



**Verified Carbon
Standard**

GREENFIELD SOLAR POWER MISSION BY FORTUM INDIA



Document Prepared By Earthood Services Private Limited

Project Title	Greenfield Solar Power Mission by Fortum India
Version	01
Report ID	VCS.VAL.19.56

Report Title	Greenfield Solar Power Mission by Fortum India
Client	Fortum Solar Plus Private Limited
Date of Issue	30/12/2019
Prepared By	Earthood Services Private Limited
Contact	Regd. Office: 424-A, Tower B3, Spaze I-Tech Park, Sector 49, Sohna Road, Gurgaon-122018, INDIA Tel:+91 124 4204599 Fax:+91 124 4204599 Website: www.earthood.in Email: info@earthood.in
Approved by	Dr. Kaviraj Singh

Work carried out by

Team Leader: Mr. Sukanta Das

Technical Expert (TA 1.2) and Meth Expert: Mr. Sukanta Das

Financial Expert: Mr. Ashok Gautam

Local Expert: Mr. Sukanta Das

Technical Reviewer: Shreya Garg

Technical Expert (TA 1.2): Shreya Garg

Summary:

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by Fortum Solar Plus Private Limited (Project Proponent) to conduct the validation of the project - "Greenfield Solar Power Mission by Fortum India", with regard to the relevant requirements of VCS programme guidelines and standard (VCS standard version 04, & VCS program guide version 04). Relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for validation.

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Fortum Solar Plus Private Limited is the promoter of the project activity. The project activity involves installation of 250 MW solar power project. The project will replace average anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 412,674 tCO₂e per year. The total GHG emission reductions for the chosen 10 year crediting period will be 4,539,413 tonnes of CO₂e.

Assessment team checked the following detail regarding Crediting period

Crediting Period Start date: 01-December-2020

Crediting Period End date: 30-November-2030

Assessment team found that the crediting period as mentioned in the VCS PD is found appropriate.

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 baseline is assessed against "ACM0002 version 19.0"

the project's monitoring plan is assessed against "ACM0002 version 19.0"

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 04

CDM Validation and Verification Standard for project activities version 02

CDM Project Standard for project activities version 02

CDM project cycle procedure for project activities version 02

VCS standard v04¹

VCS guideline v04

A risk-based approach has been followed to perform grouped project activity validation. In the course of validation, 07 Corrective Action request (CARs) and 00 Clarification request (CLs) and 01 Forward action request (FAR) were raised during the validation process. The CAR/CL was closed during the validation process and FAR needs to be addressed before the verification of the project activity.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and stakeholders have provided ESPL with sufficient evidence to validate the fulfillment of the stated criteria.

Validation Conclusion:

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation. This validation is based on the information made available to ESPL and the engagement conditions are detailed in this report. No restrictions or uncertainties were identified related to the validation.

ESPL confirms that the project is implemented in accordance with the validated VCS PD. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents.

¹<http://www.v-c-s.org/project/vcs-program/rules-and-requirements/>

CONTENTS

1	INTRODUCTION	5
1.1	Objective	5
1.2	Scope and Criteria	5
1.3	Level of Assurance	6
1.4	Summary Description of the Project	6
2	VALIDATION PROCESS	7
2.1	Method and Criteria	7
2.2	Document Review	7
2.3	Interviews	8
2.4	Site Inspections	9
2.5	Resolution of Findings	10
3	VALIDATION FINDINGS	11
3.1	Project Details	11
3.2	Safeguards	15
3.3	Application of Methodology	17
3.4	Non-Permanence Risk Analysis	52
4	VALIDATION CONCLUSION	52
	APPENDIX 1: DOCUMENT REFERENCES	54
	APPENDIX 02: ABBREVIATIONS	55
	APPENDIX 03: COMPETENCY STATEMENT	57
	APPENDIX 04: FINDINGS OVERVIEW	59

1 INTRODUCTION

1.1 Objective

ESPL has been contracted by Fortum Solar Plus Private Limited, to undertake the validation of the project titled “Greenfield Solar Power Mission by Fortum India”.

The purpose of this validation is to have an independent third party assessment of whether the project activity conforms to the qualification criteria set out in the VCS Version 04 standard to attain real, measurable, additional and permanent emission reductions. The validation statement/opinion is a written assurance that:

- The project complies with all the applicable VCS requirements and has the ability to generate the emission reductions stated over the project’s crediting period.
- The validation followed the requirements of the current version of the VCS Standard Version 04 and VCS program guide 04 to ensure the quality and consistency of the validation work and the report.
- The project has resulted in emission reductions as declared by the organisation or GHG project’s GHG assertion;
- The data reported is accurate, complete, consistent, transparent and free of material error or omission.

1.2 Scope and Criteria

The validation scope is given as an independent and objective review of the project design, the project’s baseline study and monitoring plan which is included in the VCS PD and other relevant supporting documents.

The scope of work covered in the validation is described below:

- To validate whether the project activity meets the requirements of VCS Standard Version 04, VCS Validation and VCS program guide 04 including additionality, proof of title and compliance with local laws.
- To evaluate whether the baseline and monitoring plan are in conformance with the applied methodology from the VCS approved GHG program
- To confirm that the information presented are completed, consistent, transparent and free of omission or material error
- Background investigation and follow up interviews
- Issuance of draft validation report with CARs, CRs & FARs, if any

➤ Final validation opinion

The information in the VCS PD is reviewed against the criteria of VCS Standard 04, the VCS program guide 04 and the approved baseline and monitoring CDM methodology ACM 0002 version 19.

ESPL has performed validation based on a risk-based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate Verified Carbon Units (VCUs).

The validation is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design

1.3 Level of Assurance

The validation has been planned and organized to achieve a

☒ Reasonable level of assurance

☐ Limited level of assurance.

1.4 Summary Description of the Project

The summary of project description is well defined in the VCS PD. The project activity will support the development of new grid-connected renewable energy power plants in India and will cover the solar energy technologies. It seeks to enable investment in large scale grid connected plants that export their generated output to the regional / national electricity grid in India

The project activity results in reductions of greenhouse gas (GHG) emissions that are real, measurable, & verifiable and also plays beneficial role in the mitigation of climate change. During the onsite visit for the project activity it was observed that the Project activity will be a new facility (Greenfield) and the electricity generated by the project will be exported to the Indian electricity grid. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the project.

As per the applicable methodology, a Greenfield power plant is defined as “a new renewable energy power plant that is constructed and operated at a site where no renewable energy power plant was operated prior to the implementation of the project activity”.

As the project activity falls under the definition of a Greenfield power plant, the baseline scenario as per applied methodology is the following:

The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid. Hence, pre-project scenario and baseline scenario are the same. The estimated lifetime of the project activity is considered as 25 years for solar technology. This may

increase depending on the operation & maintenance of the plant. The Project activity is a new facility (Greenfield) and the electricity generated by the Project will be exported to the Indian Grid. The Project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the Project.

2 VALIDATION PROCESS

2.1 Method and Criteria

The validation process is undertaken by validation team that involves the following:

- The desk review of documents and evidences submitted by the project proponent in context of the reference VCS rules and guidelines,
- Undertaking site visit, interview or interactions with the representative of the project proponent,
- Reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and
- Preparing a draft validation report
- Resolution of outstanding issues and the issuance of final validation report and opinion

In order to ensure transparency, a validation protocol was prepared for the project according to the VVS for PAs version 02.0, validation requirements and VCS Standard version 04. The Clarification Requests (CR) were issued where additional information was needed to clarify issues, and Forward Action Requests (FAR) for issues relating to project implementation that required review during the first verification of the project activity.

2.2 Document Review

The validation team has conducted the validation using the VCS Standard and the ACM 0002 version 19 methodology as the reference criteria. The validation team had done the completeness check of VCS PD version 01 submitted by the PP as per the VCS standard Version 04 requirements was reviewed. Furthermore, a desk review was also carried out to assess the following:

- Information of project details in compliance with VCS PD
- Appropriateness of methodology ACM 0002 version 19 applied to the project activity
- Compliance with relevant laws and regulations
- Correctness of application of baseline and monitoring methodology
- Demonstration of additionality

- Monitoring plan described in the VCS PD
- Stakeholder consultation
- Proof of listing of project under pipeline
- Calculation of CPP/grid emission factor, etc. where applicable.

The VCS PD version 01 dated 03/12/2019 was initially reviewed and the PP requested to submit the revised documents along with the supporting information and documents. The revised documents and additional supporting documents were further assessed by the validation team. During the validation process, the revised VCS PD^{1/} and the supporting documents were assessed to confirm the actions taken by the PP to the CARs and CLs issued.

The validation team has reviewed the final version of the VCS PD Version 02 dated 19/12/2019 to confirm that all changes agreed have been incorporated.

Further, prior to the onsite visit, it was verified by the validation team that the project was listed in the VCS pipeline in line with the requirements (Section 3, Registration and Issuance process, version 3.8) Ref: https://www.vcsprojectdatabase.org/#/pipeline_details/PL2069

2.3 Interviews

The assessment team has carried out interviews in order to verify the information included in the project documentation and to gain additional information regarding the compliance of the project with the VCS requirements. Before and during the on-site visit, the assessment team has interviewed the representatives of the PP to confirm selected information and to clarify issues identified during the document review. Representatives of the PP and O&M contractor were also interviewed. The names and designations of the personnel interviewed are mentioned in section 2.4 below.

The main topics covered during the interview with the PP are as follows:

- General Aspects of the project
- Project Implementation
- Equipment and operation
- Staff Training procedures
- Calibration procedures
- Monitoring & Measuring System
- Data collection, recording and archiving procedure
- QA/QC procedures
- VCS documentation

➤ Emission reduction calculations

The main topics covered during the interview with the Local Stakeholder are as follows:

- Employment opportunity (if any) due to the project activity
- Any aspect of the project which is harmful to the local stakeholder
- The detail of the project and its benefits as discussed with the stakeholder during stakeholder meeting consultation by the project participant.

