

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)
REPORT
-
DESIGN CERTIFICATION (VALIDATION)**



Project Title: 10 MW Solar Photovoltaic Power Plant in Rajkot, Gujarat
(India)
GS project ID: GS7792
Internal ID: 7720
Customer: Green Infra Solar Energy Limited.
Date: 17/11/2022
Revision: 02.1

SUMMARY			
Reference No.	Date (first version)	Version No.	Date (last version)
A+SH_SYST_TQC_GS_VAL_VER_7720	26/10/2021	02.1	17/11/2022
Client	Green Infra Solar Energy Limited.		
Project Title	10 MW Solar Photovoltaic Power Plant in Rajkot, Gujarat (India)		
Project Participants	Green Infra Solar Energy Limited.		
Project Location	Rajkot District, Gujarat State of India		
Contact Person	Mr. Mayank Tyagi		
GS Version: GS4GG Principles and Requirements - Version 1.2 GS4GG Activity Requirements: RE Activity Requirements - Version 1.4 Applied Methodology Version: AMS-I.D.: Grid connected renewable electricity generation - Version 18 Current Methodology Version: AMS-I.D.: Grid connected renewable electricity generation - Version 18		GS4GG Sectoral Scope: 2 UNFCCC CDM Sectoral Scope: 1 Technical Area: 1.2	
First PDD Version: 01 Date: 20/01/2020		Final PDD Version: 021 Date: 17/11/2022	
Estimated Annual Average SDG Impact:			
Sustainable Development Goals	SDG Impact	Estimated Annual Average	
13 Climate Action	GHG Emission Reduction	16,379 tCO ₂ e	
7 Affordable and Clean Energy	Clean Electricity supplied to grid	17,526 MWh	
8 Decent Work and Economic Growth	employments created	10 employments	
	Trainings conducted	01 Training	
Selected Sustainable Development Goals (SDGs): 7; 8; 13			
Design Certification Summary			
<p>LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Green Infra Solar Energy Limited. to perform the GS CER validation of "10 MW Solar Photovoltaic Power Plant in Rajkot, Gujarat (India)" applying the methodology AMS-I.D. Version 18.0.</p> <p>The management of Green Infra Solar Energy Limited. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.</p> <p>A desk review and a remote audit have been conducted to verify the data submitted in the GS4GG PDD. Applus+ Certification confirms the following have been reviewed:</p> <ol style="list-style-type: none"> The GS4GG PDD; The applied monitoring methodology; Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board; GS4GG guidelines & Requirements. All information and references relevant to the project activity's resulting in estimated emission reductions. 			

The scope of the validation is defined as an independent and objective review of the project design document, against the Kyoto Protocol requirements, UNFCCC rules, applicable CDM requirements and requirement of Gold Standard. The validation report is finalized based on the assessment of the Gold Standard GS4GG PDD and applying standard auditing techniques including but not limited to document reviews, follow up actions (e.g., remote audit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.

The report and the annexed validation checklist describe a total of 10 findings which include:

- 05 Corrective Action Requests (CARs) & 5 FARs raised by Sustain cert during Preliminary review;
- 00 Clarification Requests (CLs/CRs);
- 00 Forward Action Requests (FARs).

The PP has responded these findings by modifying the Gold Standard PDD and providing adequate additional explanations and evidence. Applus+ Certification confirms that all the findings have been “closed out” before submitting the request for registration to GS board.

As a summary of the validation, the review of the Gold Standard GS4GG PDD and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence for the determination of the project’s fulfillment with all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and requirement of Gold Standard. Therefore, Applus+ Certification recommends the project for registration by the GS Registry as GS CERS project.

ASSESSMENT TEAM		
Team Members	Type of Resource ¹	Organization (for OEs)
Lead Auditor: Mr. Atul Takarkhede	<input type="checkbox"/> IR <input type="checkbox"/> EI <input checked="" type="checkbox"/> OE	M/s True Quality Certifications Private Limited
Auditor: NA	<input type="checkbox"/> IR <input type="checkbox"/> EI <input type="checkbox"/> OE	NA
Technical Expert: Mr. Atul Takarkhede	<input type="checkbox"/> IR <input type="checkbox"/> EI <input checked="" type="checkbox"/> OE	M/s True Quality Certifications Private Limited
Technical Reviewer: Mr. Simon Shen	<input type="checkbox"/> IR <input checked="" type="checkbox"/> EI <input type="checkbox"/> OE	-

¹ IR (Internal Resource); EI (External Individual); OE (Outsourced Entity)

ABBREVIATIONS	
AMS	Approved Methodology Small Scale
Applus+ LGAI / Applus+	LGAI Technological Center, S.A. (Applus+ Certification)
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CL / CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CTE	Consent to Establish
CTO	Consent to Operate
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG (or GS)	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non-Governmental Organization
OM	Operational Margin
PP	Project Participant
PS	Project Standard
PV	Photovoltaic
SDG	Sustainable Development Goal
TAC	Gold Standard Technical Advisory Committee
UNFCCC	United Nations Framework Convention for Climate Change
VVB	Validation and Verification Body
VVS	CDM validation and verification standard for project activities, Version 03.0

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Appendix:

Appendix 1: Corrective Action Request / Clarification Request / Forward Action Request resolution table.

Appendix 2: Audit Team CVs.

1. INTRODUCTION

Green Infra Solar Energy Limited has commissioned Applus+ Certifications to perform a validation of "10 MW Solar Photovoltaic Power Plant in Rajkot, Gujarat (India)" (hereafter referred to as the project activity) in the Village Meravadar, Rajkot District, Gujarat State of India. This validation report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board as well as requirement of Gold Standard GS4GG guideline.

The main purpose of the project activity is to generate electrical energy through sustainable means using solar PV power resources, the generated green electricity will contribute to climate change mitigation efforts. This project activity is a Small-scale Solar PV power project.

Green Infra Solar Energy Limited. is setting up solar PV power project at Village Meravadar, Taluka Upleta, Rajkot District, Gujarat State of India with total capacity of 10 MW successfully commissioned on 11/11/2011. The purpose of the project activity is to generate electrical power through operation of solar PV power plant.

The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 16,379 tCO_{2e} per annum, thereon displacing 17,526 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian electricity grid, which is mainly dominated by thermal/ fossil fuel-based power plant.

The project activity is the installation of a new grid-connected renewable power plant/unit, and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

Geo Coordinates of project activity is 21° 44' 11.16" N latitude and 70° 7' 11.19" E longitude and situated at an altitude of about 48 m above mean sea level.

1.1 Objective

The purpose of a validation is to have an independent third-party assessment of the GS4GG PDD and compliance with the GS requirements as described in the Gold Standard documentation and supporting documents by the client. Validation is part of the GS CER project cycle and will finally result in a conclusion by Applus+ Certifications whether a project activity is valid and should be submitted for registration of a proposed project activity rests at the GS and the Parties involved.

1.2 Scope

The validation scope is defined as an independent and objective review of the project PDD, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against all applicable CDM and GS requirements including the approved baseline and monitoring methodology AMS-I.D. Version 18.0. The validation was based on the requirements in the CDM validation and verification standard for project activities, Version 03.0 for the project activity and Gold Standard GS4GG requirement.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the PDD.

2. METHODOLOGY

The project assessment is based on the CDM validation and verification standard for project activities, Version 03.0 for the project activity, Gold Standard requirement for GS4GG and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the project activity are appointed. Once the project is made available for Applus+ LGAI, the members of the assessment team carried out:

1. A desk review of the GS4GG PDD;
2. Follow-up interviews with project stakeholders;
3. The resolution of outstanding issues and the issuance of the final validation report and opinion.

The prepared validation report and other supporting documents then undergo an internal quality control before being submitted to the GS Registry.

The GS overview documents which is referred as DVR is as below

Validation Checklist Table 3: Resolution of Audit Findings				
Type:	<input type="checkbox"/> CAR	<input type="checkbox"/> CL/CR	<input type="checkbox"/> FAR	Number:
Raised by:		Ref. to checklist in table 1&2:		
Description of the audit finding			Date:	
The description of the audit finding should be clearly included here.				
Project Participant's response			Date:	
The responses given by the project participants during the communications with the validation team should be included here.				
Documentation provided as evidence by Project Participant				
The evidences provided by the project participants should be included here.				
Auditor's assessment comment			Date:	
This section should include how the audit finding is assessed by the assessment team.				

The Complete List of CAR/CL/FAR is included as Appendix 1 of this report

2.1 Appointment of the assessment team

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

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

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

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

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

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Atul Takarkhede	LA/TE	YES	YES	YES	YES
Mr. Simon Shen	TR	YES	YES	YES	NA

The complete list of CVs is included as Appendix 2 of this report.

2.2 Document review

The Gold Standard PDD submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in Reference 4 to this report.

2.3 Follow up Interviews

Interviewed Personnel	Functions	Organization
Mr. Mayank Tyagi	PP Representative	Sembcorp Limited
Mr. Hitesh Shial	Site Incharge	Sembcorp Limited
Vinit Patel	Villager	NA
Shyam lal Makwana	Villager	NA
Prakash Modi	Villager	NA

The details activity done during the remote visit is as below:

No physical verification was conducted by the DOE for this GS validation due to high threat of COVID-19 in entire country of India, traveling restrictions, Applus+ internal safety policies and the safeguarding of the involved persons' health. Government of India has ordered nationwide lockdown from 25/03/2020². Latter during second wave of pandemic, it was further imposed by various state governments state-wise lockdown and quarantine rules.

