used the same latest template. - Kindly refer to revised joint VCS PD & MR for the latest version of VCS standard i.e., Version 4.3 applied through the document - Technical specifications of all the project instances are attached for DOE perusal - Follow the link below for the host country policy related to Operational Guidelines for Implementation of Off-Grid And Decentralised Solar Applications Sub Scheme "Off-Grid And Decentralised Solar PV Applications" During 12th Plan Period dated 26th May 2014 & the same is mentioned in the section 1. 14 of the revised Joint VCS PD & MR. - Kindly refer to Section 2.4 of the revised Joint VCS PD & MR for Public Comments in-line with guideline to complete Joint VCS PD & MR template - Location coordinates are revised in section 1.12 of the revised VCS PD & MR in compliance with the actual ones and also according to the VVB comments in joint VCS PD & MR. Now, map mentioned in MR is showing the states of project instances installed. - All the Weblinks provided under various sections of MR are revised & the are working now.				
Documentation provided by project participant				
- Revised joint VCS PD & MR - Technical Specifications of all project instances - Operational Guidelines for Implementation of Off-Grid				
DOE assessment				Date: 26-September-2022

1. PP have submitted revised Joint VCS PD & MR in latest template version 4.2 in line with requirements of VCS Standard V4.3. Thus, **CAR closed.**
2. PP has revised joint PD & MR as per the latest version of VCS standard i.e., Version 4.3 . Found correct and consistent thus accepted and **CAR is closed.**
3. PP have submitted copies of supporting documents; technical specifications, PPA, commissioning certificates of the project activity to the assessment team. Information in the Joint VCS PD & MR found correct. **CAR closed**
4. PP has now provided the sufficient information related to host country policy related to Operational Guidelines for Implementation of Off-Grid and Decentralised Solar Applications Sub Scheme under section 1.14 of revised PD&MR. Same is inline with the evidence provided. Thus, accepted and **CAR is closed.**
5. Details related to public comments is now provided by PP in section 2.4 of revised PD & MR. found inline with VERRA project webpage . thus, accepted and **CAR is closed.**
6. Revised and correct Geo coordinates is now provided in revised 1.12 of joint PD & MR version 02 . thus, accepted and **CAR is closed.**
7. Weblink throughout the revised PD & MR is now rectified and found operational thus accepted and **CAR is closed**

CAR ID	02	Section no.	3.3.2	Date: 20-September-2022
Description of CAR				
Details of the LSHM & ongoing stakeholders consultation mechanism found missing in the joint VCS PD & MR. Thus, PP is requested to provide complete details of LSHM & submit records of ongoing local stakeholder consultation including grievance mechanism & supporting. Corrective action sought.				
Further, Sustainable Development Contributions & Sustainable Development Contributions Activity Monitoring is not clearly mentioned in Joint VCS PD & MR. Corrective action requested.				
Project participant response				Date: 22-September-2022
Kindly refer to section 2.2 of the revised Joint VCS PD & MR for the details of the LSHM & ongoing stakeholders consultation mechanism. Also, PP updated the section 2.2 with the ongoing local stakeholder consultation procedures including grievance mechanism. .				
Also, the Sustainable Development Contributions & Sustainable Development Contributions Activity Monitoring is clearly mentioned in the Table 1 of the revised Joint VCS PD & MR.				
Documentation provided by project participant				
Revised joint PD & MR				
Attendance sheet & MoM				
DOE assessment				Date: 26-September-2022
PP have submitted revised Joint VCS PD & MR including LSHM details of all SPV and submitted supporting documents. Same found correct. Further, ongoing LSHM communication details revised along with grievance/feedback register and same found correct. CAR thus closed.				

CAR ID	03	Section no.	3.2	Date: 20-September-2022
Description of CAR				
PP is requested to submit an undertaking for no double accounting for current monitoring period of project activity for participation in other GHG program, kindly submit.				
Project participant response				Date: 22-September-2022
Attached herewith an undertaking by PP for no double accounting during current monitoring period of project activity for participation in other GHG program				
Documentation provided by project participant				
Declaration on Double Counting				
DOE assessment				Date: 26-September-2022
PP have submitted Declaration undertaking for no double accounting for current monitoring period of project activity for participation in other GHG program and found in line with the attendance sheet and MoM . CAR thus closed.				