2.4 Site Inspections

As part of the validation, an on-site inspection has been performed by the assessment team. The site visit was carried out on 13/12/2019. During the site visit representatives of the PP and O&M contractors were interviewed; i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. However, no comments were received during GSP period hence no further site visit was conducted after completion of GSP comment period. The details of the people interviewed and the topics discussed are mentioned in the table below:

Location: Green filed Solar site, Jaisalmer, Rajasthan	Date: 13/12/2019
Coverage	Source of Information / Persons Interviewed
Project implementation, start date as per the VCS requirements. Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure	Mr. Vivek Sadvera Mr. Barun Sharma ²
Monitoring and measuring system • Collection of measurements • Observations of established practices • Data Verification of monitoring parameters	Mr. Vivek Sadvera
QA/QC procedures, data management,	Mr. Vivek Sadvera

² Only telephonic interview. Not accompanied during the onsite visit.

internal audits to maintain data quality & reliability, maintenance Practices	
Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations	
Local Stakeholder consultation (Discussion regarding employment opportunity and other project related benefit)	Mr. Rakesh Patwa, Shopkeeper

2.5 Resolution of Findings

As an outcome of the validation process, the team can raise different types of findings:

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met

Where a non-conformance arises the team leader shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The VCS requirements have not been met;
- There is a risk that emission reductions cannot be monitored or calculated.
- The validation process may be halted until this information has been made available to the team leader's satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR. No CL has been raised during the validation of the project activity.

During the validation process, total 07 CARs and 00 CL, 01 FAR were raised and resolved satisfactorily. The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix 2 of this report

2.5.1 Forward Action Requests

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the VCS requirements for registration.

A FAR has been raised at the time of validation of the project activity.

3 VALIDATION FINDINGS

3.1 Project Details

The Project activity is a new facility (Greenfield) and the electricity generated by the project will be used for sale to grid. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the project.

The project is located State of Rajasthan, Jaisalmer India. The project will be connected with Indian grid for the sale of electricity to the grid. During the onsite visit assessment team found that the project is yet to commission and EPC contract is still in negotiating terms. However, following technical detail is validated from the DPR and during the onsite discussion with PP and therefore FAR is raised regarding this issue. The tentative technical detail for the project is as below:

Expected Technical detail ³	Remarks
Technology	Thin Film-CdTe modules on Fixed Tilt at 20 degrees
Make	First Solar
Solar photovoltaic module	95 Wp Modules
No. of modules	15,36,850
Total Number of Invertors	100 Units
Transformer	100
Central inverters of nominal AC power output	680 kVA-CONEXT CORE XC 680, Schneider Make), three phase , 50 Hz.
Technical & Operational Lifetime	25 years

Project proponent and other entities involved in the project-

The project activity is developed by Fortum Solar Plus Private Limited.

Fortum Solar Plus Private Limited is the project proponent and EKI energy is other entity involved in the project activity.

³ It is to be noted that in future there is possibility of change in module configuration; however project capacity in total will remain same as 250 MW.

Project start date-

The project start date will be 01-12-2020. This is the expected date of commissioning of 250 MW Solar project activities. The same is confirmed by the assessment team during the discussion with PP at the time of onsite visit.

Project crediting period-

The crediting period of the project activity is for 10 years (renewable). The first crediting period is from 01-December-2020 to 30-November-2030. The start and end date of the crediting period is in accordance to the requirement of VCS standard version 04.

Project scale and estimated GHG emission reductions or removals-

The estimated annual emission reductions for the project activity are 412,674 tCO₂e which is more than 300,000 tCO₂e. Hence the category is applicable under “Large project”. The estimated emission reduction is checked from the submitted emission reduction sheet and found correct and hence the category of the project is in accordance to VCS standard version 04

Project location-

The project instance is located at Luna Khurd, Luna Kala and Betina, Jaisalmer district in the state of Rajasthan India.

Geo-coordinates of the project location are verified as: at 26°35'53.3"N Latitude and 71°35'14.7"E Longitude. The Geo-coordinate is verified from the DPR report /6/ as well.

Conditions prior to project initiation-

The project is green filed project activity and does not involve generation of GHG emissions for the purpose of their subsequent reduction, removal or destruction. Prior to the initiation of the project activity, the equivalent amount of electricity would have been drawn from grid connected or new power plants, in Indian Grid. Baseline as identified in section 2.4 of the PD is correct and as per the requirement of the applied methodology.

Project compliance with applicable laws, statutes and other regulatory frameworks:

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.

Ownership and other programs-

Right of use

The project activity is owned by **Fortum Solar Plus Private Limited**. The ownership of the project activity is verified through the following documents:

- Power Purchase agreement signed between PP and State electricity board /^{8/}

Emissions trading programs and other binding limits

The project is not participating in other emission trading programs. The letter of undertaking/^{9/} has been furnished by project participant confirming that 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.

Other forms of environmental credit sought or received and eligible to be sought or received:

The project seeking registration under the VCS (Pipeline ID-2069) and not listed under Domestic REC mechanism/^{10/} as verified from <https://recregistryindia.nic.in/index.php/publics/index>

Participation under other GHG programs:

Project is seeking registration under VCS only (Pipeline ID-2069). The PP has submitted the declaration/^{9/} which states that the net GHG emission reductions generated by the project activity will not be used for compliance with any other emissions trading program or to meet binding limits on GHG emissions for the same monitoring period.

Rejection by other GHG programs:

The project has not been rejected by other GHG programs.

Additional information relevant to the project, including:**Eligibility criteria for grouped projects**

The project is not a grouped project.

Leakage management for AFOLU projects

Not applicable to the project activity.

Commercially sensitive information

No commercially sensitive information has been excluded from the public version of the project description.

Sustainable Development**Contribution to sustainable development:**

Ministry of Environment and Forests, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. Assessment team found that the project contributes to sustainable development using the following ways.

Social well-being: The project would help in generating employment opportunities during the construction and operation phases. The project activity will lead to development in infrastructure in the region like development of roads and also may promote business with improved power generation.

Economic well-being: The project is a clean technology investment in the region, which would not have been taken place in the absence of the VCS benefits the project activity will also help to reduce the demand supply gap in the state.

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.

Environmental well-being: Solar being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding significant amount of GHG emissions and specific pollutants like SO_x, NO_x, and SPM associated with the conventional thermal power generation facilities.

Project undergone continuous operation and only scheduled maintenance as per the manufacturer specification is considered. Audit team checked the maintenance records and operation log of the project activity and no unforeseen incident observed for the present monitoring period.

Conclusion:

In view of the assessment of VCS PD/²/ and supporting documents as listed in Appendix 1 of this report, the validation team is able to confirm that the description contained in the VCS PD/²/ of the project activity provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. Consequently, ESPL confirms that the project description of the project contained in the VCS PD/²/ to be complete and accurate. The VCS PD complies with the relevant forms and guidance for completing the VCS PD.

3.2 Safeguards

3.2.1 No Net Harm

There is no negative impact to any socio-economic conditions of the region due to the project activity. No adverse environmental impact has been envisaged in the project activity. As per the notification from MoEF dated September 14, 2006 and its amendment notification S.O.-3067(E) dated 1/12/2009, the list of project activities which require prior environmental clearance is stipulated. This does not include the proposed project activity type as it involves solar power generation. Thus no harm has been identified from the project and hence no mitigations measures are applicable. Further, as per the report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE (The Ministry of New and Renewable Energy) dated September 2013/³¹/ is checked by the assessment team. The report highlights the impact of different types of renewable energy projects and demonstrates that solar power projects do not result in direct air pollution, noise pollution.

3.2.2 Local Stakeholder Consultation

The local stakeholder consultation process has been described in detail, by the PP, in the VCS PD the project participant identified the relevant stakeholders as Government Officials, Local villagers, Representatives of affected people residing in the project area and local village head.

The relevant stakeholders were invited for local stakeholders' meet that held on 02/05/2019. The meeting minutes/¹⁶/ were reviewed and it was noted that villagers did not raise any adverse comments. The local stakeholders were invited (Invitation date 26/04/2019) through invitation letters (delivered in hand) and public notice to attend the stakeholders meeting

The local regulations did not require any stakeholder consultation and it was done purely for the purpose of meeting GHG programme requirements. The attendance record/¹⁷/ for the event was reviewed and found that villagers and representatives from PP participated and therefore accepted

Overall, there was agreement among the stakeholders that the proposed project activity would lead to the overall development of the area, mainly by generating employment opportunities and improving the infrastructure leading to an improved life for the villagers. The local stakeholders interviewed during the site visit endorsed this view.

The due account has been taken of the comments as reviewed in the meeting minute's report/¹⁶/ of the event. It is also confirmed that local stakeholders were invited by the project proponent to comment on the proposed project activity prior to the submission of the PD for validation.

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 stakeholder's. 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.

The Sample interactions with the stakeholders during the site visit are presented below:

Name of the stakeholder	Mr. Rakesh Patwa, Shopkeeper
DOE questions: Did the solar power plant have any adverse impact on the nearby areas? Answer: NO. Solar plant has no adverse impact on surrounding area.	
DOE questions: Did the plant have impact on any crop fields? Answer: The plant is implemented in barren land and there were no any fertile land or crop which is damaged.	
DOE questions: Did the power project generated employment opportunities for locals? Answer: Yes. Employment given to locals in O&M activities for technically educated persons and unskilled labors in construction related work.	

Thus Validation team is of the opinion that the stakeholder meeting was adequate and appropriate.

3.2.3 Environmental Impact

The guidelines on Environmental Impact Assessment have been published by Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India (GOI) under Environmental Impact Assessment notification 14/09/2006⁴. Further amendments to the notification have been done on 14/07/2018⁵. As per the notification:

“The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category ‘A’ in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category ‘B’ in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

- (i) All new projects or activities listed in the Schedule to this notification;
- (ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;
- (iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.”

As the Solar power generation projects are not listed in any of the categories of the schedule, hence the project is considered environmentally safe and as per Host party- India and hence no EIA is required

3.2.4 Public Comments

In accordance with the requirement in VCS standard version 04 “All VCS projects are subject to a 30-day public comment period. The date on which the project is listed on the project pipeline marks the beginning of the project’s 30-day public comment period”.

The PP listed their project activity in the VCS pipeline for 30 days from 29/11/2019 to 29/12/2019 (https://www.vcsprojectdatabase.org/#/pipeline_details/PL2069)^{18/} for public comments. No comments received during the commenting period.

3.2.5 AFOLU-Specific Safeguards

This section is not applicable as the project falls under NON-AFOLU category.

3.3 Application of Methodology

⁴ EIA Notification 2006: <http://envfor.nic.in/legis/eia/so1533.pdf>

⁵ EIA Notification 2018: <http://www.egcipl.com/Doc/Gazette%20Notification.pdf>

3.3.1 Title and Reference

The project, as given in the VCS PD^{2\}, has applied ACM 0002 version 19^{3\} and relevant tools prescribed therein. The reference to the versions of the tools and methodology were found to be valid for use. The project is applying tools as referenced in the VCS PD^{2\}. The steps taken to assess compliance of the project with each applicability condition of the applied methodology applicability conditions are described in this section along with conclusion towards each applicability condition.