² https://www.mha.gov.in/sites/default/files/MHADOLrDt_3052020.pdf

Hence, in line with the guidance to relax mandatory site visits by DOEs due to COVID 19 pandemic published by UNFCCC, DOE has taken alternative measures to arrive at conservative estimation of emission reductions achieved, applying standard auditing techniques for verification, as referred in section 9.1.3 of the "CDM validation and verification standard for project activities, Version 03". Moreover, as verified from the ERPA provided by PP, PP has commitment of supplying of CERs/GS CERS to buyer by September 2021. So, the site visit cannot be postponed to a later date. Thus, as per guidance to relax mandatory site visits by DOEs due to COVID 19 pandemic, assessment team have conducted remote audit and used standard auditing techniques to verify information and compliance with applicable requirements to the extent possible, to ensure the completeness and credibility of the audit. The remote audit was conducted through Skype and audit was attended by Site In-charge the site as well as consultant. Details of attendees are given below in section D.3. The topics discussed during the remote audit are given in below table;

Duration of Remote Audit: 06/07/2021 (through Video Conference Call)				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment team checked the implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and Monitoring. Assessment team interviewed the local stakeholder and confirmed that there is no grievance resulted from the project activity in and out of the project location. The stakeholder confirmed that the project resulted in employment and improves lifestyles of the personal/families in the nearby villages. (Discussion with Stakeholder)	Village Meravadar, Rajkot District, Gujarat, India	06/07/2021	Mr. Atul Takarkhede

The objective of the remote audit is to:

- Confirm the implementation and operation of the project;
- Review the data flow for generating, aggregating and reporting the monitoring parameters;
- Confirm the correct implementation of procedures for operations and data collection inline with the PDD;
- Cross-check the information provided in the PDD documentation with other sources;
- Check the monitoring equipment against the host country requirements & information in the PDD and the approved methodology, including calibrations, maintenance, etc.;
- Review the calculations and assumptions used to obtain the GHG data and ER;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.
- Monitoring procedures for the SDG goals/ Sustainable monitoring parameter followed at onsite

- To understand LSC and grievance mechanism from review of documents and interaction with the villagers.
- Local stakeholder interviews.

To verify the implementation of project activity, onsite operation & maintenance, monitoring & management practices; assessment team has conducted Skype video call/telephonic interviews with the onsite in-charge and also had a detail discussion with the PP representative and reviewed third party statutory documents i.e. Commissioning certificates, Power Purchase Agreement, sample JMRs & Invoice, employment & training records, Salary records, CSR records, breakdown log, O&M schedule, complaint/feedback register, IUCN Red list and other relevant records.

After telephonic/Skype interviews with concerned onsite persons, document reviews & site videos/photographs submitted by PP; assessment team concluded that the project activity is still implemented and operated in-line with the PDD. The project design & operation and monitoring practices at site are inline with the submitted PDD and monitoring methodology. In addition to the interviews with PP, assessment team have checked the commissioning certificate, PPA and JMRs and found that the project activity is implemented as per the PDD. Assessment team therefore of the opinion that project is implemented as described in the PDD and there is no change in monitoring practices as well as all monitoring parameters as envisaged in the PDD. All the monitored values are supported by the evidence and found that information provided in the PDD is in line with the submitted evidence.

The Grievance mechanism and procedure adopted have been confirmed and assessed to be appropriate. The grievance register is maintained at the project site office which looks after the day-to-day operation and maintenance of the project.

No grievance was observed during the discussions carried out as part of the remote audit.

Interview summary of some of the questions asked to the local stakeholder is also given below:

Name of the stakeholder	Vinit Patel
Occupation	Villager
<p>DOE QUESTION: Did PP promised employment opportunity?</p> <p>Answer: Yes, PP have employed locals in some technical work as well as unskilled men & women in non-technical work.</p> <p>DOE QUESTION: Did any improvements happened in the area due to Solar PV based projects?</p> <p>Answer: Yes, some roads are constructed in the area due to Solar PV based projects and thus helped to the locals.</p> <p>DOE QUESTION: Any pollution due to solar PV power plant/ Did company discards waste outside plant?</p> <p>Answer: No pollution due to Solar PV based plant and no any waste material thrown outside plant.</p> <p>DOE interviewed stakeholder on CSR activities by company, employment for locals including men & women, grievance filing & redressal mechanism of company & other SDG parameters. Assessment team verified grievance register, HSE records submitted and confirmed that no Hazardous waste/waste oil generated, disposed, any spillages and Leakage of any diesel or waste oil during the monitoring period.</p>	

Name of the stakeholder	Prakash Modi
Occupation	Villager
<p>DOE questions: Did the power plant discharge any harmful pollutants? Answer: NO the plant does not discharge any harmful pollutants.</p> <p>DOE questions: Did PP conducts social (CSR) activities in nearby area? Answer: Yes. PP have done some CSR activities in village school & nearby villages</p> <p>DOE thus conclude that stakeholders are happy with the implementation of the project activity.</p>	

Name of the stakeholder	Shyam Lal Makwana
Occupation	Villager
<p>DOE questions: Did the power plant discharge any harmful pollutants? Answer: NO, the plant does not discharge any harmful pollutants.</p> <p>DOE thus conclude that stakeholders are happy with the implementation of the project activity.</p>	

2.4 Resolution of Clarification and Corrective Action requests

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which needs to be clarified for Applus+ Certification positive conclusion on the PDD. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the validation process, the concerns raised, and responses given are summarized in Appendix 1 below.

The Gold Standard GS4GG PDD version 02.1 submitted on 17/11/2022 serves as the basis for the final assessment presented.

2.5 Internal Quality Control

As final step of a validation the final documentation including the validation report and the protocol have to undergo an internal quality control by the technical review committee. Each report has to be finally approved either by the head of technical review committee or the deputy. In case one of these two persons is part of the audit team, approval can only be given by the other one.

After confirmation of the PP the validation opinion and relevant documents are submitted to the GS Registry.

3. PROJECT DESIGN CERTIFICATION ASSESSMENT

3.1 Approval

This section is not applicable as this is a GS CER project.

3.2 Participation

The project participants are Green Infra Solar Energy Limited. as the project proponent from the host party India. The host country involved is parties to the Kyoto Protocol and meet and requirements to participate in the Gold Standard.

3.3 Scale of the project

The project activity is identified as a Small-scale project in section A.4 applying a Small-scale methodology AMS-I.D. Version 18.0. The total capacity of the power project is 10 MW as validated during the interviews with PP and documents review like commissioning certificates and PPA/O&M agreement. Since the design capacity of the project activity is less than 15 MW, which is stipulated limit for small scale projects by GS/CDM, the project is correctly classified as Small-scale project. Assessment team also checked the requirement of latest applicable methodology AMS-I.D. Version 18.0 and confirms that the project qualifies the requirement of the latest methodology also (i.e., scale, applicability, baseline, additionality and monitoring).

a) Type of project: The project activity involves electricity generation using solar PV power to reduce atmospheric CO₂ emission by replacing equivalent amount of electricity from the grid of India. The project type is identified as renewable energy project in section A.4 of the GS4GG PDD. The project activity complies with the requirement of 'the generation and delivery of energy services (e.g., electricity) from non-fossil and non-deployable energy sources' as defined in GS4GG toolkit. The project activity generates and supplies renewable electricity to the regional grid thereby displacing the electricity which would have generated in fossil fuel-based power plants connected to the grid.

General Eligibility Criteria under Renewable Energy Activity Requirements:

Assessment team reviewed the general eligibility criteria under Renewable Energy Activity Requirements, version 1.4 and found that criteria appropriately provided & justified in the Section A.1.1 of the GS PDD.

Additional Eligibility Criteria for Hydropower project activities:

The project activity is 10 MW solar PV power project and Annex A of the Activity Requirements for Renewable Energy Projects, version 1.4, not applicable.

3.4 Greenhouse Gases

The project activity leads to displacement of electricity generation from fossil fuel-based power plants connected to the regional grid by renewable energy generated using solar PV power. The operation of the project activity will result in reduction of carbon-dioxide from the atmosphere due to displacement of electricity in grid by the renewable energy. Hence, the greenhouse gas identified in the PDD is carbon dioxide which is duly validated by the DOE.

The GHG emission sources considered for the project boundary and their explanations are as follows:

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

3.5 Project timeframe

- Other certification scheme:** The project activity is a CDM Registered project (UNFCCC ID: 8917³) and is seeking retroactive registration in GS CER stream. However, the project activity has not applied, confirmed by project developer, for any other certification like Green or White certification. Therefore, the validation team concluded that the project activity meets the applicability criteria of Gold Standard. Assessment team checked the double counting clarification vide GS guideline on double counting in the context of Green Certificate Schemes, 22/01/2015. A declaration dated 05/10/2021 from project developer confirms that the project activity is not taking any REC Benefits under REC mechanism. The project is applied for GS CER validation. Assessment team also checked the REC web site (<https://recregistryindia.nic.in/>) and confirms that the project is not undertaking any REC benefits at present nor intended to take it in near future. Also, assessment team checked the CDM, VCS Registry/Project pipeline and found that project activity is not applied for this scheme Further, project is also not applied for any VCS, I-REC Device Registry etc. PP has provided undertaking that they will avoid double counting and not intended to seeking registration under other GHG schemes.

3.6 Project Boundary

As per AMS-I.D. Version 18.0 - "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM/GS project power plant is connected to".

The project boundary includes the Solar PV power project, sub-stations, grid and all power plants connected to grid. The 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 GS project activity. The same is checked by the assessment team during the validation remote audit and found correct. DOE also confirms that the project activity complies with the requirement of project boundary in AMS-I.D. Version 18.0, which is the latest applicable methodology available to the project participant.

³ <https://cdm.unfccc.int/Projects/DB/SGS-UKL1355910618.03/view>

3.7 Baseline Identification

Being a grid connected Solar PV based energy generation project, PP developed the project based on the Methodology AMS-I.D. Version 18.0. As per methodology Version 18.0, Para 19:

“If the project activity is the installation of a Greenfield power plant, the baseline scenario is 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”.

The project activity involves setting up of solar PV power projects to harness the power of solar energy to produce electricity and supply to the grid. 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. As the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline and pre-project scenario is same.