CAR ID	04	Section no.	3.1	Date: 20-September-2022
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Description of CAR	
Application of latest version of the applied methodology AMS I.F. found missing throughout the joint VCS PD & MR. PP thus requested to all applicable sections of joint VCS PD & MR. Corrective action sought.	
Project participant response	Date: 22-September-2022
Kindly refer to revised Joint VCS PD & MR for applied methodology AMS I.F. Version 5.0, EB 115, Annex 9 at all applicable sections of the Joint VCS PD & MR.	
Documentation provided by project participant	
Revised Joint VCS PD & MR	
DOE assessment	Date: 26-September-2022
PP has now revised joint PD & MR as per the updated version of applied methodology AMS I.F i.e., version 05. found correct and updated. Thus, accepted and CAR is closed .	

CAR ID	05	Section no.	4.1	Date: 20-September-2022
Description of CAR				
PP have submitted JMR, state utility bills and invoices. However, some JMR & invoices are found missing and values for some months found mis-matching. Thus, PP requested to refer the commented actual emission reduction sheet and resubmit corrected ER sheet with supporting documents. Corrective action sought.				
Project participant response				Date: 22-September-2022
The missing JMRs & Invoices have been attached for DOE perusal. And also, ER sheet has been revised with final ER value according to the supporting documents.				
Documentation provided by project participant				
Revised ER Sheet				
DOE assessment				Date: 26-September-2022
PP have submitted ER sheet & supporting document i.e., JMR & invoices. ER sheet checked for approach & formulae used and values are checked with the JMR & cross checked with invoices and found correct. CAR closed.				

CAR ID	06	Section no.	4.2	Date: 20-September-2022
Description of CAR				
Joint VCS PD & MR found missing complete information of metering equipment like serial number, make, accuracy class, calibration date and validity of calibration and calibration frequency. Corrective action sought for the same. Further, crosscheck mechanism found missing under Joint VCS PD & MR and ER sheet submitted. Corrective action requested.				
Project participant response				Date: 22-September-2022
Kindly refer to Appendix I of revised VCS PD & MR for complete information of metering equipment viz., serial number, make, accuracy class, calibration date and validity of calibration and calibration frequency. Further, crosscheck mechanism is included at Section 5.2 in the Joint VCS PD & MR and ER sheet at Generation Details tab.				
Documentation provided by project participant				
Revised PD and MR, Calibration Certificates.				
DOE assessment				Date: 26-September-2022
PP have submitted revised Joint VCS PD & MR with complete details of the meters & calibration and found correct. CAR closed				

Table 4.FAR from this validation and verification

FAR ID	Nil	Section no.		Date: 20-May-2022
Description of FAR				
No FAR is raised				
Project participant response				Date: 12-June-2022

Documentation provided by project participant	
DOE assessment	Date:

APPENDIX 3: COMPETENCE OF TEAM MEMBER AND TECHNICAL REVIEWER

Verification Team Member: -

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Lead Auditor/ Technical Expert	OR	Takarkhede	Atul	TQC- Outsourced entity	Yes	Yes	Yes	Yes

Technical Reviewer and Approver of the Verification and Certification Report: -

No.	Role	Type of resource	Last name	First name	Affiliation (e.g., name of central or other office of DOE or outsourced entity)
1.	Technical reviewer (TR)	EI	Xue	Denny	LGAI Technological Center S.A. (Applus+ Certification)
2.	Approver	IR	Calle de Miguel	Agustin	LGAI Technological Center S.A. (Applus+ Certification)

Shorts CV of the Team: -

1. Dr. Atul Takarkhede is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 11 years of experience in field of Environmental Auditing, consulting and accreditation. He is an expert in ISO

9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management reporting for organizations' environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; conducting environmental/water audits; NABET requirements appliance, functional area expert in Water Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. Currently he is associated with True Quality Certifications Private Limited and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes. Dr. Atul Takarkhede is based in Nagpur, India.