3.3.2 Applicability

S. No	Methodology Applicability Criterion	Means of Verification	Validation Assessment
1	This methodology is applicable to grid-connected renewable power generation project activities that: (a) install a Greenfield power plant; (b) involve a capacity addition to (an) existing plant(s); (c) involve a retrofit of (an) existing operating plants/units; (d) involve a rehabilitation of (an) existing plant(s)/unit(s) or (e) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a Renewable Energy Project i.e. Solar Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". The same was confirmed by the assessment team from the DPR/^{6/} submitted as well as discussion with the PP during the onsite visit.	Applicability creteria fulfilled.
2	The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The proposed project activity is installation of a new grid connected solar renewable energy power plant. The same was confirmed by the assessment team from the DPR/^{6/} submitted as well as discussion with the PP during the onsite visit.	Applicability creteria fulfilled.
3	In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar,	The proposed project activity is installation of a new grid connected solar renewable	The creteria is not applicable

S. No	Methodology Applicability Criterion	Means of Verification	Validation Assessment
	wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	energy power plant not capacity additions, retrofits, rehabilitations or replacements. The same was confirmed by the assessment team from the DPR/ ⁶ / submitted as well as discussion with the PP during the onsite visit.	
4	In case of hydro power plants, one of the following conditions shall apply: (f) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (g) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m²; or The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m².	The proposed project activity is installation of a new grid connected solar renewable energy power plant. The project is not a hydro power project. The same was confirmed by the assessment team from the DPR/ ⁶ / submitted as well as discussion with the PP during the onsite visit.	The criteria is not applicable
5	The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated	The proposed project activity is installation of a new grid connected solar renewable energy power plant. The project	The criteria is not applicable

S. No	Methodology Applicability Criterion	Means of Verification	Validation Assessment
	using equation (3), is lower than or equal to 4 W/m², all of the following conditions shall apply: - The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m²; - Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; - Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be; ✓ Lower than or equal to 15 MW; and Less than 10 per cent of the total installed capacity of integrated hydro power project.	activity is not an integrated hydro power project. The same was confirmed by the assessment team from the DPR/^{6/} submitted as well as discussion with the PP during the onsite visit.	
6	In the case of integrated hydro power projects, project proponent shall: Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or Provide an analysis of the water balance covering the water fed to power units, with all possible	The proposed project activity is installation of a new grid connected solar renewable energy power plant. The project activity is not an integrated hydro power project. The same was confirmed by the assessment team from the DPR/^{6/} submitted as well as discussion with the PP during the onsite visit.	The creteria is not applicable

S. No	Methodology Applicability Criterion	Means of Verification	Validation Assessment
	combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.		
7	Methodology is not applicable to the following Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; Biomass fired power plants/units	The proposed project activity is the installation of a new grid connected solar renewable energy power project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the project activity. The same was confirmed by the assessment team from the DPR/⁶/ submitted as well as discussion with the PP during the onsite visit. This project activity does not involve any biomass based power plants and hence this criterion is not applicable to the project activity.	The creteria is not applicable
8	In the case of retrofits, rehabilitations, replacements, or capacity additions,	The proposed project activity is installation of a new grid	The creteria is not applicable

S. No	Methodology Applicability Criterion	Means of Verification	Validation Assessment
	this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	connected solar renewable energy power plant. The project does not involve retrofits, rehabilitations, replacements, or capacity additions as it is a green field project. The same was confirmed by the assessment team from the DPR/ ⁶ / submitted as well as discussion with the PP during the onsite visit	
Tool to calculate the emission factor for an electricity system ⁶ - Version 07.0 (EB 100, Annex 04)			
1	This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project is a grid connected Greenfield solar power project and thus the tool is applicable. The Value of OM, BM and CM is sourced from CEA database version 14.	The criteria is applicable
2	Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in “Appendix 2: Procedures related to off-grid power	The project is a grid connected Greenfield solar power project and thus the tool is applicable. The same was confirmed by the assessment team from the DPR/ ⁶ / submitted as well as discussion with the PP during the onsite visit Steps involved in calculation of Emission Factor is included in section Error! Reference source not found.of	The criteria is applicable

⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

S. No	Methodology Applicability Criterion	Means of Verification	Validation Assessment
	generation” should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	the VCS PD/ ^{2/} as per the requirement of the tool	
3	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project is located in Non-Annex I country. The host party for the project is India.	The creteria is applicable
4	Under this tool, the value applied to the CO ₂ emission factor of biofuels is zero.	The proposed project activity is installation of a new grid connected solar renewable energy power plant and not biofuels. The same was confirmed by the assessment team from the DPR/ ^{6/} submitted as well as discussion with the PP during the onsite visit	The creteria is not applicable.

3.3.3 Project Boundary

The project boundary and identified GHG sources, sinks and reservoirs for the project and baseline scenarios (including leakage if applicable) are appropriately defined in the VCS PD/2/. The selection and justification for inclusion or exclusion is appropriate and duly supported by the onsite observation during the physical site visit. In addition to the table, a diagram or map of the project boundary, showing clearly the physical locations of the various installations or management activities taking place as part of the project activity based on the description provided in Section 1.8 is included in the VCS PD/2/. This was confirmed from the Technical Proposal (DPR) of the project activity/6/ and onsite observations/11/. The project boundary given in the VCS PD/2/ was checked from the Technical Proposal of the project activity/6/ and were physically verified during the site visit through a walk-through inspection. The choices of GHGs are also appropriate to the context of the project description. There is no GHG source that is omitted. The information in the VCS PD “The project boundary includes the solar project, sub-stations, grid and all power plants connected to grid. The proposed project activity will evacuate power 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” is clear/substantiated

3.3.4 Baseline Scenario

Assessment team confirms that being a grid connected solar energy generation project, PP developed the project based on the Methodology ACM0002 version 19.0. As per methodology *if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:*

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

As per CDM Validation and Verification Standard for project activities version 02, “where the baseline scenario is not prescribed in the approved methodology, the DOE shall assess the list of identified credible alternatives to the project activity in the VCS PD selected to determine the most realistic baseline scenario.” Thus, VCS PD should mention the credible alternatives to the project activity in order to determine the most realistic baseline scenario. As the selected large-scale methodology clearly mention the baseline scenario and the same has been opted in this project, therefore, no further analysis on baseline is required.

Validation Team, therefore, concludes that the VCS PD conforms to the guidance given by EB via CDM Validation and Verification Standard for project activities version 02 and VCS via VCS standard version 04.

The project activity involves setting up solar projects to harness the power of sun and solar to produce electricity and use for Sale to grid usage. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants.

In the absence of the project activity, the equivalent amount of power would have been drawn from the Indian grid. 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) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publically available. The Central electricity authority (CEA) database version 14 is the latest available data at the time of VCS PD submission to DOE for validation, hence same is considered for emission factor calculations.

The combined margin of the Indian grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid, CM, y}$	0.9126 tCO ₂ /MW h	Combined margin CO _{2e} emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.50) & build margin (0.50) values, sourced from Baseline CO ₂ Emission Database, Version 14 published by Central Electricity Authority (CEA), Government of India
$EF_{grid, OM, y}$	0.9610 tCO ₂ /MW h	Operating margin CO _{2e} emission factor for the project electricity system in year y	Calculated as the last 3 year (2015-16, 2016-17 & 2017-18) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 14, published by Central Electricity Authority (CEA), Government of India
$EF_{grid, BM, y}$	0.9368 tCO ₂ /MW h	Build margin CO _{2e} emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 14, published by Central Electricity Authority (CEA), Government of India

Moreover, Annex 3 of the EB 22 states that national and/or sectoral policies and circumstances have to be accounted for when considering the baseline scenario. Paragraph 7(a) states that, only those national and/or sectoral policies or regulations under paragraph 6(a), i.e., type E+ policy that increase GHG emissions, that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11/12/1997), shall be taken into account when developing a baseline scenario. The Electricity Act of 2003 promoted cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity (Refer Section 86(1) of Electricity Act 2003). Therefore, it could be seen that the provincial and sectoral policies are E- i.e., policies that decrease GHG emissions and are after November 2001. Hence the baseline scenario of electricity generation by grid connected fossil fuel dominated power plants is in accordance with Annex 3 of EB 22. Assessment team thus confirmed that baseline is selected as per the applied methodology and combined margin is calculated as per the tool and thus acceptable to the assessment team.

3.3.5 Additionality

The additionality for this project activity instance has been demonstrated as per “Methodological Tool-Tool for the demonstration and assessment of additionality”, Version 7.0.0. The approach is in line to methodology and VCS requirements.

In the opinion of the validation team, the project is voluntary initiative and is not forced upon PP by any external reason.

VCS PD^{2/} has defined the additionality approach (project specific) as per VCS guidance/standard. As described above, the additionality is mainly based on investment barrier as prescribed in the “Tool for the demonstration and assessment of additionality”, Version 7.0.0

In line with VCS Standard version 04, the additionality of the Project activity is ascertained in line with the applicable guidance from the UNFCCC. The demonstration of additionality for the proposed Project activity is being carried out in accordance with the additionality tool provided by the UNFCCC i.e. “Tool for demonstration and assessment of Additionality” Version 07.0.0. The tool provides a step-wise approach to demonstrate additionality which is displayed below:

Step 0: Demonstration whether the proposed project activity is the first-of-its-kind

The proposed project activity is not the first-of-its-kind. Hence not applicable.

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Alternative 1: The proposed project activity without VCS benefit;

Alternative 2: Continuation of the current situation, i.e., electricity will continue to be generated by the existing generation mix operating in the grid.

Having regard to the fact that the project activity under consideration is a solar power project, validation team is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- the applicable environmental regulations do not restrict the use of solar energy; and
- There is no legal requirement on the choice of a particular technology.

Assessment team noted that the project fulfils the norms put down by Central Pollution Control Board. 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).

The newly introduced White category of industries pertains to those industrial sectors which are practically non-polluting such as Biscuit trays etc. from rolled PVC sheet (using automatic vacuum forming machines), Cotton and woollen hosiers making (Dry process only without any dyeing/washing operation), Electric lamp (bulb) and CFL manufacturing by assembling only, Scientific and mathematical instrument manufacturing, Solar power generation through photovoltaic cell, wind power and mini hydel power (less than 25 MW).