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 publicly available. The CEA database version 16.0 was the latest available data at the time of PDD 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
$EF_{grid,CM,y}$	0.9346 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 16.0, published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9568 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3-year (2017-18, 2018-19, 2019-20) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 16.0, published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8682 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 16.0, published by Central Electricity Authority (CEA), Government of India

However, this is CDM registered project and CEA database version 7.0 was used to calculate emission factor⁴. Thus, as per the latest CEA database, version 16.0, the emission factor for solar PV based project is 0.9346 tCO₂/MWh and as per the

⁴ <https://cdm.unfccc.int/Projects/DB/SGS-UKL1355910618.03/view>

CEA database, version 7.0 which was used in the registered CDM PDD, the emission factor was 0.9529 tCO₂/MWh. Hence, emission factor of 0.9346 tCO₂/MWh is more conservative and thus CEA database version 16.0 have been applied for emission reduction calculations.

3.8 Eligibility Principles Assessment

- Principle 1. Contribution to Climate Security & Sustainable Development**

The baseline scenario and the emission reduction calculations have been performed as per the requirement of the methodology. The emission factor of grid, in the GS4GG PDD, has been calculated in-line with the provisions of applied methodology AMS-I.D. Version 18.0. The latest applicable version of “Tool to calculate the emission factor for an electricity system” is version 07.0

The applicability criteria are now detailed out in the report as below:

Meth Para no.	Applicability Criterion	Justification
2	This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a). Supplying electricity to a national or a regional grid; or (b). Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity is the Renewable Solar PV power Project that supply electricity to the Indian electricity grids. Hence option (a) is applicable. Applicability conditions meet.
3	Illustration of respective situations under which each of the methodology (i.e., “AMS-I.D.: Grid connected renewable electricity generation”, “AMS-I.F.: Renewable electricity generation for captive use and mini-grid” and “AMS-I.A.: Electricity generation by the user) applies is included in the appendix.	The project activity is the Renewable Solar PV power Project that supply electricity to the Indian electricity grids. Hence option (a) is applicable. Applicability condition meet.
4	This methodology is applicable to project activities that: (a). Install a Greenfield plant; (b). Involve a capacity addition in (an) existing plant(s); (c). Involve a retrofit of (an) existing plant(s); (d). Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e). Involve a replacement of (an) existing plant(s).	The project activity is the Greenfield Renewable Solar PV power Project. Hence option (a) is applicable. Applicability conditions meet.
5	Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a). The project activity is implemented in an existing reservoir with no change in the volume of reservoir; (b). The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions	The Project activity is solar PV power generation project. Hence, this criterion is not applicable to the project activity.

Meth Para no.	Applicability Criterion	Justification
	<p>given in the project emissions section, is greater than 4 W/m²; (c). The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m².</p>	
6	<p>If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<p>The project activity is a 10 MW power generation project using solar PV based as the source of energy. Unit does not co-fires fossil fuels, since solar radiation is the only source of power. Applicability criterion not applicable.</p>
7	<p>Combined heat and power (co-generation) systems are not eligible under this category.</p>	<p>The project activity is a power generation project using solar radiation as the source of energy. Applicability criterion not applicable.</p>
8	<p>In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.</p>	<p>The project activity is a power generation project using solar radiation as the source of energy. Unit does not co-fires fossil fuels, since solar radiation is the only source of power. Applicability criterion not applicable.</p>
9	<p>In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.</p>	<p>The project activity is a greenfield power generation project using solar radiation as the source of energy. Applicability criterion not applicable.</p>
10	<p>In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored</p>	<p>The project activity is a greenfield power generation project using solar radiation as the source of energy. Applicability criterion not applicable.</p>
11	<p>In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.</p>	<p>The project activity is a greenfield power generation project using solar radiation as the source of energy. Applicability criterion not applicable.</p>

Applus+ Certification confirms that the application of the baseline methodology is transparent and conservative and confirms that the chosen baseline and monitoring methodology i.e. AMS-I.D. Version 18.0 is applicable to the project activity.

DOE also confirms that the project activity complies with the requirement of baseline determination in AMS-I.D. Version 18.0, which is the latest applicable methodology available to the project participant. As per the latest CEA database, version 16.0, the emission factor for solar PV based project is 0.9346 tCO₂/MWh and as per the CEA database, version 7.0 which was used in the registered CDM PDD, the emission factor was 0.9529 tCO₂/MWh. Hence, emission factor of 0.9346 tCO₂/MWh is more conservative and thus have been applied for emission reduction calculation ns. This calculated emission factor is conservative as per tool.

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment, Forests and Climate Change (MoEFCC), has mentioned four indicators for the sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India ⁵. Thus, the project's contribution towards sustainable development has been addressed based on the following sustainable development aspects:

I. Social well-being:

The project activity helps in improvement of the local infrastructure development. The project activity provided/provides job opportunity to local people during erection, commissioning and maintenance of the solar PV power plant. Frequency of visiting villages and nearby areas by skilled, technical and industrialist increase due to installation /site visit/operation and maintenance work related to solar PV power plant. This directly and indirectly positively effects the economy of villages and nearby area.

II. Economic well-being:

The CDM project activity generates permanent and temporary employment opportunity within the vicinity of the project. The project activity would help in alleviation of poverty in the area as it creates employment opportunities to the local people. The electricity supply in the nearby area improves which directly and indirectly improves the economy and lifestyle of the area.

III. Environmental well-being:

The Solar PV power is one of the cleanest renewable energy powers and does not involve any fossil fuel. There are no GHG emissions. The impact on land, water, air, and soil is negligible. Thus, the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

IV. Technological well-being:

The project activity uses the environmentally safe and sound technologies in Solar PV power sector. It improved the power quality and the improvement of transmission and distribution congestion. Hence, the project activity leads to technological well-being.

⁵ https://ncdmaindia.gov.in/approval_process.aspx

Assessment team checked the technical details of the Solar PV power plant from the manufacturer’s technical manual and found the same to be correct.

The total installed capacity of the project is 10 MW, which are installed in Rajkot District, Gujarat State of India.

The project activity comprises number of fixed thin film Cadmium Telluride (CdTe) PV modules of 1.25 MWp capacity each and making a total capacity of 10 MW. The project is a Renewable Energy project which displaces the electricity from the grid that is dominated by carbon intensive fossil fuels. The project activity is deployed taking into consideration all aspects of environmentally safe and sound technology. Furthermore, Solar PV Modules utilizes the solar radiation to generate electricity and has no associated greenhouse gas emission. Therefore, the technology implemented is depicted as environmentally safe and sound one.

The technical specifications of the installed technology are as follow:

Parameter	Value
PV Module	FS – 380
PV module peak power (Wp)	80
Modules per plant	125,025
Modules per plot	15,600
Strings per plot	1,040
Inverters	SMA SC 630CP
Inverter power (kVA)	630 kW
Inverters per plot	2
Total plots	8
Total inverters	16
Mounting structure	Haticon (German Make)

The technical specifications of the PV modules have been presented below:

Type	Thin Film Cadmium Telluride (CdTe)
Max. Output at STC (W), Pmax	80
Maximum Power Voltage, Vmpp (Volts)	50.7
Maximum Power Current, Impp (A)	1.58
Open-circuit voltage, VOC (V)	61.7
Short-circuit current, ISC (A)	1.76
Length (mm)	1200
Width (mm)	600
Thickness (mm)	6.8
Weight (kg)	12

The technical specifications of the inverters have been given below:

Inverter	SMA Sunny Central 630CP
Max. DC voltage	1000 V
PV voltage range, MPPT	500 – 820 V
Max. Input current	1,350
Number of MPP trackers	1

Max. Number of strings (parallel)	9
Nominal AC output	630 kVA
Max. Output current	1271 A
Nominal AC voltage/range	315 V ± 10%
AC grid frequency	50 Hz
Max. Efficiency	0.987
Euro ETA	0.985
Normal ambient temperature range	-20 oC - +50 oC
Operation temperature range	-20 oC - +50 oC
Consumption: operating (standby)/night	<1500 W/ 100W
Warranty	5 years

Assessment team checked the latitude and longitude of the project activity using GPS meter and also cross checked from the Google earth and found the detail to be correct. The same is defined below:

The Project is located at Rajkot District, Gujarat, India. The project coordinates are 21° 44' 11.16" N latitude and 70° 7' 11.19" E longitude.

The geo coordinates of plants of the project activity have been provided in the table in Section A.2 of the PDD and found correct.

- **Principle 2: Safeguarding Principles**

The Safeguarding principles assessment is as below:

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
1 Human Rights	1. The Project Developer and the Project shall respect internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. 2. The Project shall not discriminate with regards to participation and inclusion.	No	The Project is not in conflict with the economic livelihood of the local community. The Project does not cause any human rights abuse and respects internationally proclaimed human rights issue. The PP confirmed that the project does not employ any personnel based on gender, race, religion, sexual orientation, or any other basis which is also verified form the Company HR policy. Further, the Project meets the local labour law requirements thus does not cause any human rights abuse. The India has ratified the Convention 100 (equal	Not required

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
			<p>remuneration) and convention 111 (discrimination in employment /occupation) under the ILO Declaration on Fundamental Principles and rights⁶</p> <p>The project adheres to the host country's commitment to the above-mentioned conventions.</p> <p>Hence, assessment team confirms the project will not have any negative impact over the human rights.</p>	
2. Gender Equality & Women's Rights	<p>The Project shall complete the following gender assessment questions in order to inform Requirements, below:</p> <ol style="list-style-type: none"> 1. Is there a possibility that the Project might reduce or put at risk women's access to or control of resources, entitlements and benefits? 2. Is there a possibility that the Project can adversely affect men and women in marginalised or vulnerable communities (e.g., potential increased burden on women or social isolation of men)? 3. Is there a possibility that the Project might not take into account gender roles and the abilities of women or men to participate in the decisions/designs of the project's activities (such as lack of time, childcare duties, low literacy or educational levels, or societal discrimination)? 4. Does the Project take into account gender roles and 	No	<p>Assessment team checked during the remote audit that men- women have equal participation and equal pay is given for equal work. The employment contract for both Men and women is checked and Salary Slip for both Men and women are checked to confirm equal pay for equal work. Projects do not affect men and women in marginalised or vulnerable communities. Both men and women are employed as per the Skill level and requirement of the Organization. Local Men and women who are uneducated are provided unskilled job during the construction as well as operation phase of the project which generated employment opportunity for the local people. The Project design do not increase women workload however on contrary generated employment opportunity for them. The</p>	Not Required