2. Mr. Denny Xue (Master's Degree in Environmental Engineering, Bachelor's Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and technical review with Applus+. Before he joined Applus+ LGAI, he has been working for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. Mr. Denny Xue is based in Shanghai, China.

APPENDIX 4: ABBREVIATIONS

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CERC	Central Electricity Regularity Commission
CMS	Central Monitoring system
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse gas(es)
OM	Operating Margin
GWP	Global Warming potential
JMR	Joint Metering reading
RBI	Reserve Bank of India
SEB	State Electricity Board
SERC	State Electricity Regularity Commission
SECI	Solar Energy Corporation of India Ltd.
TPREL	Tata Power Renewable Energy Limited
VVB	Validation/Verification Body

APPENDIX 5: CALIBRATION DETAILS

As per the monitoring plan the meter calibration frequency is once in 5 years thus no delayed calibration observed during this monitoring period.

Sl. No.	SPV Name	Meter Serial No	Make	Accuracy class	Pre-Calibrated & tested meter Installation	Validity of calibration
1	Tinplate Company	540180185287	Schneider	0.5	1-Oct-20	30-Sept-25

2	Duraline India Private Limited	540180126068	Schneider	1	7-Oct-20	06-Oct-25
		540180139276	Schneider	1	7-Oct-20	06-Oct-25
3	GE T&D India Limited	540180078599	Schneider	1	11-Oct-20	10-Oct-25
4	Arya Anathalay I	540180144423	Schneider	0.5	20-Dec-20	19-Dec-25
5	Time of India, Airoli	18057019	L&T	1	19-Jan-21	18-Jan-26
		540180052157	Schneider	1	19-Jan-21	18-Jan-26
6	Asian Paints Limited	540180139576	Schneider	1	18-Feb-21	17-Feb-26
7	Time of India, Kolkata	540180178009	Schneider	0.5	22-Feb-21	21-Feb-26
8	TATA Lockheed Martin	540180169779	Schneider	1	3-Mar-21	02-Mar-26
9	TSPDCL, Demag	540180151744	Schneider	0.5	31-Mar-21	30-Mar-26
		540180146357	Schneider	0.5	31-Mar-21	30-Mar-26
10	Apollo Gleneagles Hospital Limited	540180177968	Schneider	0.5	1-Apr-21	31-Mar-26
		X1255380	Secure	0.5	1-Apr-21	31-Mar-26
11	Tata Metaliks Limited	21022500097	L&T	0.5	15-May-21	14-May-26
12	Arya Anathalay II	540180139208	Schneider	0.5	3-Jun-21	02-Jun-26
13	Tata Motors Limited (Car Plant)	540180176580	Conzerv	0.5	18-Jun-21	17-Jun-26
		540180182808	Conzerv	0.5		17-Jun-26
		540180179809	Conzerv	0.5		17-Jun-26
		540180183090	Conzerv	0.5		17-Jun-26
		540180182394	Conzerv	0.5		17-Jun-26
		540180182582	Conzerv	0.5		17-Jun-26
		540180183109	Conzerv	0.5		17-Jun-26
		54018018311	Conzerv	0.5		17-Jun-26
		540180183651	Conzerv	0.5		17-Jun-26
		540180179814	Conzerv	0.5		17-Jun-26
		540180183131	Conzerv	0.5		17-Jun-26
		540180182541	Conzerv	0.5		17-Jun-26
		540180182520	Conzerv	0.5		17-Jun-26
		540180183753	Conzerv	0.5		17-Jun-26
		540180183022	Conzerv	0.5		17-Jun-26
		540180182821	Conzerv	0.5		17-Jun-26

		540180183140	Conzerv	0.5		17-Jun-26
		540180183074	Conzerv	0.5		17-Jun-26