There shall be no necessity of obtaining the “Consent to Establish/Operate” for White category of industries. Intimation to concerned SPCB / PCC is sufficient. 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.

Due to above categorization of white category and being the renewable in nature, the project activity does not emit any emissions. Thus there are no any other surplus regulatory requirements for the project activity. This is found to be accepted by assessment team.

However, of the two alternatives identified, alternative (i) cannot be considered realistic as further analysis in the following paragraph reveals that it is not economically feasible option. Hence, alternative (ii) alone could be justified as realistic, credible and plausible alternative to the PP.

Validation team is, therefore, convinced that the project developer has taken into consideration all realistic and credible alternatives (having regard to the governing methodologies) including the project being undertaken as a non-VCS activity and continuation of current scenario. The identification of alternatives is in conformity with the guidance given by the tool.

Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above.

Sub-step 1b: Consistency with mandatory laws and regulations:

The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution. (This sub-step does not consider national and local policies that do not have legally-binding status.)

Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

- The implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
- The applicable environmental regulations do not restrict the use of solar energy; and
- There is no legal requirement on the choice of a particular technology.

Moreover, Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity.

Step 2: Investment analysis

Determine whether the proposed project activity is economically or financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of emission reductions credits. To conduct the investment analysis, use the following sub-steps:

Sub-step 2a: Determine appropriate analysis method and Sub-step 2b (Option III): Apply benchmark analysis

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

Project developer had demonstrated that the financial returns of the proposed VCS project activity would be insufficient to justify the required capital investment as per CDM Validation and Verification Standard for project activities version 02.0. In the Initial VCS PD version 01, PP has adopted a conservative approach to identify the benchmark for the project activity. The project is earning revenue from the installation of the project activity. Thus simple cost analysis (Option I) is not appropriate. Also in the absence of the project activity grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity. Therefore, benchmark analysis (Option III) is used for the project activity as per project type and decision-making context. Therefore, the Expected return on equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for the project activity which is acceptable to the assessment team. Moreover, the financial indicator selected by the PP is correct based on the fact that tool do not restrict the PP to either use project IRR or Equity IRR. This is under the prerogative of the PP to select appropriate indicator based on his preferences to know the IRR based on his equity investment or debt investment. The same is thus acceptable to the assessment team. Assessment team however checked the Equity

IRR calculation and found that input assumptions used for the calculation of Equity IRR are applicable at the time of investment decision of the project and thus is in accordance with the relevant guideline of the tool.

At the time of decision made of project activity, version 09 of methodological tool "Investment Analysis" was the latest available tool for respective calculations, hence PP has considered the same tool for default value of return on equity. The default value of Return on Equity for Group-1 projects in India is 9.79%.

As per paragraph 7 of Appendix A of the above mentioned document, "In situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used".

For this project activity, the inflation rates have been considered from the inflation forecast published by the Reserve Bank of India.

Default Value Benchmark:

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).

PP has calculated Benchmark based on WPI mean inflation rate. As per Para 17 of Appendix of EB101, Annex 11, 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.

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 = 9.79% (as per Appendix of EB 101, Annex 11)

Inflation rate = 2.90% Projected Inflation Rate for India in next 10 years (RBI Forecast)

⁷As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

Benchmark estimation:

Appendix in EB 101, Annex 11 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = **9.79 %**

Inflation Forecast for India as per RBI website⁸:

Benchmark Calculations	Value	Document Date	Board Decision date
Default Value for India as per UNFCCC guidelines ⁹	9.79%	29-11-2018	06-05-2019
Inflation forecast (WPI Mean) as per RBI for 10yrs ¹⁰	2.90%	04-04-2019	
Benchmark (with 10yrs Forecast)	12.97%		

Thus benchmark of **12.97 %** has been selected for this project activity.

b) Parameters and assumptions used:

The project activity is a renewable source of electricity generation and uses the generated electricity for Sale to grid purpose using Indian National grid. The key parameters which determine the Equity IRR of the project activity are project cost, PLF and profitability estimates.

In the revised VCS PD Version 02, the project cost is based on the DPR (Detailed project report) = Available at the time of Investment decision (dated 06-05-2019)/RERC guideline (to compare the cost of the DPR).

Project cost as per the DPR

Name of the Investor/Owner/SPV	Project Capacity (MW)	Project Cost (In Million)	DPR Date
Greenfield Solar Power Mission by Fortum India	250 MW	10597.5	17-Apr-2018

⁸ <https://rbi.org.in/Scripts/PublicationsView.aspx?id=17433>

⁹ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf>

¹⁰ <https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=18944>

Project Cost according to RERC (=Rajasthan Electricity Regulatory Commission) order

Name of the Investor/Owner/SPV	Project Capacity (MW)	Actual Project Cost (In Million)	RERC Order Date
Greenfield Solar Power Mission by Fortum India	250 MW	8959	09-Oct-2017

DPR has been submitted to validation team. The DPR were available during decision making and financial profitability of the project was decided based on this DPR. Validation team checked the DPR of the project activity and found that consideration of the project cost in revised VCS PD version 02 is correct and it is in line with Investment guideline as well as in compliance to CDM Validation and Verification Standard for project activities version 02. Hence, the project cost consideration is justified. Assessment team checked the project cost as provided by the state electricity regulatory commission for Solar project and still the project do not breach the benchmark. The sensitivity analysis below confirms the same.

c) Assessment of Loan Availed for the project activity:

In India, infrastructure projects are generally entitled to a debt equity ratio of 70:30. However, depending on the relationship of the client with the bank, its credit rating and collaterals offered, banks consider higher debt equity ratio also. The Debt equity ratio for the project is 75:25. The same is checked and confirmed by the assessment team from the DPR available at the time of Investment decision.

d) Assessment of Interest rate:

In India 12% of Interest rate is applicable as per the Banking practice for Infrastructure projects. The same is considered for the present project activity and since it is standard practice and hence it is found acceptable.

The profitability of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, electricity tariff, O&M cost, depreciation and taxation.

e) Assessment of Plant Load Factor (PLF):

PP considered the Plant load factor from DPR, for expected electricity generation estimation. They are contracted by the PP for this project. PP has submitted the copies of the PLF estimation report to the assessment team.

Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	DPR Date
---------------------------------	-----------------------	---------	----------

Greenfield Solar Power Mission by Fortum India	250 MW	22.0%	17-Apr-2018
---	--------	-------	-------------

PLF estimation in offer letter is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team. The deration factor for IRR/ER calculation is sourced from DPR/RERC order which is 0.5% onwards from 2nd year onward which was available to the PP at the time of investment decision. Hence the value is considered correct.

Assessment team checked the PLF as provided by the state electricity regulatory commission for Solar project and still the project do not breach the benchmark. The sensitivity analysis below confirms the same.

f) Assessment of Electricity Tariff:

Tariff rate as per DPR

Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per DPR	DPR Date
Greenfield Solar Power Mission by Fortum India	250 MW	2.48	17-Apr-2018

Tariff rate as per the actual power purchase agreement signed between PP and State electricity Board.

Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per PPA	PPA Date
Greenfield Solar Power Mission by Fortum India	250 MW	2.48	03-Jun-2019

Validation team assessed the tariff and found that same value was available during decision making and in conformity with Investment guideline. Furthermore, assessment team has also checked the actual tariff as per the Power purchase agreement for further substantiation as these values are available during the validation stage. IRR is still below benchmark with the consideration of PPA signed which is valid for total operational lifetime of the project.

g) Assessment of O& M cost:

O&M as per Feasibility Report

Name of the Investor/Owner/SPVs	Project Capacity (MW)	O&M (In Million)	DPR Date
Greenfield Solar Power Mission by Fortum India	250 MW	112.5	17-Apr-2018

O&M cost as per the RERC order

Name of the Investor/Owner/SPVs	Project Capacity (MW)	O&M cost as per RERC order (In Million)	RERC Order Date
Greenfield Solar Power Mission by Fortum India	250 MW	185.25	09-Oct-2017

The DPR has been used in the financial calculation as same was available during decision making and hence applicable. According to Investment guideline, the cost should be based on the input parameters available at the time of decision making and the PP has submitted DPR supporting this consideration. Therefore, considering the above assessment, validation team concluded that the O&M cost considered from respective DPR in the computation of financial indicator is in conformity with Investment guidance.

h) Assessment of Tax computation:

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

i) Cross checking parameters:

Name of the parameter	DOE assessment

Project Cost

The Project cost has been considered from DPR and was available at the time decision made for the project activity.

IRR value as per the assumptions from the Detailed Project Report is as below:

Name of the Investor/Owner/SPV	Project Capacity (MW)	Project Cost (In Million)	IRR	Benchmark	DPR Date
Greenfield Solar Power Mission by Fortum India	250 MW	10597.5	5.25%	12.97%	17-Apr-2018

The assessment team also checked the respective state tariff order and found that Project Cost considered for project is found to be appropriate.

The DOE has also checked the Project Cost according to RERC order for the project activity and found that IRR values at the RERC Project Cost are within threshold limit. Thus, the project activity is still additional with RERC Project Cost¹¹ Value.