⁶ <http://www.mfcindia.org/main/bgpapers/bgpapers2013/am/bgpap2013c.pdf>

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	<p>the abilities of women or men to benefit from the Project's activities (e.g., Does the project criteria ensure that it includes minority groups or landless peoples)?</p> <p>5. Does the Project design contribute to an increase in women's workload that adds to their care responsibilities or that prevents them from engaging in other activities?</p> <p>6. Would the Project potentially reproduce or further deepen discrimination against women based on gender, for instance, regarding their full participation in design and implementation or access to opportunities and benefits?</p> <p>7. Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and priorities of women and men in accessing and managing environmental goods and services?</p> <p>8. Is there a likelihood that the proposed Project would expose women and girls to further risks or hazards?</p> <p>The Project shall not directly or indirectly lead to/contribute to adverse impacts on gender equality and/or the situation of women.</p>		<p>project has Women cell in case of any Sexual harassment case is noticed and the same is resolved on priority basis. Moreover, since the project generated employment for women it improves their overall life of the family as well. The project does not discriminate the local community on basis of gender or caste or religion and therefore equally serve to all.⁷.</p> <p>PP does not involve in any form of discrimination in any kind. India also ratified relevant ILO core conventions on equality, namely Equal Remuneration Convention (Convention No 100) and Discrimination (Employment and Occupation) Convention (Convention No 111) in 1997⁸.</p> <p>During remote audit it was noted that the project proponent has a grievance cell which would look into complaints if any raised. Further, in India same is offence under the Criminal Law (Amendment) Act, 2013, Section 354 A of the Indian</p>	

⁷ https://labour.gov.in/sites/default/files/equal_remuneration_act_1976.pdf

⁸ https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_650119.pdf

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	<p>1. Sexual harassment and/or any forms of violence against women - address the multiple risks of gender-based violence, including sexual exploitation or human trafficking.</p> <p>2. Slavery, imprisonment, physical and mental drudgery, punishment or coercion of women and girls.</p> <p>3. Restriction of women's rights or access to resources (natural or economic).</p> <p>4. Recognise women's ownership rights regardless of marital status - adopt project measures where possible to support to women's access to inherit and own land, homes, and other assets or natural resources.</p> <p>Projects shall apply the principles of non-discrimination, equal treatment, and equal pay for equal work, specifically:</p> <p>1. Where appropriate for the implementation of a Project, paid, volunteer work or community contributions will be organised to provide the conditions for equitable participation of men and women in the identified tasks/activities.</p>		<p>Penal Code that stipulates what consists of a sexual harassment offence and what the penalties shall be for a man committing such an offence.</p> <p>The project does not involve in slavery, imprisonment or coercion of women and girls as joining the organization is fully voluntary.</p> <p>The Project will not restrict women's rights or access regarding natural resources.</p> <p>Marital status is irrelevant to the Project. During interviews with PP, it was noted that, the project proponent does not discriminate on gender, caste, religion etc.</p> <p>The Project has equal opportunity for women and men to contribute both in volunteer and working positions. Same is evident from the HR policy of the company.</p>	

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	<p>2. Introduce conditions that ensure the participation of women or men in Project activities and benefits based on pregnancy, maternity/paternity leave, or marital status.</p> <p>3. Ensure that these conditions do not limit the access of women or men, as the case may be, to Project participation and benefits.</p> <p>The Project shall refer to the country's national gender strategy or equivalent national commitment to aid in assessing gender risks.</p>			
3.3 Community Health, Safety and Working Conditions	The Project shall avoid community exposure to increased health risks and shall not adversely affect the health of the workers and the community.	No	<p>The project is renewable energy technology (solar PV Technology) and does not have exposure to increased health risks and shall not adversely affect the health of the workers and the community.</p> <p>The assessment team checked the company's EHS Policy and confirmed that PP is committed to provide appropriate and comprehensive information, safe work procedures, instructions and training to ensure all personnel are fully aware of the organisation's safe work practices and enable them to meet their performance objectives.</p> <p>Necessary health and safety measures are taken during construction and operation phase, relevant staff will be trained to be able to work with high voltages.</p>	Not Required

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
3.4.1 Sites of Cultural and Historical Heritage	Does the Project Area include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g., knowledge, innovations, or practices)?	No	Through the remote audit, interview, and secondary research it is found that no cultural heritage is located near to the project site.	Not Required
3.4.2 Forced Eviction and Displacement	Does the Project require or cause the physical or economic relocation of peoples (temporary or permanent, full or partial)?	No	The project has received the necessary approvals from the local authorities and does not lead to any resettlement.	Not Required
3.4.3 Land Tenure and Other Rights	<p>1. The Project Developer shall identify all such sites/matters potentially affected by the Project. For all such sites/matters identified the Project shall respect and safeguard:</p> <ul style="list-style-type: none"> (a) Legal rights, or (b) Customary rights, or (c) Special cultural, ecological, economic, religious or spiritual significance of people shall be demonstrably promoted/protected. <p>2. Changes in legal arrangements must be in line with relevant law and regulation and must be carried out in strict adherence with such laws. All legal disputes must be resolved prior to Project being carried out in such areas. All such changes must be demonstrated as having been agreed with free, prior and informed consent.</p> <p>3. The Project Developer must hold uncontested land title for the entire Project Boundary to</p>	No	<p>The project has received the necessary approvals from the local authorities and does not lead to any resettlement. There are not any uncertainties with regards land tenure, access rights, usage rights or land ownership.</p> <p>Thus, land tenure and other rights are with PP.</p> <p>PP have the rights to use land for the project activity and there is not any dissatisfaction for land usage for the project activity as the land for project activity has been procured from state government by means of sub lease and obtained required approvals and written consent from the Government.</p>	Not Required

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	complete Project Design Certification.			
3.4.4 Indigenous Peoples	Are indigenous peoples present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples?	No	The project is located at site where there are not any peoples residing. The project is located within the existing cement plants of PP.	Not Required
3.5 Corruption	The Project shall not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt Projects.	No	<p>The project is renewable energy technology (Solar PV based Technology) and does not contribute to or reinforce corruption of any kind.</p> <p>Indulgence in corruption is an illegal activity in the host country and the local labour compliance takes into account of the same.</p> <p>The assessment team also checked the PP's CSR policy and found that the company has strict anti-corruption policies to prevent any form of corruption.</p>	Not Required
3.6.1 Labour Rights	1. The Project Developer shall ensure that there is no forced labour and that all employment is in compliance with national labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labour Organization (ILO) fundamental conventions. Where these are contradictory and a breach of one or other cannot be avoided, then guidance shall	No	<p>Forced labour is an illegal activity in the host country and the local labour compliance takes into account of the same.</p> <p>Further, India is a party to ILO and forced labour is illegal in India⁹</p> <p>The project does not employ any form of forced or compulsory labour. Employees can quit them Services at any time. The project complies with the Factories Act in India that prohibits forced or compulsory labour.</p>	Not Required

⁹ <https://labour.gov.in/lcandilasdivision/india-ilo#:~:text=India%20is%20a%20founder%20member,ILO%20is%20its%20tripartite%20character.&text=Governing%20Body%3A%20%2D%20Executive%20Council%20of%20the%20ILO.>

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	<p>be sought from Gold Standard.</p> <p>2. Workers shall be able to establish and join labour organisations.</p> <p>3. Working agreements with all individual workers shall be documented and implemented. These shall at minimum comprise: (a) Working hours (must not exceed 48 hours per week on a regular basis), AND (b) Duties and tasks, AND (c) Remuneration (must include provision for payment of overtime), AND (d) Modalities on health insurance, AND (e) Modalities on termination of the contract with provision for voluntary resignation by employee, AND Provision for annual leave of not less than 10 days per year, not including sick and casual leave.</p> <p>4. The Project Developer shall justify that the employment model applied is locally and culturally appropriate.</p> <p>5. Child labour, as defined by the ILO Minimum Age Convention is not allowed. The Project Developer shall</p>		<p>The project activity does not involve any child labour.</p> <p>The project respects fundamental right of employee. There is law in India since 1926 by The Trade Unions Act, 1926¹⁰ which protects rights of industrial trade unions and their members.</p> <p>The agreements are in place for permanent employees</p> <p>The project prefers the local employment and culture is maintained at project site.</p> <p>The country has strict prohibition for child labour¹¹. Thus, project does not involve child labour during construction and operation of project activity.</p> <p>The project follows the health, safety and environment guidelines at project site. The project ensures the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.</p>	

¹⁰ http://labour.bih.nic.in/Acts/trade_unions_act_1926.pdf

¹¹ http://www.indianchild.com/child_labour_law_in_india.htm

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	<p>use adequate and verifiable mechanisms for age verification in recruitment procedures. Exceptions are children for work on their families' property as long as:</p> <p>(a) Their compulsory schooling (minimum of 6 schooling years) is not hindered, AND (b) The tasks they perform do not harm their physical and mental development, AND (c) The opinions and recommendations of an Expert Stakeholder shall be sought and demonstrated as being included in the Project design.</p> <p>6. The Project Developer shall ensure the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.</p>			
3.6.2 Negative Economic Consequences	<p>1. The Project Developer shall demonstrate the financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period.</p> <p>2. The Projects shall consider economic impacts and demonstrate a consideration of potential risks to the local economy and how these have been taken into account in Project design, implementation, operation and after the Project. Particular focus shall be given to vulnerable and marginalised social groups in targeted communities and that benefits</p>	No	<p>No potential risks to the local economy. The financial sustainability of the Projects implemented, also including those that will occur beyond the Project Certification period.</p> <p>The financial sustainability is demonstrated in registered PDD, and these calculations are for entire lifetime of project activity.</p> <p>The project does not involve any negative impacts and no any potential risk to local economy. The project leads to economic development of the local area by means of generating employment opportunities for local people either directly or indirectly.</p>	Not Required

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	are socially-inclusive and sustainable.			
4.1.1 Emissions	Will the Project increase greenhouse gas emissions over the Baseline Scenario?	No	The project is renewable energy technology (Solar PV based Technology) and does not lead any increase in greenhouse gas emissions over the Baseline Scenario.	Not Required
4.1.2 Energy Supply	Will the Project use energy from a local grid or power supply (i.e., not connected to a national or regional grid) or fuel resource (such as wood, biomass) that provides for other local users?	No	The project activity supplies energy to national grid and project activity displaces equivalent quantity of electricity which would have been generated by fossil fuel dominated grid connected power plants. The clean energy supply to the grid increases and hence Locals can get benefit of having continuous excess to clean power.	Not Required
4.2.1 Impact on natural water patterns and flow	Will the Project affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity?	No	The project is renewable energy technology (Solar PV based Technology) and does not affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s).	Not Required
4.2.2 Erosion and/or water body stability	1. Could the Project directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion? If 'Yes' or 'Potentially' proceed to question 2. 2. Is the Project's area of influence susceptible to excessive erosion and/or water body instability?	No	The project does not result in Soil erosion during the construction of project, as the project has been implemented in the barren land. Through remote audit observation and interview with site personnel the assessment team found that there is adequate vegetation and plantation in and around the project site which prevents the soil erosion. Also, it was noted during the remote site visit, that there are no water bodies in and around the project site. Therefore, there is no water body instability caused.	Not Required

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
4.3.1 Landscape modification and soil	Does the Project involve the use of land and soil for production of crops or other products?	No	<p>The project proponent has implemented Environment Health Safety and Social guideline which considers the same.</p> <p>The project activity involves barren land and does not involve use of land and soil for production of crops or other products.</p> <p>The project does not involve any landscape modification or soil. Hence there is not any impact of this principle.</p>	Not Required
4.3.2 Vulnerability to Natural Disaster	Will the Project be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought or other extreme climatic conditions?	No	<p>The project is renewable energy technology (Solar PV based Technology). The Project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought, or other extreme climatic conditions. Thus, this section is Not Applicable.</p>	Not Required
4.3.3 Genetic Resources	Could the Project be negatively impacted by the use of genetically modified organisms or GMOs (e.g., contamination, collection and/or harvesting, commercial development)?	No	<p>The project is renewable energy technology (Solar PV based Technology). The Project is not negatively impacted by the use of genetically modified organisms or GMOs. Thus, this section is Not Applicable</p>	Not Required
4.3.4 Release of pollutants	Could the Project potentially result in the release of pollutants to the environment?	No	<p>The project has received environmental clearance from the State Pollution control Board. Further the EHSS guidelines consider the same.</p> <p>The project does not lead to release of any hazardous substances that pose threat to the environment. Rather it aims at reducing the air pollution that is prevalent due to use of fossil fuel power</p>	Not Required

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
			plants. The project promotes environmental protection through the use of cleaner technology. The project abides by the stipulations of the Indian Environment Protection Act 1986 ¹² .	
4.3.5 Hazardous and Non-hazardous Waste	Will the Project involve the manufacture, trade, release, and/ or use of hazardous and non-hazardous chemicals and/or materials?	No	<p>During the operation of the project, it generates waste lube oil/ transformer oil in very minimal or zero quantity.</p> <p>So, PP has proposed the following mitigation measures:</p> <p>“Segregation of Hazardous waste (used fuel oil/paint/chemical containers, waste oil, lubricants, oil rags, contaminated soil, used batteries etc) and Proper disposal of the same through waste management authority”</p> <p>During audit site personnel also confirmed that the proposed mitigation measures are correctly followed during the operation of the project activity. The O&M contactor of the project takes all the necessary protection and prevention measures while oil re-filling or during the overhauling or during the scheduled maintenance.</p>	Not Required

4.3.6 Pesticides and fertilizers	Will the Project involve the application of pesticides and/or fertilisers?	No	The project is renewable energy technology (Solar PV based Technology) power generation. There is not any involvement of pesticides and/or fertilisers. Thus, this principle is not applicable.	Not Required
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¹² <http://legislative.gov.in/actsofparliamentfromtheyear/environment-protection-act-1986>

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
4.3.7 Harvesting of forests	Will the Project involve the harvesting of forests?	No	The project is renewable energy technology (Solar PV based Technology) power generation. The project activity does not involve any harvesting of forests. Thus, this principle is not applicable.	Not Required
4.3.8 Food	Does the Project modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives?	No	The project is renewable energy technology (Solar PV Technology) power generation. The Project does not have any impact on the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives. Thus, this principle is not applicable.	Not Required
4.3.9 Animal Husbandry	Will the Project involve animal husbandry?	No	The project is renewable energy technology (Solar PV Technology) power generation. The Project does not involve animal husbandry. Thus, not applicable	Not Required
4.3.10 High Conservation Value Areas and Critical Habitats	Does the Project physically affect or alter largely intact or High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified?	No	No cultural heritage is observed on the project site, thus no harm observed. Compliance with India's commitment to International Covenant on Economic, Social and Cultural Rights 10.04.79 will ensure no damage to critical cultural heritage. The project is not located in any HCV areas as per the list of approved HCV areas of India ¹³ .	Not Required
4.3.11 Endangered Species	1. Are there any endangered species identified as potentially being present within the Project boundary (including those that may route through the area)?	No	There are not any endangered species identified at project site and also no species have the route through area. The project activity does not impact other endangered	Not Required

¹³ <http://natureconservation.in/state-wise-list-of-conservation-reserves-of-india-updated/>

Safeguarding principle	Assessment question	Assessment of relevance to the project (Yes/potentially/no)	Justification	Mitigation measure (if required)
	Does the Project potentially impact other areas where endangered species may be present through trans-boundary affects?		species through trans boundary affects.	

Assessment of Gender Sensitive requirement:

Question 1 - Explain how the project reflects the key issues and requirements of Gender Sensitive design and implementation as outlined in the Gender Policy?	PP has confirmed that from the pre-feasibility study stage to the operation time, from the stakeholder investigation to the employment, fair chance and gender equality to access the source, information and to reflect their opinions as a main consideration is taken by the project owner. This is confirmed interview with PP, verification of stakeholder consultation report and Company HR policy.
Question 2 - Explain how the project aligns with existing country policies, strategies and best practices	<p>The PP is a registered organisation in India and the project is implemented in India and hence complies with all the laws and policies of the gender equality as follows.</p> <ul style="list-style-type: none"> • The project activity promotes and encourages active participation of women and men during the stakeholder meetings, giving an equal opportunity to both genders. • The project provides equal employment opportunities for men and women. • Equal pay for equal work is followed. No discrimination is made in the salaries of men and women. <p>This is confirmed interview with PP and Company HR policy. Hence, the project aligned with existing country policies, strategies and best practices.</p>
Question 3 - Is an Expert required for the Gender Safeguarding Principles & Requirements?	As verified from per the GS preliminary review report, Gold Standard did not mention any requirement for an expert stakeholder opinion (with a specific emphasis on gender and environment expertise) to support the gender safeguards assessment process.
Question 4 - Is an Expert required to assist with Gender issues at the Stakeholder Consultation?	As verified from per the GS preliminary review report, Gold Standard did not mention any requirement for an expert stakeholder opinion (with a specific emphasis on gender and

	environment expertise) to support the gender safeguards assessment process.
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The SDG goals are also described below:

SDG Goal	Assessment of Methodological choices/approaches for estimating the SDG outcome
<p>SDG 7 –Affordable and Clean Energy: Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<p>Measurement Method: - Electricity produced and supplied to the grid is monitored through energy meter. Net electricity generated is obtained from the monthly JMR. The other parameters used for net electricity supplied to grid are mentioned in monitoring plan. As per the state utility practices, JMR mentions only net export which is only available figure with PP.</p> <p>Frequency: Monthly.</p> <p>QA/QC Process: The meters will be tested/calibrated on regular frequency of annual basis. Values of parameter will be cross checked with invoices.</p> <p>Relevant SDG Target: By 2030, increase substantially the share of renewable energy in the global energy mix.</p> <p>Corresponding indicator: Net electricity supplied to the grid by the project activity during the year y</p>
<p>SDG 8 – Decent Work and Economic Growth: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<p>Measurement Method: - Training and employment generation is monitored through training records, staff register or letter from O&M contractor for training and employment details or HSE/HR records.</p> <p>Frequency: Annual.</p> <p>QA/QC Process: This parameter is based on records, data and no QA/QC procedure required. The DOE will confirm this parameter with interview with PP or Site in charge or employees for training and employment generation.</p> <p>Relevant SDG Target: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.</p> <ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation <p>Corresponding indicator: 1. Number of people employed directly due to the project activity. (8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities) 2. Number of trainings provided per year. (8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training).</p>

SDG Goal	Assessment of Methodological choices/approaches for estimating the SDG outcome
<p>SDG 13 – Climate Action: Take urgent action to combat climate change and its impacts</p>	<p>Measurement Method: - The emission reduction parameter is calculated as product of net electricity supplied to grid and grid emission factor. The grid emission factor is ex-ante parameter and determined based on data obtained from “CO₂ Baseline Database for Indian Power Sector” version 16.0, published by the Central Electricity Authority, Ministry of Power, and Government of India. This is in line with “Tool to calculate the emission factor for an electricity system, version 7.0”.</p> <p>The emission reductions are calculated as per the formula provided by the approved methodology AMS-I.D. Version 18.0</p> <p>Frequency: NA.</p> <p>QA/QC Process: This parameter is calculated, and no QA/QC procedure required.</p> <p>Relevant SDG Target: Integrate climate change measures into national policies, strategies, and planning from the project</p> <p>Corresponding indicator: Emission reductions in tCO_{2e} from the project activity.</p>

- **Principle 3: Stakeholder Inclusivity**

As per the CDM/GS requirements, it is necessary to invite the relevant stakeholders, before the validation process starts. The physical local stakeholder consultation was conducted at the Site Office on 17/10/2019.