Name of the Investor/Owner/SPV	Project Capacity (MW)	Actual Project Cost (In Million)	IRR	Benchmark	RERC Order Date
Greenfield Solar Power Mission	250 MW	8959	7.48%	12.97%	09-Oct-2017

¹¹ <http://rerc.rajasthan.gov.in/TariffOrders/Order268.pdf/>

	<table><tr><td>by Fortum India</td><td></td><td></td><td></td><td></td><td></td></tr></table>						by Fortum India											
by Fortum India																		
	Based on sectoral scope expert and local knowledge, the project cost considered as per DPR for the proposed project activity is found to be appropriate for projects. Also, since the Project Cost as per RERC order is available to DOE and IRR is still within benchmark and thus the same is acceptable.																	
O&M cost and Escalation in the operational expense =5(%)-Standard practice in India	The O&M cost and its escalation has been considered from DPR and was available at the time decision made for the project activity.																	
	IRR value as per the assumptions from the Detailed Project Report is as below:																	
	<table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>O&M (In Million)</th><th>IRR</th><th>Benchmark</th><th>DPR Date</th></tr><tr><td>Greenfield Solar Power Mission by Fortum India</td><td>250 MW</td><td>112.5</td><td>5.25%</td><td>12.97%</td><td>17-Apr-2018</td></tr></table>						Name of the Investor/Owner/SPVs	Project Capacity (MW)	O&M (In Million)	IRR	Benchmark	DPR Date	Greenfield Solar Power Mission by Fortum India	250 MW	112.5	5.25%	12.97%	17-Apr-2018
	Name of the Investor/Owner/SPVs	Project Capacity (MW)	O&M (In Million)	IRR	Benchmark	DPR Date												
	Greenfield Solar Power Mission by Fortum India	250 MW	112.5	5.25%	12.97%	17-Apr-2018												
The assessment team also checked the respective state tariff orders and found that O&M cost and its escalation considered for project is found to be appropriate.																		
The DOE has also checked the O&M cost as per the RERC order the each project activity and found that IRR values at the actual O&M value is within threshold limit. Thus, the project activity is still additional with O&M Value as per the RERC order.																		
	<table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>O&M cost as per RERC order (In Million)</th><th>IRR</th><th>Benchmark</th><th>RERC Order Date</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>						Name of the Investor/Owner/SPVs	Project Capacity (MW)	O&M cost as per RERC order (In Million)	IRR	Benchmark	RERC Order Date						
Name of the Investor/Owner/SPVs	Project Capacity (MW)	O&M cost as per RERC order (In Million)	IRR	Benchmark	RERC Order Date													

	<table><tr><td>Greenfield Solar Power Mission by Fortum India</td><td>250 MW</td><td>185.25</td><td>3.05%</td><td>12.97%</td><td>09-Oct-2017</td></tr></table> Based on sectoral scope expert and local knowledge, the project O&M cost and its escalation considered as per DPR for the proposed project activity is found to be appropriate for projects. Also since the O&M cost as per RERC order is available to DOE and IRR is still within benchmark and thus the same is acceptable.	Greenfield Solar Power Mission by Fortum India	250 MW	185.25	3.05%	12.97%	09-Oct-2017																		
Greenfield Solar Power Mission by Fortum India	250 MW	185.25	3.05%	12.97%	09-Oct-2017																				
Tariff	The Tariff rate has been considered from DPR which was available at the time decision made for the project activity IRR value as per the assumptions from the DPR is as below: <table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>Tariff Rate as per DPR</th><th>IRR</th><th>Benchmark</th><th>DPR Date</th></tr><tr><td>Greenfield Solar Power Mission by Fortum India</td><td>250 MW</td><td>2.48</td><td>5.25%</td><td>12.97%</td><td>17-Apr-2018</td></tr></table> The DOE has cross checked the Power Purchase Agreement found there are no changes in tariff rate and is within threshold limit. Thus, the project activity is additional with actual Tariff rate. <table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>Tariff Rate as per PPA</th><th>IRR</th><th>Benchmark</th><th>PPA Date</th></tr><tr><td>Greenfield Solar Power</td><td>250</td><td>2.48</td><td>5.2</td><td>12.97%</td><td>03-Jun-</td></tr></table>	Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per DPR	IRR	Benchmark	DPR Date	Greenfield Solar Power Mission by Fortum India	250 MW	2.48	5.25%	12.97%	17-Apr-2018	Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per PPA	IRR	Benchmark	PPA Date	Greenfield Solar Power	250	2.48	5.2	12.97%	03-Jun-
Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per DPR	IRR	Benchmark	DPR Date																				
Greenfield Solar Power Mission by Fortum India	250 MW	2.48	5.25%	12.97%	17-Apr-2018																				
Name of the Investor/Owner/SPVs	Project Capacity (MW)	Tariff Rate as per PPA	IRR	Benchmark	PPA Date																				
Greenfield Solar Power	250	2.48	5.2	12.97%	03-Jun-																				

	<table><tr><td>Mission by Fortum India</td><td>MW</td><td></td><td>5%</td><td></td><td>2019</td></tr></table>	Mission by Fortum India	MW		5%		2019						
Mission by Fortum India	MW		5%		2019								
	Since the Actual Tariff rate is available to DOE and IRR is still within benchmark thus the same is acceptable												
PLF	The PLF has been taken from the Detailed Project Report which included PLF estimation by 3rd party engineering company which is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team. Validation team assessed the Detailed Project Report and found that PLF estimation value as per report has been used in the financials and the emission reduction calculation. PLF estimation value has been checked and found that PLF considered for the project activity in within the range of sensitivity analysis and found to be appropriate. IRR for PLF value as per the DPR = 3rd party report, Annex 11 EB 48 <table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>PLF (%)</th><th>IRR</th><th>Benchmark</th><th>DPR Date</th></tr><tr><td>Greenfield Solar Power Mission by Fortum India</td><td>250 MW</td><td>22.0 %</td><td>5.2 5%</td><td>12.97%</td><td>17-Apr-2018</td></tr></table> As plant is not commissioned yet, the actual generation values not available, hence assessment with actual PLF not possible though sensitivity analysis carried out and it shows even if PLF increased by 10%, project is still additional. The DOE has cross checked the PLF value as per RERC order found that the PLF is within threshold limit. Thus, the project activity is additional with this PLF value.	Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchmark	DPR Date	Greenfield Solar Power Mission by Fortum India	250 MW	22.0 %	5.2 5%	12.97%	17-Apr-2018
Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchmark	DPR Date								
Greenfield Solar Power Mission by Fortum India	250 MW	22.0 %	5.2 5%	12.97%	17-Apr-2018								

	IRR against PLF value as per RERC order¹² are as follows: <table><tr><th>Name of the Investor/Owner/SPVs</th><th>Project Capacity (MW)</th><th>PLF (%)</th><th>IRR</th><th>Benchmark</th></tr><tr><td>Greenfield Solar Power Mission by Fortum India</td><td>250 MW</td><td>20.0 %</td><td>3.69 %</td><td>12.97%</td></tr></table>	Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchmark	Greenfield Solar Power Mission by Fortum India	250 MW	20.0 %	3.69 %	12.97%
Name of the Investor/Owner/SPVs	Project Capacity (MW)	PLF (%)	IRR	Benchmark							
Greenfield Solar Power Mission by Fortum India	250 MW	20.0 %	3.69 %	12.97%							
Tax Rates	<table><tr><td>Income tax rate (%)</td><td>30.00%</td></tr><tr><td>Corporate tax/MAT (%)</td><td>33.00%</td></tr><tr><td>Service Tax (%)</td><td>18.00%</td></tr></table> The above table shows the tax rate considered for individual project Owner and the same is found suitable. Assessment team noted that the project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country i.e. INDIA. Tax	Income tax rate (%)	30.00%	Corporate tax/MAT (%)	33.00%	Service Tax (%)	18.00%				
Income tax rate (%)	30.00%										
Corporate tax/MAT (%)	33.00%										
Service Tax (%)	18.00%										

¹² <http://rerc.rajasthan.gov.in/TariffOrders/Order268.pdf/>

	liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision. Hence, these assumptions are appropriate during decision making context and thus acceptable to the assessment team. NO further assessment is required as the Values are directly procured from Income Tax Act, 1961 which is standard guideline for Tax value in India.
Salvage Value	The Salvage value of 10% is considered from the DPR available at the time Investment decision. Moreover assessment team checked that 10% Salvage value is standard in the context of Infrastructure project and also in line with CERC guideline (http://www.cercind.gov.in/2019/orders/Draft%20RE%20Tariff%20Order%20for%20FY%202019-20.pdf)
Loan Amount (Interest rate/Loan Tenure/Re payment period)	Loan amount is considered from the DPR available at the time Investment decision. The same is acceptable to the assessment team. In India 12% of Interest rate is applicable as per the Banking practice for Infrastructure projects. The same is considered for the present project activity and since it is standard practice and hence it is found acceptable. The Loan tenure and repayment period of 48 Months is considered from the DPR.

Assessment team also confirmed the breaching values for individual parameters (= project owners) and thus confirms that the project is still additional

Name of the Investor/Owner/SPV	Project Capacity (MW)	Project Cost as per DPR	Project Cost as per RERC order	Variation in Project Cost	Breaching Value
Greenfield Solar Power Mission by Fortum India	250 MW	10597.5	8959	15.46%	-41.28%

Name of the Investor/Owner/SPV	Project Capacity	O&M Cost	O&M Cost as per RERC	Variation in O&M Cost	Breaching Value
--------------------------------	------------------	----------	----------------------	-----------------------	-----------------

	(MW)	as per DPR	order		
Greenfield Solar Power Mission by Fortum India	250 MW	112.5	185.25	64.67%	-283.46%

Name of the Investor/Owner/SPV	Project Capacity (MW)	Tariff Rate as per DPR	Tariff Rate from as per PPA	Variation in Tariff Rate	Breaching Value
Greenfield Solar Power Mission by Fortum India	250 MW	2.48	2.48	0%	46.29%

Name of the Investor/Owner/SPV	Project Capacity (MW)	PLF as per DPR	PLF as per RERC order	Variation in PLF	Breaching Value
Greenfield Solar Power Mission by Fortum India	250 MW	22.0%	20.0%	-9.09%	46.29%

Sensitivity Analysis

The sensitivity analysis has been conducted on items, viz., PLF, Investment cost; O&M cost, and cost of utility. In the opinion of the validation team, the components considered as subject for sensitivity analysis are complete and comply with para 20 of the Guidance on assessment of investment analysis.

A typical range of 10% has been considered for all parameters included for sensitivity. The range is reasonable and complies with the para 21 of the Guidance on assessment of investment analysis. The financial spread sheet in this regard was checked and it is confirmed that the project activity remains additional (i.e., the baseline scenario remains the most attractive under all realistic and potential variations) if any of the parameter is varied to 10% on either side. Therefore, the robustness of the financial indicator was confirmed. The result of sensitivity analysis between project and identified baseline are suitably included in the VCS PD and corresponding financial spread sheet

Sensitivity Analysis	Equity IRR			
Variation %	-10%	Normal	10%	Breaching Value

PLF	3.54%	5.25%	6.95%	46.29%
O&M	5.55%	5.25%	4.93%	-283.46%
Project Cost	6.66%	5.25%	3.98%	-41.28%
Tariff Rate	3.54%	5.25%	6.95%	46.29%

It is unlikely that the variation in the input parameters would surpass the typical range selected and therefore these were accepted. The project remains additional under the sensitivity range considered.

The project activity is clearly unattractive in absence of CDM/VCS income. Hence the project activity is additional. The successful registration of the project as CDM/VCS project is imperative in order to make it financially more attractive.