For the purpose of Stakeholder Consultation meeting, Individual Invitation Letters were issued to the relevant Local Administrative departments and Notices were paste in public place, so as to reach maximum populace. Both Public notice and Letters included the Venue, Date, Time and purpose of the meeting is checked by the assessment team and found correct. The non-technical summary of the project was prepared and the same has been translated into local language for distribution among stakeholders. The local public showed great interest and shared full support for solar PV power project operations. The same is thus acceptable to the assessment team.

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

The stakeholders identified by the project participant were local villagers who are the major population of the particular area, local communities and gram panchayat (Village head), Solar panel suppliers, project proponent representatives, Project/O&M Team and other people involved in the project. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. 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.

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

The project activity is a GS CER project and therefore PP was required to conduct a Stakeholder Feedback Round (SFR) covering the issues (if any) related to the project activity. SFR was started on 07/06/2021 for 60 days after the project is listed in the GS registry vide email dated 06/08/2021. For the local people, the Stakeholder Consultation Report with draft PDD was made available online for comments. The email is also submitted to the DOE. The email attachment is also checked by the assessment team and found correct. Following observations are made by the DOE:

- Different representative of stakeholders like local villagers, head of panchayat, NGOs, PP employees were invited for their comments via emails during stakeholder’s feedback round
- No negative comments were received during the period starting from 07/06/2021 to 2 months’ time period and local stakeholders were very satisfied with the project activity implementation and operation in their area.

Assessment team asked following queries to the stakeholders during the validation remote audit and concludes that stakeholders are overall happy with the implementation of the project activity.

Assessment team also noticed during document review and PP interviews that a grievance register is placed on site and grievance cell is in charge to resolve the complaints if any received during both construction and operation phase of the project activity. The information regarding grievance register is circulated through public notices so that local’s people are aware of the same and can put forth their opinion regarding the project activity. The idea and effort put forward by the PP is commendable and hence the same is acceptable to the assessment team to include stakeholder in each and every phase of the project.

- **Principle 4: Demonstration of real outcomes**

The Sustainable monitoring plan is described below:

SDG Parameter	Indicator	Monitoring
SDG 7: Affordable and Clean Energy	7.2.1 Renewable energy share in the total final energy consumption	The available parameter to Project owner is net electricity supplied to grid and same is mentioned as monitoring parameter. The net electricity generation is calculated based on Export – Import to the meters connected at the sub-station and obtained from the JMR issued by state utility. The calculation of net electricity generation is in the hand of electricity board/CEA and PP has no role to play in the same. At the end of each billing month a Generation statement provided by state utility which mentions the value of net export by individual PP and thus the same is used as primary source of data for emission

SDG Parameter	Indicator	Monitoring
		<p>reduction. Monthly generation can be crosschecked with invoices.</p> <p>The energy meters used are tri-vector meters which are of accuracy class 0.2s for substation. The meters are monitored continuously & cumulative readings are taken at the end of the month. These are sealed by State Electricity board to avoid malfunctioning with meter readings. The officials frequently check the meters for tampering and malfunctioning with the meters. Meter is calibrated once in a year by the state utility or approved third party. The calculation of net electricity supplied to grid is under purview of state electricity board and Project owner do not have control on it. The onsite practice is thus acceptable to the assessment team as the same is as per the requirement of the approved methodology.</p> <p>Data / Parameter: EG_{PJ, y} Unit: MWh Source of data: Monthly JMR Measurement methods and procedures: Net Electricity = Export – Import However, PP have only net export value with them as per the state utility practice mentioned on JMRs. Monitoring frequency: measured continuously and recorded monthly</p>
<p>SDG 8: Decent Work and Economic Growth</p>	<p>8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities</p>	<p>Project participant have Documentation pertaining to employment, attendance register and documentary details of training/capacity building. Assessment team checked onsite that approx. 10 people are expected to be employed at site during crediting period. Assessment team also checked the salary slips/contracts and confirms that due to project activity peoples are getting more than minimum wages as a salary and this salary is better than local level salary. Based on the roles and responsibility of employee, the salary will be higher than the minimum salary of the region and hence the parameter monitoring is acceptable to the assessment team.</p>

SDG Parameter	Indicator	Monitoring
		<p>Data / Parameter: Number of people employed directly due to the project activity Unit: Number Source of data: Plant employment records Measurement methods and procedures: Not applicable Monitoring frequency: Once in a year</p>
<p>SDG 8: Decent Work and Economic Growth</p>	<p>8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training</p>	<p>The training records are maintained on regular basis with annual consolidation. Assessment team checked onsite that approx. 10 people are expected to be employed at site during crediting period. The employment opportunities generated are local or temporary or permanent as checked and confirmed by the assessment team.</p> <p>The training related to O&M, Safety, emergency procedure, fire safety etc. are provided to employees. Since local people are employed due to project activity, the training given to employees improves the quality of employment. Apart from these training to employees, the PP organizes few events which will be beneficial to society as a part corporate social responsibility (CSR) activity as per their policy. As the parameter is subjected to monitoring the same will be checked during the verification of the project activity.</p> <p>It will be ensured that safe working condition and safety equipment's has been provided for all skilled and unskilled Labour. It will be checked during verification through remote audit observations and interview with people if noise level is maintained within permissible limit.</p> <p>Safety equipment to be provided to workers both skilled and unskilled will be checked during the verification of the project activity. Assessment team however checked the same is already provided to the workers as part of companies CSR (EHS) policy</p> <p>Data / Parameter: Number of trainings provided per year Unit: Numbers Source of data: Training records</p>

SDG Parameter	Indicator	Monitoring
		Measurement methods and procedures: Not applicable Monitoring frequency: Once in a year
SDG 13: Climate Action	Emission Reductions	The emission reduction calculation will be done as per the formula mentioned in the GS4GG PDD. As the parameter is subjected to monitoring the same will be checked during the verification of the project activity. Data / Parameter: Emission Reductions Unit: tCO ₂ e Source of data: Plant records and ER calculation sheet Measurement methods and procedures: NA Monitoring frequency: Monthly

Transmission line effect: The project activity is exporting the generated electricity to grid. The EPC contractor and state electricity board is responsible for the construction of transmission line. They are following safety while construction of transmission lines. The project proponent does not have any role in the construction of transmission lines. The standard procedures are followed at site while commissioning the transmission lines.

- **Principle 5: Financial Additionality & Ongoing Financial Need**

As project activity is a CDM Registered project (UNFCCC ID: 8917¹⁴), and is seeking retroactive registration in GS CER stream, additionality has been demonstrated by PP in the registered CDM PDD. The registered CDM PDD mentioned that the project would not be economically or financially feasible without the revenue from the sale of carbon revenue. The claim of the project developer has been assessed and validated by the Validation Team and is acceptable.

The Validation Team concludes that the additionality justification regarding the serious CDM consideration given by the project developer is in accordance with the requirements derived from CDM Validation and Verification Standard version 03.0 for the project activity.

3.9 Calculation algorithm and/or formula used to determine emission reductions

The GS4GG PDD of the project activity is checked by the assessment team and found that AMS-I.D. Version 18.0 is used at the time of GS validation. The formula used in the GS4GG PDD was used for the calculation of emission reduction and same is found to be correct. Hence emission reduction calculation at this time of validation is conservative and appropriate.

Assessment team checked that Formula used to calculate the net emission reduction for the project activity is

$$ER_y = BE_y - PE_y - LE_y$$

¹⁴ <https://cdm.unfccc.int/Projects/DB/SGS-UKL1355910618.03/view>

Where,

ER_Y = Emission Reduction in tCO₂/year

BE_Y = Baseline emission in tCO₂/year

PE_Y = Project emissions in tCO₂/year

LE_Y = Leakage Emissions in tCO₂/year

Baseline Emissions:

Baseline Emissions for the amount of electricity supplied by project activity, BE_Y is calculated as

$$BE_Y = EG_{PJ,Y} \times EF_{grid,CM,Y}$$

Where:

BE_Y = Baseline emissions in year y (t CO₂/yr)

$EG_{PJ,Y}$ = Net electricity supplied to the grid by the project activity during the year y

$EF_{grid,CM,Y}$ = 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)

$$BE_Y = 17,526 \times 0.9346 = 16,379 \text{ tCO}_2$$

Project Emission

As per the AMS I.D. Version 18.0, Project Emission 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 (tCO_{2e}/yr)

$PE_{FF,Y}$ = Project emissions from fossil fuel consumption in year y (tCO₂/yr)

$PE_{GP,Y}$ = Project emissions from the operation of geothermal power plants due to the release of non condensable gases in year y (tCO_{2e}/yr)

$PE_{HP,Y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO_{2e}/yr).

The project activity involves the generation of electricity from the installation of solar PV power plant. Hence, as per AMS I.D. Version 18.0, there is no project emission for Solar PV based projects. Therefore, project emissions are zero.

Hence,

$$ER_Y = BE_Y = 16,379 \text{ tCO}_2 \text{ per annum}$$

SDG 13: Climate Action

Year	Baseline estimate	Project estimate	Net benefit
22/01/2019 to 21/01/2020	16,55 tCO ₂	0 tCO ₂	16,669 tCO ₂

Year	Baseline estimate	Project estimate	Net benefit
22/01/2020 to 21/01/2021	16,435 tCO ₂	0 tCO ₂	16,435 tCO ₂
22/01/2021 to 21/01/2022	16,318 tCO ₂	0 tCO ₂	16,318 tCO ₂
22/01/2022 to 30/12/2022	15,225 tCO ₂	0 tCO ₂	15,225 tCO ₂
Total	64,530 tCO ₂	0 tCO ₂	64,530 tCO ₂
Total number of crediting years	3 Years 1 month 30 days		
Annual average over the crediting period	16,379 tCO ₂	0 tCO ₂	16,379 tCO ₂

SDG 7: Affordable and Clean Energy

Year	Baseline estimate	Project estimate	Net benefit
22/01/2019 to 21/01/2020	0 MWh	17,711 MWh	17,711 MWh
22/01/2020 to 21/01/2021	0 MWh	17,586 MWh	17,586 MWh
22/01/2021 to 21/01/2022	0 MWh	17,461 MWh	17,461 MWh
22/01/2022 to 30/12/2022	0 MWh	16,291 MWh	16,291 MWh
Total	0 MWh	69,048 MWh	69,048 MWh
Total number of crediting years	3 Years 1 month 30 days		
Annual average over the crediting period	0 MWh	17,526 MWh	17,526 MWh

SDG 8: Decent Work and Economic Growth

Year	Baseline estimate	Project estimate	Net benefit
22/01/2019 to 21/01/2020	0 Training, 0 Jobs, 0 O&M spent	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation 	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation
22/01/2020 to 21/01/2021	0 Training, 0 Jobs, 0 O&M spent	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation 	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation
22/01/2021 to 21/01/2022	0 Training, 0 Jobs, 0 O&M spent	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation 	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation
22/01/2022 to 30/12/2022	0 Training, 0 Jobs, 0 O&M spent	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation 	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation

Year	Baseline estimate	Project estimate	Net benefit
Total	0 Training, 0 Jobs, 0 O&M spent	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation 	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation
Total number of crediting years	3 Years 1 month 30 days		
Annual average over the crediting period	0 Training, 0 Jobs, 0 O&M spent	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation 	<ul style="list-style-type: none"> • 01 Training provided to O&M staff/year • 10 Employment generation

4. REFERENCE

S. No.	Document/Evidence/Reference/Weblink, Version, Date
1.	Initial GS4GG PDD, version 01 dated 20/01/2020 Revised GS4GG PDD, version 02.1 dated 17/11/2022
2.	Minutes of Meeting for Local Stakeholders' Consultation
3.	Emission Reduction Sheet, version 01 dated 20/01/2020 Revised Emission reduction sheet, version 02 dated 25/10/2021
4.	Solar PV power Plant commissioning certificate from state utilities
5.	GS Preliminary Review under Gold Standard for the Global Goals
6.	Technical Specifications of the Project activity
7.	Training records for the project activity
8.	Methodology: AMS-I.D. Version 18.0
9.	Standard: CDM project standard for project activities, Version 03.0
10.	Standard: CDM validation and verification standard for project activities, Version 03.0
11.	Procedure: CDM project cycle procedure for project activities, Version 03.0
12.	Tools: <ul style="list-style-type: none"> • Tool to calculate the emission factor for an electricity system, Version 7.0
13.	GS4GG guideline
14.	Declaration for non-receiving of ODA for project dated 18/01/2020 Declaration of not participating in any other GHG mechanism dated 25/10/2021
15.	Universal declaration of Human Rights http://mha.nic.in/Human_Rights_Division (https://www.mha.gov.in/sites/default/files/Humman_Right_Act_1993_15052017.pdf) (https://www.un.org/en/universal-declaration-human-rights/)
16.	Ministry of Labour https://labour.gov.in/
17.	National Prevention of Corruption Act of Government of India http://legislative.gov.in/sites/default/files/A1988-49.pdf
18.	Ministry of Environment, Forests and Climate Change (MoEFCC) http://moef.nic.in/division/#

S. No.	Document/Evidence/Reference/Weblink, Version, Date
19.	Emails sent to NGO, Stakeholders, villagers for stakeholder feedback round
20.	UNFCCC Website for CDM mechanism– http://cdm.unfccc.int/
21.	HR employment records of the project staff on site & HSE manual,
22.	CSR manual of the company and CSR records
23.	Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects, Ministry of New and Renewable Energy (MNRE), September 2013
24.	Board Resolutions for decision making of the SPVs
25.	PPA/wheeling agreements between PP and third parties.

5. FINAL PROJECT DESIGN CERTIFICATION STATEMENT

Applus+ Certification has performed a validation of the “10 MW Solar Photovoltaic Power Plant in Rajkot, Gujarat (India)”. The validation was performed based on UNFCCC criteria CDM validation and verification standard for project activities, Version 03.0 for the project activity, Gold Standard GS4GG guideline and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the final version of GS4GG PDD and the subsequent follow-up interviews has provided Applus+ Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project meets all relevant UNFCCC and Gold Standard requirements for the Gold Standard and all relevant host country criteria. The project will hence be recommended by Applus+ Certification for registration with the Gold Standard Registry.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 16,379 tCO₂e per year.

The validation has been performed following the requirements of the latest version of the CDM validation and verification standard for project activities, Version 03.0 for the project activity, Gold Standard GS4GG guideline and on the basis of the contractual agreement.

In detail the conclusions can be summarized as follows:

- The project does not result in negative social, environmental and/or economic impacts.
- The project contribution to Environment, Social Development and Economic and technological development
- The project additionality is sufficiently justified in the Gold Standard PDD
- The project does not result in diversion of ODA.
- Conservative assumptions were applied in the project description.
- The monitoring plan of SD parameters is transparent and adequate.
- The project meets the stakeholder consultation requirements.

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.

Date: 17/11/2011

Lead Auditor: Dr. Atul Takarkhede



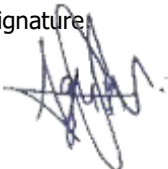
Tech. Expert: Dr. Atul Takarkhede

Auditor: NA

Tech. Reviewer: Mr. Simon Shen

Approver ((Applus+ Certification VVB Technical Manager))

Mr. Agustín Calle de Miguel

ASSESSMENT TEAM	
Lead Auditor: Dr. Atul Takarkhede	Technical Reviewer: Mr. Simon Shen
Signature: 	Signature: 
Approver: Mr. Agustín Calle de Miguel	
Signature: 	

**Appendix 1: Corrective Action Request/Clarification Request/Forward Action
 Request resolution table**

Type:	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	01
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding		Date:	15/07/2021
<ul style="list-style-type: none"> • PP requested to revised and resubmit the GS PDD for the applicability of latest version GS4GG-Renewable-Energy-Activity-Requirements. • PP requested to submit Declaration confirming that there would not be double counting of credits for any particular monitoring period for both GS and CDM Scheme. • In section A.7, it is mentioned that project has not used any ODA. However, the supporting of the same is also missing. • PP is requested to submit copy of ODA declaration, Commissioning certificate, Power Purchase Document & Declaration confirming project registered under other GHG schemes along with there would not be double counting of credits. 			
Project Participant's response		Date:	25/10/2021
<ol style="list-style-type: none"> 1. The GS PDD is now updated and submitted in the latest template version and by using the latest version GS4GG-Renewable-Energy-Activity-Requirements to the DOE assessment team. 2. The declaration confirming no double counting of credits is now submitted to the DOE assessment team. 3. The ODA declaration is now submitted to the DOE assessment team. 4. The ODA declaration, Commissioning certificate, PPA and PP declaration for double counting is now submitted to the DOE assessment team. 			
Documentation provided as evidence by Project Participant			
<ol style="list-style-type: none"> 1. Revised GS PDD 2. ODA declaration 3. Commissioning certificate, PPA and contract with WTG supplier 4. Declaration confirming no double counting of credits 			
Auditor's assessment comment		Date:	26/10/2021
<ol style="list-style-type: none"> 1. PP has successfully revised the PDD with guidelines for applicability of latest version GS4GG-Renewable-Energy-Activity-Requirements v 1.4. Assessment team found it appropriate and updated. Thus, accepted CAR closed. 2. PP has submitted declaration confirming no double counting of credits to assessment team, found acceptable thus CAR closed. 3. Declaration related to No ODA used during the project activity submitted to the assessment team. Thus, accepted and CAR is closed. 4. PP has submitted all requested supporting documents to assessment team. During review, team found it accepted thus CAR is closed. 			

Type:	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	02
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding		Date:	15/07/2021
<ul style="list-style-type: none"> • PP requested to submit supporting company policies/CSR documents for Elimination of All Forms of Discrimination against Women. • GS PDD mentions that "The SFR was being initiated and the process lasted for 90 days". However, Question and Conclusion raised in Stakeholder Feedback Round are missing. Also submit supporting document for the SFR round. Corrections sought. 			
Project Participant's response		Date:	25/10/2021
<ol style="list-style-type: none"> 1. The company policies are now submitted to the DOE assessment team. 2. The SFR details are now provided in the revised GS PDD and also, the email copy is now submitted to the DOE assessment team. 			
Documentation provided as evidence by Project Participant			
<ol style="list-style-type: none"> 1. Company policies 2. SFR email 3. Revised GS PDD 			
Auditor's assessment comment		Date:	26/10/2021
PP has revised the PDD as per the requested revision. Also supporting for the same also provided to assessment team. During review, Team found revised PDD consistent with the supporting provided. Thus, accepted and CAR is closed.			

Type:	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	03
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding		Date:	15/07/2021
<ol style="list-style-type: none"> 1. The supporting's to the indicator mentioned relevant to SDG is missing. Corrective action is sought for the same. 2. As per SDG 8: Decent Work and Economic Growth : The project leads to Trainings & workshops which are conducted for the O&M staff of Manufacturer as well as for the O&M staff of the PP, by their respective companies. Moreover, PDD claims equal pay for equal work, Person with Disability also get Decent work. The statements is not backed by proper evidences. <ul style="list-style-type: none"> • No. of trainings provided to the employees; technical & soft skills – Supporting missing • Employment generated due to project activity - Supporting missing • Cost spent on O&M - Supporting missing • The employment records/Salary slips- Supporting missing • Records of hazardous waste inventory & disposal - Supporting missing • Project Grievance register- Supporting missing 			
Project Participant's response		Date:	25/10/2021
<ol style="list-style-type: none"> 1. The relevant SDG indicators are now mentioned for each SDGs in the revised GS PDD. 			