Common practice analysis

The common practice analysis is proved by following points as per the requirement of Methodological tool “Common Practice”, version 03.1 EB84, Annex 7¹³:

1. Applicable Geographical Area (Para 9): The Rajasthan state has been considered as the applicable geographical area for this project. PP had considered the state Rajasthan as geographical area due to regulatory regime since applicable power tariff structure for renewable energy projects is unique for all the states across national boundary of India; which is based on Electricity Act 2003 (EA 2003), section 82 which clearly mentions “Every State Government shall, within six months from the appointed date, by notification, constitute for the purposes of this Act, a Commission for the State to be known as the (name of the State) Electricity Regulatory Commission” Appropriateness of the same has been checked and confirmed from EA 2003 (<http://www.cercind.gov.in/08022007/Act-with-amendment.pdf/40/>).

Furthermore, following significant points on the State specific policy & regulatory framework on the renewable energy projects with special emphasis to solar power projects have been validated:

- Electricity Act 2003 (EA 2003) has changed the legal and regulatory framework for the renewable energy sector in India. The EA 2003 mandates policy formulation to promote renewable sources of energy by the federal government, the State governments and the State Electricity Regulatory Commissions (=SERCs) within their jurisdictions.
- The Electricity Act 2003 introduced some enabling provisions conducive to accelerated development of grid connected renewable energy sources. Under Section 61(h), promotion of cogeneration and generation of electricity from renewable sources of energy has been made

¹³<https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf>

the explicit responsibility of SERCs, which are bound by law to take these considerations into account while drafting their terms and conditions for tariff regulations. Nearly all SERCs have issued their tariff regulations incorporating suitable clauses, which will enable them to provide a preferential treatment to renewable energy (RE) during the tariff determination process. The SERCs determine the tariff for all renewable energy projects across the States, and the state-owned power Distribution Companies (DISCOMs) ensure grid connectivity to the renewable energy project sites.

- EA 2003 has initiated the adoption of the National Tariff Policy, 2006 as one of the key policies, National Tariff Policy (2006) framed under the Section 3 of the EA 2003. As per the excerpt from National Tariff Policy, 2006; pursuant to provisions of section 86(1)(e) of the EA 2003, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by 01/04/2006.
- As mandated under section 86(1) (e) of the Electricity Act (2003), by 26/06/2012 SERCs had fixed quotas (in terms of % of electricity being handled by the power utility) to procure power from renewable energy sources. The mandate, which is called a Renewable Purchase Specification (RPS), varies from 0.5% to 14% in various states over varying time-scales. Few states have come out with technology specific RPSs. Besides, the state regulators determine the tariff for all RE projects in the states and ensure connectivity to the grid through extension of power evacuation from the RE project sites.
- At present thirteen SERCs have declared preferential feed-in tariffs (FITs) for purchase of electricity generated from solar power projects established in respective states, which varies from state to state in India. All the SERCs have adopted a 'cost plus' methodology to fix the feed-in tariff, which varies across the states depending upon the state resources, project cost and more importantly the tariff regulations of SERCs. Solar power related tariff policies in different states also has difference in regulatory and policy incentives. Several states have implemented fiscal and financial incentives for renewable energy generation, including; energy buy back (i.e. a guarantee from an electricity company that they will buy the renewable power produced); preferential grid connection and transportation charges and electricity tax exemptions.

Therefore the investment climate for the renewable energy projects varies from State to State within India due to state specific local policy & regulatory framework as outlined by the State Electricity Regulatory Commissions of the respective state. This difference in investment condition leads to essential distinction among solar energy projects between different States of the host country India.

Thus, the specific geographical area i.e. state of Rajasthan for the common practice analysis of the proposed project activity is considered and thus the same is acceptable to the assessment team.

2. Measure (Para 10): The project activity reduces greenhouse gas emissions by generating electricity using renewable energy source- solar. Therefore, the project activity falls under the following measure:

(b) Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies.

3. Output (Para 11): The project activity produces electricity. Therefore, electricity is considered as output of the project activity.
4. Different Technologies (Para 12): The project activity uses solar energy for producing electricity and hence as per Para 12(a), the technologies which use energy source/ fuel other than solar will be considered as the different technologies for the project activity.

For the concerned project activity, Common Practice Analysis has been carried out for 40 MW Bundled Solar Project in Telangana, India which is developed by respective PP.

Stepwise approach for common practice analysis has been carried out as per Methodological tool "Common Practice", version 03.1 EB84, Annex 7:

Step (1): Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Range	Capacity	Unit
+50%	375	MW
Capacity of the proposed project activity	250	MW
-50%	125	MW

Since the project activity is 250 MW, the output range of +/- 50% has been considered as 375 MW (Higher range for comparison) to 125 MW (Lower range for Comparison) which is assessed to be correct.

Step (2): Identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

- (a) The projects are located in the applicable geographical area;
- (b) The projects apply the same measure as the proposed project activity;
- (c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;

(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;

(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;

(f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows:

a) Assessment team noted that as the projects are located in Rajasthan state of India, therefore, projects in the geographical area of Rajasthan have been chosen for analysis. Each state has different policies regarding renewable energy, hence Rajasthan state is considered as geographical region for common practise analysis. The distinction from choosing the state to entire geographical boundary is already explained above in the report and thus the applied geographical area is acceptable to the assessment team.

b) Assessment team noted that the project activity is a green-field solar power project and uses measure (b) "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies". Therefore, projects applying same measure (b) are candidates for similar projects.

c) Assessment team confirms during the site visit that the energy source used by the project activity is solar. Hence, only solar energy projects have been considered for analysis.

d) Assessment team confirms during the site visit that the project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.

e) Since the project activity is 250 MW, the output range of +/- 50% has been considered as 375 MW (Higher range for comparison) to 125 MW (Lower range for Comparison) which is assessed to be correct

f) The start date of the project activity is 01-12-2020. Therefore projects, which have started commercial operation before 01-12-2020, have been considered for analysis.

Numbers of Similar projects identified, which fulfill above-mentioned condition are

$$N_{\text{Solar}} = 1$$

S.no.	Name of the Investor/P	Project Name	State/Province	Capacity, MW	CDM Reference No./we blink
-------	------------------------	--------------	----------------	--------------	----------------------------

	roject				
1	Risisng Sun Bhadla	140 MW SOLAR PHOTOVOLTAIC PROJECT IN RAJASTHAN	Rajasthan	140	https://registry.terra.org/ app/projectDetail/VCS/17 09

Above conclusion are based on publically available data by Ministry of New & Renewable Energy, Government of India for State wise commissioning status of grid connected Solar PV Power Projects & according to the Indian Department of Energy annual report for 2019-2020 is as on 01-12-2020 and for the project activity, the start date is before 01-12-2020¹⁴ and this is a conservative approach.

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number N_{all} .

CDM project activities, which have got registered or are under validation, have been excluded in this step. The list of the power plants identified is provided to the DOE. After excluding the registered and under validation projects the total number of projects.

$N_{all} = 0$

Step (4): Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff} .

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis below criteria:

1. Investment climate on the date of the investment decision – For proposed project activity, there are no any different technology project considered out of similar identified projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating N_{diff} projects.

$N_{diff} = 0$

¹⁴<http://mnre.gov.in/file-manager/UserFiles/state-wise-commissioned-grid-connected-solar-power-projects.htm>

Step (5): Calculate factor $F = 1 - N_{diff}/N_{all}$ representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

Calculate $F = 1 - N_{diff}/N_{all}$

$$F = 1 - (0/0) = 1$$

As per methodological tool “common practise” version 03.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3.

Thus if both conditions are fulfilled, then project activity will be a common practise otherwise, the project activity is treated as not a common practise.

Outcome of Common Practise analysis:

As,

i. $F = 1$; is greater than 0.2

ii. $N_{all} - N_{diff} = 0$; is not greater than 3

The project activity does not satisfy second condition. Hence, project activity is not a common practice. The above discussions show that solar power development is not a common practice and the project activity is not financially attractive; hence the project activity is additional and the assessment team considers the approach and calculations acceptable as per the requirements in the methodological tool.

3.3.6 Quantification of GHG Emission Reductions and Removals

The quantification methods for GHG emission reductions and removals generated by the project are identified as per the steps prescribed in the applied methodology and tools, wherever relevant. The calculations are included in separate worksheet/4/. These are also included in the VCS PD/2/ along with the relevant sources. All the input values used in ex ante emission reductions have been validated from the relevant source and described under relevant parameter, wherever appropriate. The steps included in the ER sheet/4/ were reproducible and found complying the prescription of applied methodology and tool.

Baseline Emissions

The calculation of baseline emissions are conducted a separate sheet/4/ in clear manner that includes all relevant steps as specified in the applied methodology.

Baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid- connected power plants. The baseline emissions are to be calculated as follows:

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

Where:

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

$EGPJ_y$ = 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)

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

The grid emission factor is calculated as the weighted average of the operating margin (0.75) & builds margin (0.25) values. The value of combined margin is sourced from Baseline CO₂ Emission Database, Version 14 published by Central Electricity Authority (CEA), and Government of India. CEA calculates the data based on Tool to Calculate the Emission Factor for an Electricity System", Ver. 7.0. No further assessment is required for grid emission calculation as the ex-ante value is sourced directly from the Govt. of India database.

$EGPJ_y$ is calculated based on capacity (Checked from the PPA), PLF= sourced from 3rd party DPR thus fulfilling the requirement of Para 3 (b), Annex 11 EB 48 and 8760 (365*24) annual hours. Moreover as a conservative approach a degradation factor of 0.5% per year (Sourced from RERC order/DPR report) is considered from second year onwards. The estimation is thus considered appropriate. Moreover, $EGPJ_y$ is a monitoring parameter and the actual value will be obtained during the verification of the project activity.

Emission factor (EF_y):

$EF_y = EF_{grid,CM,y} = 0.9368 \text{ t CO}_2/\text{MWh}$. This value is fixed ex-ante for the crediting period.

$$BE_y = 440514.42 \times 0.9368 = 412,674 \text{ tCO}_2$$

Project Emissions

As per the approved consolidated ACM0002 version 19.0: "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 power plants in year y (t CO₂e/yr)

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

The detail is as follows:

$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO₂/yr) = The project utilizes renewable fuel and thus there is no Consumption of fossil fuel envisaged for the project activity. Thus the parameter is considered zero for project emission calculation.

$PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO₂e/yr) = This parameter is not applicable as the proposed project is Solar power project and hence considered zero for project emission calculation.

$PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO₂e/yr) = This parameter is not applicable as the proposed project is Solar power project and hence considered zero for project emission calculation.

As the project activity is the installation of a new grid-connected Solar PV 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

As per the requirement of Methodology ACM 0002 version 19, Leakage emission is considered as zero.

Net Emission reduction:

Reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER _y	=	Emission reductions in year y (t CO ₂ e/yr)
BE _y	=	Baseline emissions in year y (t CO ₂ /yr)
PE _y	=	Project emissions in year y (t CO ₂ e/yr)

Therefore, Net GHG Emission Reductions and Removals are calculated as follows:

$ER_y = BE_y - PE_y$. The VCS PD includes all the parameters that are applied in the estimation of emission reductions.

There are no uncertainties associated with the calculation of emissions.

All estimates of the emission reductions can be replicated using the data and parameter values provided in the project description and complying with the provisions of the applied methodology.

The methodology and any referenced tools have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals. The entire emission reduction calculations have been done in separate worksheet that was reviewed by the validation team and found meeting the requirements.

3.3.7 Methodology Deviations

No methodology deviations identified for the proposed project activity.

3.3.8 Monitoring Plan

The parameters to be monitored are complete with respect to applied methodology and applied tools in the context of project design. These were found adequate, appropriate and consistent with methodology applied.

Parameters to be monitored	Assessment
EG _{facility,y} Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid during the year y.	As per the VCS PD Version 02, Joint Meter Reading statement provided by Rajasthan Rajya Vidyut Prasaran Nigam Ltd every month will be the source of data during verification. The DOE will use the same source for verification of emission reductions. Electricity exported and imported to the grid is in kWh.

	However, for the calculation purpose electricity exported and imported is converted in MWh. The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid and electricity imported from the grid obtained from Monthly Meter reading reports provided by Rajasthan Rajya Vidyut Prasaran Nigam as per below equation: $EG_{PJ,y} = EG_{Export} - EG_{Import}$ The export and import value calculation is done by Rajasthan Rajya Vidyut Prasaran Nigam and PP has no role to play in it. Assessment team also noted that in the event of failure of main meter, the check meter will be used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other solar farm projects. The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity. The Value of export and import can be cross checked from the record of Sale of electricity i.e. Invoices raised. The same is in line with the approved methodology and hence acceptable to the assessment team. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration will be done once in a 5 year¹⁵ for all the project activity. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly O&M contractor is responsible for monitoring of the generation data at CMS.
--	--

The monitoring plan as included in the VCS PD covers all the relevant monitoring parameter as required in the context of the project activity and as prescribed in the applied methodology/^{3/} and tools. The monitoring systems and responsibilities are clearly defined in the VCS PD/^{2/} and it gives impression to the validation team that the monitoring plan is feasible and implementable in the context of the project design. The monitoring parameters meet the minimum requirement of the applied methodology/tools in terms of measurement method, frequency and associated quality checks/ cross checks/^{3/}. The procedures for internal auditing and QA/QC are separately defined for each parameter, wherever applicable/^{2/}.

¹⁵http://powermin.nic.in/whats_new/pdf/Metering_Regulations.pdf, page 12

The monitoring plan has not applied sampling on any parameter and all of these are directly monitored or estimated based on monitoring methodology prescribed in applied methodology and tools, as appropriate^{2/}. The organizational structure, responsibilities and competencies of the personnel that will be carrying out monitoring activities are adequately defined in the VCS PD^{2/} including the policies for oversight and accountability of monitoring activities. Relevant internal procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation).

Assessment team also checked the requirement of the VCS standard version 04 requirements for monitoring. The organizational chart as presented in section 5.3 of the monitoring report is appropriate. During the onsite visit and interview with the PP the chart is found correct and acceptable. Regarding Data measurement, collection and archiving is well documented in the MR. During the onsite visit it was observed that data measurement procedure as mentioned above in the text is correct. The data is measured and collected from the energy meters (main and check) in the presence of the State authority and representative of PP during every billing cycle of the monitoring period. The reading is basically noted from the main meter however in case of malfunctions of the main meter, the reading from the check meter is considered final. In case of billing cycle and monitoring period cycle does not match, then daily generation data will be used to determine net electricity export for particular period. In case of Data Archiving It has been included in the VCS PD^{2/} that all monitored data required for verification and issuance will be kept for two years after the end of the crediting period or the last issuance of VCU, for this project activity, whichever occurs later.

The QA/QC procedure as observed during the onsite visit that the maintenance and operation of the energy meters is under the control of the State electricity board authority. Project participant has no role or have no right over the energy meters. Only in presence of State electricity Authority the meter can be open by breaking the seal in case of any malfunctioning. The Seal is put by the State electricity board authority at the end of every billing cycle. The Net electricity as recorded in the JMR sheet can be cross checked from the invoice raised and the same is in line with the applied Methodology.

The Internal audit frequency as mentioned by the project participant is annual. The Internal audit will range from the document verification to technical specification of the equipment installed. The Internal audit will also check QA/QC procedure as laid out above in this report. The Internal audit will also check the statutory clearances obtained and there renewal procedure (if any) relevant to the project. In case of any non-conformity is observed in the proposed monitoring plan, then the same shall be reported to the VCS board at the time of the VCS verification along with the corrective actions taken by the PP.

Assessment team also checked the emergency procedure adopted for the project activity during the onsite visit and interview with the PP. As detailed out previously in the report the data is measured and collected from the energy meters (main and check) in the presence of the State authority and representative of PP during every billing cycle of the monitoring period. The

reading is basically noted from the main meter however in case of malfunctions of the main meter, the reading from the check meter is considered final. In case of Malfunctioning of both the meter (this is a rare scenario) both the meters will be calibrated immediately and the error percentage found in the main meter during its calibration will be applied to its metered energy data for the entire period since its last calibration to obtain the corrected value of net electricity exported to the grid. In case the dates of a particular monitoring period will not match with the dates of the billing cycle, the net electricity exported to the grid will be calculated from:

- Data collected by Fortum Solar plus Private limited from energy meters installed at the plant end and recorded daily in the plant log books.
- Apportioning the net electricity exported to grid, as recorded in the Monthly Generation Record/Joint Meter Reading statement, based on the number of days in the monitoring period and the number of days for which Monthly Generation Record/Joint Meter Reading report was taken.

Calculation of net electricity exported to the grid is calculated by both the approaches and conservative value among the two is used for calculation of emission reductions during that period.

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff (CDM/VCS team) will be trained. The plant helpers will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan which is checked and found correct during the onsite visit and from the interview with the PP.

3.4 Non-Permanence Risk Analysis

This is not applicable for the proposed VCS project as it is Non AFOLU project.

4 VALIDATION CONCLUSION

Earthood Services Private Limited (hereafter referred to as ESPL) has been contracted by Fortum Solar Plus Private Limited (Project Proponent) to conduct the validation of the project - "Greenfield Solar Power Mission by Fortum India", with regard to the relevant requirements of VCS programme guidelines and standard (VCS standard version 04, & VCS program guide version 04). Relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting has been applied for validation.

The main purpose of this project activity is to generate clean form of electricity through renewable solar energy source. Fortum Solar Plus Private Limited is the promoter of the project activity. The project activity involves installation of 250 MW solar power project.

As a result of validation 07 Corrective Action Requests (CARs), 00 Clarification Requests (CLs) and 01 FAR were raised during the validation process.

The review of the VCS PD, corresponding annexures (ER and Financial Spread sheet) and additional documents related to baseline and monitoring methodology and subsequent background investigation have provided Earthood Services Private Limited (VVB) with sufficient evidence to validate the fulfilment of the stated criteria.

The validation conclusions can be summarised as under:

- A reasonable level of assurance was applied;
- All data and information used for ex-ante calculation of emission meets the methodology requirements;
- The project is in line with all relevant host country legislation;
- The project additionality is adequately justified in the VCS-PD;
- The monitoring plan is feasible, transparent and adequate;
- No deviations from the selected methodology/tool were applicable/applied;

The project will replace average anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 412,674 tCO₂e per year. The total GHG emission reductions for the chosen 10 year crediting period will be 4,539,413 tonnes of CO₂e.

The conclusions of this report demonstrate that the proposed VCS project, as described in the VCS PD, conforms to all applicable validation criteria.

Approved by



Dr. Kaviraj Singh

Managing Director

Earthood Services Privated Limited

Date: 27/05/2020

Place: Gurugram, Haryana

APPENDIX 1: DOCUMENT REFERENCES

S. No.	Type of document/reference/evidence	Version	Date/No.
1.	VCS PD (draft)	01	03/12/2019
2.	VCS PD (final/revised)	02	19/12/2019
3.	ACM 0002 version 19	19	NA
4.	ER Spread sheet (revised/final)	01	19/12/2019
5.	Financial spread sheet (revised/final)	01	19/12/2019
6.	DPR (=Detail Project report) of the project activity	-	17/04/2018
7.	Commissioning schedule for project activity	-	NA
8.	Power purchase agreement signed between PP and State electricity Board	-	03/06/2019
9.	Declaration for Double counting avoidance	-	19/12/2019
10.	REC India https://recregistryindia.nic.in/index.php/publics/index	-	NA
11.	Onsite visit & interview with PP dated	-	13/12/2019
12.	CEA database	-	Dec 2018
13.	Meeting Minutes - Local Stakeholder Consultation	-	05/09/2019
14.	Attendance Record - Local Stakeholder Consultation	-	05/09/2019
15.	VCS Project database https://www.vcsprojectdatabase.org/#/pipeline_details/PL1991	-	Last accessed on 16/12/2019
16.	Tool for the demonstration and assessment of additionality	07	23/11/2012
17.	Board Meeting Extracts	-	06/05/2019
18.	RERC for actual project cost	-	24/11/2018
19.	MoEFCC Office Memorandum F. No. 22-24/2018-IA.III		23/01/2019
20.	CEA Database: CO2 Baseline Database Version 14	-	12/2018

S. No.	Type of document/reference/evidence	Version	Date/No.
21.	Tool to calculate the emission factor for an electricity system	07	-
22.	IPCC Default Values	-	2006
23.	CDM PS for PAs	02.0	29/11/2018
24.	CDM VVS for PAs	02.0	29/11/2018
25.	VCS Standard	04	21/06/2017
26.	VCS validation report template	3.4	latest
27.	VCS Program Guide	04	21/06/2017
28.	VCS Program Definitions	3.5	21/06/2017
29.	VCS PD Template	3.3	latest
30.	Start date of the project activity	-	01/12/2020
31.	“Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE (The Ministry of New and Renewable Energy) dated September 2013	-	September 2013