2. For SDG 8 parameter, the following documents are now submitted to the DOE assessment team		
<ul style="list-style-type: none"> • Training records • Employee service agreements • Salary slips 		
Documentation provided as evidence by Project Participant		
1. Revised GS PDD		
2. Training records, Employee service agreements, Salary slips		
Auditor's assessment comment	Date:	26/10/2021
PP have submitted supporting documents for all SDG parameters & information and revised PDD for the comments raised. Revised PDD found in line with the documents submitted and applicable meth/GS requirements. CAR thus closed.		

Type:	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	04
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding	Date:	15/07/2021	
PP applied version 14 of Baseline CO2 emission database throughout the PDD. However, same version is outdated thus PP is requested to revised the PDD with latest CEA database.			
Project Participant's response	Date:	25/10/2021	
The latest version of CEA database version 16 has now been used in the revised GS PDD for the calculation of Emission Reductions.			
Documentation provided as evidence by Project Participant			
1. Revised GS PDD			
2. Estimated ER calculation sheet			
Auditor's assessment comment	Date:	26/10/2021	
PP has now applied updated CEA CO2 database version 16 to calculate emission factor in revised PDD, found correct because it is updated and more conservative than CEA database used in the CDM registered PDD. Thus, accepted by assessment team and CAR is closed.			

Type:	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input type="checkbox"/> FAR	Number:	05
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding	Date:	15/07/2021	
PP is requested to submit Emission Reduction Sheet to the assessment Team.			
Project Participant's response	Date:	25/10/2021	
The emission reduction calculation sheet is now submitted to the DOE assessment team.			
Documentation provided as evidence by Project Participant			

Emission Reduction calculation sheet		
Auditor's assessment comment	Date:	26/10/2021
PP have submitted ER estimation sheet and found correct. CAR is closed.		

Type:	<input type="checkbox"/> CAR	<input type="checkbox"/> CL/CR	<input checked="" type="checkbox"/> FAR	Number:	01
Raised by:	Sustain Cert			Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding				Date:	15/07/2021
Following FARs have been raised during preliminary review of the project: FAR # 1: The VVB shall validate the assessment of all the safeguarding principles as part of the GS validation process and include their opinion in the validation report.					
Project Participant's response				Date:	25/10/2021
The project was submitted to GS for preliminary review purpose on 23/01/2020. The project attained listed status at sustaichert on 12/10/2020. Thus, the project activity will complete the validation of the project activity within 2 years from date of listing.					
Documentation provided as evidence by Project Participant					
NA					
Auditor's assessment comment				Date:	26/10/2021
Assessment team/VVB validated safeguarding principles mentioned in the GS4GG PDD. Found acceptable and consistent with the evidence provided. Thus, accepted and FAR is closed.					

Type:	<input type="checkbox"/> CAR	<input type="checkbox"/> CL/CR	<input checked="" type="checkbox"/> FAR	Number:	02
Raised by:	Sustain Cert			Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding				Date:	15/07/2021
Following FARs have been raised during preliminary review of the project: FAR # 2: The VVB shall validate if the latest data and methodology tool available at time of first submission to GS has been applied for emission reduction calculation.					
Project Participant's response				Date:	25/10/2021
The latest version of the methodology and the tools applied available at the time of first submission to GS are used in the GS PDD.					
Documentation provided as evidence by Project Participant					
Revised GS PDD					
Auditor's assessment comment				Date:	26/10/2021
VVB have the revised GS PDD submitted by PD and found that latest version of the methodology and the tools have been referred and included in the FVR. FAR closed.					

Type:	<input type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input checked="" type="checkbox"/> FAR	Number:	03
Raised by:	Sustain Cert	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding		Date:	15/07/2021
<p>Following FARs have been raised during preliminary review of the project:</p> <p>FAR # 3: The VVB shall assess in their FVR if all monitoring and reporting requirements/commitments from the following have been included in the monitoring plan:</p> <ul style="list-style-type: none"> • Safeguarding Principles Assessment (for example Mitigations); • Stakeholder Engagement, feedback, grievances (including those recommended by any Expert Stakeholder contracted for the project) 			
Project Participant's response		Date:	25/10/2021
<p>The safeguarding principles have now been justified in the revised GS PDD along with the supporting documents. Also, the details of the LSC meeting along with the SFR round has been detailed out in the revised GS PDD and the supporting evidences of LSC meeting and SFR round have been submitted to the DOE assessment team.</p>			
Documentation provided as evidence by Project Participant			
<ol style="list-style-type: none"> 1. Revised GS PDD 2. LSHM meeting supporting documents 3. SFR email copy 			
Auditor's assessment comment		Date:	26/10/2021
<p>PP have submitted revised PDD including Safeguarding Principles Assessment & mitigations required. Further, PP have also submitted documents related to local stakeholders consultation & SFR and information in the PDD found correct. FAR closed.</p>			

Type:	<input type="checkbox"/> CAR <input type="checkbox"/> CL/CR <input checked="" type="checkbox"/> FAR	Number:	04
Raised by:	Sustain Cert	Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding		Date:	15/07/2021
<p>Following FARs have been raised during preliminary review of the project:</p> <p>FAR # 4: Design of the Stakeholder Feedback Round:</p> <ul style="list-style-type: none"> • The PP shall notice that Stakeholder Feedback Round of lasting a minimum of 2 months and requested documents shall be public available for global consultation. • All the attendees of LSC meeting shall be invited for further feedback/comment during SFR. • stakeholders from all the different categories A to F shall be invited for SFR. • PD mentioned that another stakeholder meeting will be conducted during SFR. PD shall provide details. 			
Project Participant's response		Date:	25/10/2021

The SFR round has been conducted for a period of 60 days and the details of the SFR round have been provided in the revised GS PDD and the supporting documents are submitted to the DOE assessment team.		
Documentation provided as evidence by Project Participant		
<ol style="list-style-type: none"> 1. Revised GS PDD 2. SFR email 		
Auditor's assessment comment	Date:	26/10/2021
PP have submitted revised PDD & documents related to local stakeholders consultation & SFR and information in the PDD found correct. Stakeholders from categories A TO F were invited for their feedback. FAR thus closed.		

Type:	<input type="checkbox"/> CAR	<input type="checkbox"/> CL/CR	<input checked="" type="checkbox"/> FAR	Number:	05
Raised by:	Sustain Cert			Ref. to checklist in GS4GG PDD:	GS PDD
Description of the audit finding				Date:	15/07/2021
<p>Following FARs have been raised during preliminary review of the project:</p> <p>FAR # 5: GS VVB shall validate how safeguarding principle assessments that require an Expert Opinion for the project type is completed.</p> <ul style="list-style-type: none"> • (Safeguarding Principles 3.4.1) sites of cultural and historical heritage • (Safeguarding Principles 3.4.2) forced eviction and displacement • (Safeguarding Principles 3.4.3) Land Tenure and Other rights • (Safeguarding Principles 3.4.4) Indigenous peoples • (Safeguarding Principles 3.6.1) Labor rights • (Safeguarding Principles 4.2.1) Impact on Natural Water Patterns/Flows • (Safeguarding Principles 4.2.2) Erosion and/or water body Instability • (Safeguarding Principles 4.3.10) High Conservation Value Areas and Critical Habitats 					
Project Participant's response				Date:	25/10/2021
<p>The following explanation are now provided.</p> <ul style="list-style-type: none"> • The list of cultural heritage sites in India by UNESCO can be referred from http://whc.unesco.org/en/statesparties/in. Hence, it is clear that, the project site is not a cultural heritage site. The same has been updated in the GS PDD. • The project does not lead to any resettlement. Also, the PP follows the "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act", 2013 of India. The same has been updated in the GS PDD. • The land rights are with the PP. The same has been updated in the GS PDD. • There are no indigenous people present near the project site. • The project does not employ any form of forced or compulsory labour and also it does not support child labour. PP have the HR policy in place to protect the labour rights. Also, the PP comply with the Factories act which prevents the employment of any form of forced or compulsory labour and child labour. The same has been updated in the GS PDD. 					

<ul style="list-style-type: none"> • The project is a solar PV power-based power project, it does not affect the natural or pre-existing pattern of watercourses, ground-water and/or the watershed(s). The same has been updated in the GS PDD. • The project is solar PV power-based power project, it does not affect Erosion and/or water body stability. The same has been updated in the GS PDD. • The project is not located in any HCV areas as per the list of approved HCV areas of India (http://natureconservation.in/state-wise-list-of-conservation-reserves-of-india-updated/). The same has been updated in the GS PDD. 		
Documentation provided as evidence by Project Participant		
Revised GS PDD		
Auditor's assessment comment	Date:	26/10/2021
PP have submitted revised PDD including Safeguarding Principles Assessment & mitigations required. Project activity is a renewable solar PV power-based project and safeguarding principles were assessed & validated and opinion is provided in the FVR. FAR closed.		

Appendix 2: Audit Team CVs

Name	SHORT CV. BACKGROUND INFORMATION
Dr. Atul Takarkhede	Dr. Atul Takarkhede counts with 10 years of experience in field of Environmental Auditing, consulting and accreditation. He is an Expert in ISO 9001-14001, CO ₂ /GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management Reporting for organizations environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; Conducting Environmental/water Audits; NABET requirements appliance. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. He has Ph.D. (Environmental Science) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical reports related to environmental science. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.
Mr. Simon Shen	Mr. Simon Shen (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD for 3.5 years before he joined Applus+. Mr. Simon Shen has extensive experience also as former Applus+ Shanghai CDM Technical Manager.