APPENDIX 02: ABBREVIATIONS

Abbreviations	Full text
BM	Build Margin
CAR	Corrective action request
CDM	Clean development mechanism
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CL	Clarification request
CM	Combined Margin
CMP	Conference of Parties serving as the Meeting of Parties
CO ₂	Carbone Dioxide
CO ₂ e	Carbone Dioxide equivalent
COP/MOP	Conference of Parties/Minutes of Parties

Abbreviations	Full text
CP	Conference of Parties
DNA	Designated national authority
DOE	Designated operational entity
DPR	Detail Project Report
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward action request
GHG	Greenhouse gas(es)
HCA	Host Country Approval
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
ISHC	International Stake-Holder Consultation
KW	Kilo Watt
KWh	Kilo Watt Hour
LSC	Local Stakeholder Consultation
MAT	Minimum Alternate Tax
MNRE	Ministry of New and Renewable Energy
MoEFCC	The Ministry of Environment, Forests & Climate Change
MP	Monitoring Plan
OM	Operating Margin
Para	Paragraph
PD	Project Description
PLF	Plant Load Factor
PO	Purchase Order
PP	Project Proponent
QA/QC	Quality Assurance/Quality Control
RBI	Reserve Bank of India
RERC	Rajasthan State electricity regulatory commission

Abbreviations	Full text
TA	Technical Area
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association

APPENDIX 03: COMPETENCY STATEMENT

Competence Statement			
Name	Sukanta Das		
Education	M.Sc. (Electronics and Photonics) M. tech (Energy technology)		
Experience	10 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	NO		
Local expert	YES		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert	YES (1.2)		
Reviewed by	Shreya Garg	Date	05/11/2019
Approved by	Anshika Gupta	Date	05/11/2019

Competence Statement	
Name	Ashok Gautam
Country	India

Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0009		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Kaviraj Singh	Date	01/03/2018

Competence Statement	
Name	Shreya Garg
Country	India
Education	M.Sc. (Climate Science & Policy), TERI University
Experience	6 Years +
Field	Climate Change
Approved Roles	

Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.2, TA 3.1)		
Reviewed by	Abhishek Mahawar	Date	01/03/2018
Approved by	Ashok Gautam	Date	01/03/2018

APPENDIX 04: FINDINGS OVERVIEW

~~Table 1 Remaining FAR from validation and/or previous verification~~

FAR ID	01	Section no.	E.2	Date : 06/12/2019
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

CL ID	00	Section no.	E.2	Date : 06/12/2019
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 3 CAR from this Validation

CAR ID	01	Section no.	1	Date : 13/12/2019
Description of CL				
During the document review it was observed that following details are missing in section 1 of the VCS PD 1. A summary description in section 1.8 of the technologies/measures for individual Solar Panel (e.g., plant, equipment, process, or management or conservation measure) is not included in the project and moreover, Supporting for technical measures is also not submitted to DOE. 2. The latitude and longitude supportings in section 1.9 is not provided to the assessment team. 3. The compliance of section 1.11 is not as VCS PD template. The supporting is missing. Corrective action is required 4. The compliance of section 1.12.1 is not as per the VCS PD template. The supporting are missing. Corrective action is required 5. During the desk review it was observed that PP should also produce documentary evidence that it has not participated in any other form of GHG emission/rejected (section 1.12.3/1.12.4/1.12.5) by any other form of GHG program at the time of VCS validation. Corrective action is sought for the same and documents are required to be submitted for further analysis Corrective action is sought for the same.				
Project participant response				Date : 19/12/2019
1. Since the final Purchase order copies is to be released very soon, a summary of equipments estimated used for this project activity is being updated in the VCS PD V2. 2. Latitude and Longitude is being mentioned in the VCS PD V2. 3. The compliance of section 1.11 is being included in VCS PD V2. Supporting documents justifying the section 1.11 is being provided. 4. The PPA is in the name of SPV and the Purchase order would be released by the Project Proponent. 5. Declaration of PP regarding non participation in any other form of GHG program has been submitted.				
Documentation provided by project participant				
VCS PD V2, PPA, location Kml file and Declaration				

DOE assessment	Date: 23/12/2019
Following are the observation of the DOE: 1. Summary description of Technical information of the project is mentioned and the same is sourced from Commissioning Certificate. CAR is thus closed 2. Latitude and Longitudes is now corrected. CAR is thus closed 3. Section 1.11 of the VCS PD is now revised. CAR is thus closed 4. Section 1.12 of the VCS PD is now revised. CAR is thus closed 5. The appropriate declaration is now submitted to the assessment team. CAR is closed.	

CAR ID	02	Section no.	2.5	Date : 13/12/2019
Description of CAR				
During the desk review of the PDD and onsite visit document verifications, ESPL team observed following inconsistency in the additionality determination : 1. Following documents are missing and thus the IRR calculation is reserved: a. PLF reports b. Benchmark is not conservative. Please check. c. Board decision d. Is the Company eligible for MAT? Documents missing. e. All the input value (e.g. Offer letters, DPR (if any), Loan sanction if any, Insurance etc.) 2. IRR calculation is reserved as no IRR sheets are provided 3. The supporting documents for the Common practice analysis are not submitted to the DOE. Common practice analysis is thus reserved till the submission of the same. Corrective action is sought for the same.				
Project participant response				Date : 19/12/2019
1. The asked documents in support of IRR calculation is being submitted - a). PLF assessment is mentioned in the DPR. - b). Benchmark has been updated. - c). Board resolution copies are now being submitted. - d). The Project SPV is eligible for the corporate tax; the same has now been consistently mentioned over the IRR and PD V2. - e). The supporting documents used for the input assumption is being provided 2. Updated IRR sheet is being submitted. 3. Supporting for CPA is being submitted				
Documentation provided by project participant				
<i>DPR, BR copy, IRR Sheet, CPA documents/web-links</i>				
DOE assessment				Date: 23/12/2019
All the input assumptions supporting documents are now submitted to the assessment team. The same is checked and assessment team confirm that IRR calculation is correct and conservative. The entire supporting document for Common practice analysis is also checked and found correct by the				

assessment team. CAR is thus closed.

CAR ID	03	Section no.	3	Date : 13/12/2019
Description of CAR				
Assessment team found during desk review is that emission reduction sheet is provided for the project activity. However, de-ration rate is not considered for estimation which is not correct. Corrective action is requested for the same.				
Project participant response				Date : 19/12/2019
Deration rate is now being considered and the supporting is being provided.				
Documentation provided by project participant				
<i>RERC order</i>				
DOE assessment				Date: 23/12/2019
The estimated emission reduction sheet is checked and found correct by the assessment team. CAR is thus closed.				

CAR ID	04	Section no.	4	Date : 13/12/2019
Description of CAR				
As per the monitoring practice the primary source of data for the parameter $EG_{facility,y}$ is Credit note/ JMR/Form B reports/ monthly generation report from respective state electricity board /DISCOM. The project is located in the state of Rajasthan than how come respective state board appears. Moreover, form B is the name considered in the state of Karnataka and not Rajasthan. Also the section " <i>Description of measurement methods and procedures applied</i> " is not correct. Corrective action is sought for the same.				
Project participant response				Date : 19/12/2019
As per the monitoring practice the primary source of data for the parameter $EG_{facility,y}$ is the JMR. The above observed point has been corrected in the VCS PD V2				
Documentation provided by project participant				
<i>VCS PD V2</i>				
DOE assessment				Date: 23/12/2019
The source of data for the parameter is now corrected. Section of <i>Description of measurement methods and procedures applied is now corrected</i> . CAR is closed.				

CAR ID	05	Section no.	5.1	Date : 13/12/2019
Description of CAR				

During the document review it is observed that “No net Harm” details is provided in the VCS PD. However, supporting documents is not shared with DOE. Corrective action is sought in this regard in the respective section of the VCS PD V2	
Project participant response	Date : 19/12/2019
Supportive document for “No net Harm” is being provided with this submission.	
Documentation provided by project participant	
<i>MNRE Report</i>	
DOE assessment	Date: 23/12/2019
The detail of No Net Harm assessment is now included in the revised VCS PD version 02. CAR is thus closed.	

CAR ID	06	Section no.	5.3	Date : 13/12/2019
Description of CAR				
During the desk review related to stakeholder consultation following observation is made by the APPLUS project team:				
1. The stakeholder documentation (Attendance sheet, MoM, Feedback summary) is not provided to the DOE 2. The site photograph of LSHC meeting is not provided to the DOE.				
Corrective action is this sought for the same.				
Project participant response				Date : 19/12/2019
1. Attendance sheet, MoM, Notice and feedback summary has been attached with this submission. 2. Site photographs of LSHC meeting has now being submitted.				
Documentation provided by project participant				
1. Attendance sheet, MoM, Notice and feedback summary 2. LSHM meeting photographs				
DOE assessment				Date: 23/12/2019
The LSC details are now included in the revised VCS PD version 02. The supporting documents like MoM, Attendance sheet is now submitted to the assessment team and found correct. CAR is thus closed.				

CAR ID	07	Section no.	5.4	Date : 13/12/2019
Description of CAR				
In section 5.4 of the Project a link is provided for GSC comments. The DOE name appears to be LGAI Technological Center, S.A. (Applus+). Kindly please take corrective action.				
Project participant response				Date : 19/12/2019

The link for GSC comments has been updated in this submission. Also, We have informed the APX team regarding correction of the DOE name and the correct name would be reflected there very soon

Documentation provided by project participant

NA

DOE assessment

Date: 23/12/2019

As per the discussion with PP, the error is now informed to APX team dated 23/12/2019 and the correction will be reflected soon. CAR is thus closed.

Table 4 FAR from this validation

FAR ID	01	Section no.	1.8	Date : 13/12/2019
Description of CAR				
During the onsite visit it is observed that the project is yet not commissioned and EPC contract for the same is also not signed. The technical specification as mentioned in the DPR is available at this stage of Validation and hence the actual technical specification (including the module configuration and rated capacity) needed to be verified during the Verification of this project activity.				
Project participant response				Date :
Documentation provided by project participant				
DOE assessment				Date: