المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL

Project Submission Form

V4.0- 2022

CONTENTS

COVER PAGE- Project Submission Form (PSF)

BASIC INFORMATION

Title of the Project Activity as per LON/LOA	**Bundled 7 Solar Power Project in India**
PSF version number	2.0
Date of completion / Updating of this form	10/02/2023
Project Owner(s) as per LON/LOA (Shall be consistent with De-registered CDM Type B Projects)	UltraTech Cement Limited
Country where the Project Activity is located	India
GPS coordinates of the project site(s)	

Sr. No	Legal Owner	Capacity (AC) (MW)	Latitude (N)	Longitude (E)
1	VSV Onsite Private Ltd.	10.40	19°42'36.0"N (19.7100)	9°10'12.0"E (9.1733)
2	VSV Onsite Private Ltd.	0.22	26°57'16.9"N (26.9546)	75°56'24.0"E (75.9400)
3	VSV Offsite Private Ltd.	1.00	21°17'48.4"N (21.2967)	78°36'36.2"E (78.6100)
4	VSV Onsite Private Ltd.	4.20	16°51'50.4"N (16.8640)	80°00'58.6"E (80.0162)
5	VSV Onsite Private Ltd.	1.80	15°21'02.9"N (15.3508)	76°15'29.0"E (76.2580)
	TOTAL	**17.62**		

Eligible GCC Project Type as per the Project Standard (Tick applicable project type)	☒ **Type A:** ☐ Type A1 ☐ Type A2 ☐ Sub-Type 1 ☐ Sub-Type 2 ☐ Sub-Type 3 ☐ Sub-Type 4 ☒ Type A3 ☐ **Type B – De-registered CDM Projects:**[1] ☐ Type B1 ☐ Type B2
wMinimum compliance requirements	☒ Real and Measurable GHG Reductions ☒ National Sustainable Development Criteria (if any) ☒ Apply credible baseline and monitoring methodologies ☒ Additionality ☒ Local Stakeholder Consultation Process ☒ Global Stakeholder Consultation Process ☒ No GHG Double Counting ☒ Contributes to United Nations Sustainable Development Goal 13 (Climate Action)
Choose optional and additional requirements (Tick applicable label categories)	☒ Do-no-net-harm Safeguards to address Environmental Impacts ☒ Do-no-net-harm Safeguards to address Social Impacts ☒ Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)
Applied methodologies including version No. (Shall be approved by the GCC or the CDM)	GCC approved consolidated Methodology. GCCM001 - Methodology for Renewable Energy Generation Projects Supplying Electricity to Grid or Captive Consumers, version 4.0

[1] Owners of Type B projects shall fill in the form provided in Appendix 7.

GHG Sectoral scope(s) linked to the applied methodology(ies)	GHG SS1 (Energy (renewable/non-renewable sources)

Applicable Rules and Requirements for Project Owners

(Tick applicable Rules and Requirements)

Rules and Requirements		Version
☒ ISO 14064-2		
☒ Applicable host country legal requirements /rules		
☒ GCC Rules and Requirements[2]	☒ Project Standard	03.1
	☒ Approved GCC Methodology (GCCM001)	4.0
	☒ Program Definitions	03.1
	☒ Environment and Social Safeguards Standard	3.0
	☒ Project Sustainability Standard	3.1
	☒ Instructions in Project Submission Form (PSF)-template	4.0
	☒ Clarification No. 01	1.3
	☐ Clarification No. 02	
	☐ Clarification No. 03	
	☐ Clarification No. 04	
	☐ Clarification No. 05	
	☒ Standard on avoidance of double counting	1.0
	☐ Add rows if required	
☒ CDM Rules[3]	☒ Approved CDM Methodology (ACM0002)	21
	☒ TOOL 1- Tool for the demonstration and assessment of additionality	07.0

[2] GCC Program rules and requirements: http://www.globalcarboncouncil.com/resource-centre/
[3] CDM Program rules: https://cdm.unfccc.int/Reference/index.html

		☐ TOOL 02- Combined tool to identify the baseline scenario and demonstrate additionality	
		☒ TOOL 07- Tool to calculate the emission factor for an electricity system	07.0
		☐ TOOL 19- Demonstration of additionality of microscale project activities	
		☐ TOOL 21- Demonstration of additionality of small-scale project activities	
		☐ TOOL 23- Additionality of first-of-its-kind project activities	
		☒ TOOL 24- Common practice	03.1
		☒ TOOL 27- Investment analysis	11.0
		☐ TOOL 32- Positive lists of technologies	
		☐ Guidelines for objective demonstration and assessment of barriers	
		☐ Add rows if required	
Choose Third Party Project Verification by approved GCC Verifiers[4] (Tick applicable verification categories)	☒ GHG emission reductions (i.e., Approved Carbon Credits **(ACCs)**) ☒ Environmental No-net-harm Label (**E+**) ☒ Social No-net-harm Label (**S+**) ☒ United Nations Sustainable Development Goals (**SDG+**) ☐ Bronze SDG Label ☐ Silver SDG Label		

[4] **Note:** GCC Verifiers under the Individual Track are not eligible to conduct verifications for GCC Project Activities whose owners intend to supply carbon credits (ACCs) for use within CORSIA.

	☒ Gold SDG Label ☐ Platinum SDG Label ☐ Diamond SDG Label ☒ CORSIA requirements (**C⁺**) ☒ Host Country Attestation on Double counting
Declaration by the 'Authorized Project Owner[5] and focal point' (Tick all applicable statements[6])	The Project Owner(s) declares that: **Generic Requirements applicable to all Project Types:** ☒ We confirm that the Project Activity complies with the eligibility of the applicable project type (A1, A2, A3, B1 or B2) as stipulated by the Project Standard and relevant clarifications. ☒ We confirm that the Project Activity shall start or have started operations, and shall start or have started generating emission reductions, on or after 1 January 2016. ☒ We confirm that the Project Activity is eligible to be registered under the GCC program. We shall ensure the following for the Project Activity (tick at least one of the two options): ☒ No outcomes (e.g., emission reductions, environmental attributes) generated by the Project Activity under GCC will be claimed as carbon credits or environmental attributes under any other GHG/non-GHG[7] program, either for compliance or voluntary purposes, during the entire GCC crediting period; or ☒ If the project activity has been issued with carbon credits or environmental attributes of compensating nature[8] by any other GHG/ non-GHG program, either for compliance or voluntary purposes, the ACCs will be claimed only for the remaining crediting period (subject to a maximum of 10 years of crediting period including the periods under other programs and GCC program) for which carbon credits/ environmental attributes of compensating nature have not been issued by any other GHG/ non-GHG program.

[5] The Project Owner means the legal entity or organization that has overall control and responsibility for the Project Activity

[6] **Consequences in case of Non-compliance with declaration statements:**
If at any point in time non-compliance with the declared statements is established as a result of negligence, fraud or wilful misconduct of the GCC Project Owner/s the GCC project activity will be disqualified, and the registration of the proposed Project Activity will be rejected.

[7] Non-GHG programs could be such as I-REC facilitating reliable energy claims with Renewable Energy Certificate (REC) schemes

8 The environmental attributes of compensating nature are those which are used by captive users (e.g., corporates/industries) for offsetting their GHG emissions

Specific requirements applicable to respective Project Types:

For Project Type A1:

☐ For Project Type A1, we confirm that the Project Activity is NOT registered as a GHG Project Activity in any other GHG/non-GHG program or any other voluntary program and has not issued or will not issue credits under any other program.

For Project Type A2 (Sub-Type 1):

☐ For Project Type A2 Sub-Type 1, we confirm that the Project Activity is NOT registered as a GHG Project Activity in any other GHG/non-GHG program or any other voluntary program and has not issued or will not issue credits under any other program.

For Project Type A2 (Sub-Type 2 or Sub-Type 3):

For Project Type A2 Sub-Type 2 or Project Type A2 Sub-Type 3, we confirm that for Project Activity, which has been registered with CDM or any GHG/non-GHG Program and we shall (tick at least one of the two options):

☐ Submit a proof for deregistration from CDM; or

☐ Submit a signed & stamped public undertaking, stating that the Project Owner will never submit any request for Issuance of ACCs or request for renewal of crediting period to CDM-EB or under article 6.4 or any authority after submission to GCC Program and shall formally inform CDM-EB or authority under article 6.4 or any authority after submission to GCC Program.

☐ For Project Type A2 Sub-Type 2 or Project Type A2 Sub-Type 3, we confirm that the Project Activity is NOT included as a component Project Activity (CPA) in any registered GHG Programme of Activities (PoA) or any other functionally equivalent grouped/aggregated activities under any GHG program (such as the CDM or any other voluntary program).

For Project Type A2 (Sub-Type 4):

For Project Type A2 Sub-Type 4, we confirm that the Project Activity has been included in a registered CDM-POA and we shall (tick at least one of the two options):

☐ Submit the proof for exclusion of CPA(s) from registered CDM-POA prior to the date of initial submission to the GCC Program; or

☐ Submit the proof of exclusion of CPA(s) from the registered CDM-PoA after the request for registration has been submitted to GCC Program but before the final decision is made by the GCC Steering Committee.

For Project Type A3:

☒ For Project Type A3, we confirm that the Project Activity is NOT registered as a GHG Project Activity in any other GHG/non-GHG program or any

	other voluntary program and has not issued or will not issue credits under any other program. ***<u>For Project Type B1 or B2:</u>*** For Project Type B1 or Project Type B2, we confirm that for Project Activity, which has been registered with CDM or any GHG/non-GHG Program and we shall (tick at least one of the two options): ☐ Submit a proof for deregistration from CDM; or ☐ Submit a signed & stamped public undertaking, stating that the Project Owner will never submit any request for Issuance of ACCs or request for renewal of crediting period to CDM-EB or under article 6.4 or any authority after submission to GCC Program and shall formally inform CDM-EB or authority under article 6.4 or any authority after submission to GCC Program. **Requirements to avoid double counting:** We intend to submit or have submitted a written attestation[9] (Host Country Letter of Authorization - HCLOA) from the host country's national focal point or focal point designee for CORSIA eligible units generated beyond 31 December 2020 at the following stages[10] (tick at least one of the three options): ☒ The initial submission for GSC; or ☐ Along with the submission for a request for registration (after Project Verification is completed); or ☐ Along with the submission for a request for the first or subsequent issuance of ACCs. **Project specific requirements:** ***<u>CORSIA specific requirements:</u>*** ☒ We confirm that bundled projects or grouped projects shall have registered crediting period starting on or after 1 Jan 2016 for the grouped/aggregated project as a whole. ☒ We confirm that the Project Activity meets all the requirement of the CORSIA Eligible Emissions Units[11] required for GCC projects and does not fall under the excluded unit types, methodologies, programme elements, and/or procedural classes.

9 In case of any change of Host Country Letter of Authorisation (HCLOA) the project owner shall inform the GCC operations team immediately

10 If the host country attestation is not submitted at the initial submission of GSC, the project can be tagged with an indicative CORSIA flag if it's confirmed to be submitted later. If the host country attestation is not submitted at the request for registration, the project can be tagged with an indicative CORSIA flag if at least the PSF and Verification Report confirms to submit this letter, at first issuance. If the host country attestation is not submitted at request for first issuance, the ACCs will not be tagged as CORSIA (C+) compliant if this letter is not submitted.

11 CORSIA Eligible Emissions Units containing approval and conditions for GCC Program: https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx

	☒ We confirm that the Project Activity aims to achieve at least Silver or higher SDG+ label (i.e., positively impact at least 3 or more United Nations Sustainability Development Goals). ☒ We confirm that the Project Activity will be implemented in a country which is UN member state[12]. Provide details (if any) below for the boxes ticked above:
	The Project Owner(s) declares that: ☒ All the information provided in this document, including any supporting documents submitted to the GCC or its registry operator IHS Markit at any time, is true and correct. ☒ They understand that a failure by them to provide accurate information or data, or concealing facts and information, can be considered as negligence, fraud or willful misconduct. Therefore, they are aware that they are fully responsible for any liability that arises as a result of such actions. Provide details below for the boxes ticked above
Appendixes 1-9	Details about the Project Activity are provided in Appendixes 1 through 9 to this document.
Name, designation, date, and signature of the Focal point (as per LON/LOA)	For **UltraTech Cement Limited**  Signature & Name **Anand Prakash Bindal** Designation: Sr. Vice President Date: 10/02/2023

[12] The list of UN member states countries can be found at https://www.un.org/en/about-us/member-states

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

A.1. Purpose and general description of the Project Activity

This bundled project activity involves the installation of five numbers of Solar Power Projects in Maharashtra, Rajasthan, Andhra Pradesh & Karnataka States of India. The purpose of the project activity is to generate clean electricity with utilization of solar energy through third party sale for captive use. The total installed capacity of the proposed project activity is 17.62 MW(AC); which involves operation of three solar projects of 10.40, 0.22, 1.00, 4.20 & 1.80 (AC Capacity) project in Maharashtra, Rajasthan, Andhra Pradesh & Karnataka States. The details of which are as follows:

S No	Legal Owner	Plant name	Project Address	Capacity DC (MW)	Capacity AC (MW)	Date of Commissioning
1	VSV Onsite Private Ltd.	Manikgarh Cement Works	UltraTech Cement Limited, Unit: Manikgarh Cement Works, Village: Gadchandur, Tal: Gadchandur, Dist: Chandrapur, Maharashtra - 442908.	15.00	10.40	25/02/2022
2	VSV Onsite Private Ltd.	MSW Processing Plant Jaipur	UltraTech Cement Limited, Unit: MSW Processing Plant, Khasra no 338,Village: Langriavas, Tehseel: Jamwa Ramgarh, Dist: Jaipur, Rajasthan - 302027	0.25	0.22	21/02/2022
3	VSV Offsite Private Ltd.	Navi Mumbai Bulk Terminal	Village: Pathar, Taluka: Katol, District: Nagpur, State: Maharashtra - 441302	1.50	1.00	11/08/2022
4	VSV Onsite Private Ltd.	Balaji Cement Works	UltraTech Cement Limited, Unit: Balaji Cement Works, Village: Budawada, Tahsil: Jaggayyapeta, District: Krishna, Andhra Pradesh - 521175	4.58	4.20	05/09/2022
5	VSV Onsite Private Ltd.	Ginigera Cement works	UltraTech Cement Limited, Unit: Ginigera Cement Works, Village: Ginigera, Tahsil: Ginigera, District: Koppal, Karnataka - 583228	2.586	1.80	31/08/2022

This project activity will replace average anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 32,750 tCO_2e per year, thereon displacing estimated average of 38,285 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid for captive use, which is mainly dominated by thermal/fossil fuel-based power plant. The

project activity reduces 327,503 tCO_2e emissions during the entire crediting period.

This annual average net electricity generation and annual average GHG emission reductions are with application of degradation factor of 0.70% from second year.

The Project contributions to the sustainable development of the local area as well as the host country are as follows: Ministry of Environment, Forest, and Climate Change (MoEF&CC), Government of India, has stipulated the following indicators for sustainable development in the interim approval guidelines for CDM projects.

1. Social well-being;
2. Economic well-being;
3. Environmental well-being; and
4. Technological well-being

1. **Social well-being:** The project activity provided / provides job opportunity to local people during erection, commissioning and maintenance of the solar project. 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 plant. This directly and indirectly positively effects the economy of villages and nearby area.

2. **Environmental well-being:** Solar 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.

3. **Economic well-being:** The project activity generates permanent and temporary employment opportunity within the vicinity of the project. The electricity supply in the nearby area improves which directly and indirectly improves the economy and life style of the area.

4. **Technological well-being:** The project activity is step forward in harnessing the untapped solar potential and further diffusion of the solar technology in the region. The project activity leads to the promotion and demonstrates the success of solar projects in the region which further

motivate more investors to invest in solar power projects. Hence, the project activity leads to technological well- being.

Baseline Scenario:

The scenario existing prior to the implementation of the project activity, is electricity delivered to the grid by the project activity that 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". This is a green field project activity. There was no activity at the site of the project participant prior to the implementation of this project activity. Hence pre-project scenario and baseline scenario is the same.

A.2. Location of the Project Activity

The five projects in this bundled project activity are located in Maharashtra, Rajasthan, Andhra Pradesh & Karnataka States of India.

The table provides details of location of project:

Address and geodetic coordinates of the physical site of the Project Activity		
Physical address	**Latitude**	**Longitude**
UltraTech Cement Limited, Unit: Manikgarh Cement Works, Village: Gadchandur, Tal: Gadchandur, Dist: Chandrapur, Maharashtra - 442908.	19°42'36.0"N (19.7100)	9°10'12.0"E (9.1733)
UltraTech Cement Limited, Unit: MSW Processing Plant, Khasra no 338,Village: Langriavas, Tehseel: Jamwa Ramgarh, Dist: Jaipur, Rajasthan - 302027	26°57'16.9"N (26.9546)	75°56'24.0"E (75.9400)
Village: Pathar, Taluka: Katol, District: Nagpur, State: Maharashtra - 441302	21°17'48.4"N (21.2967)	78°36'36.2"E (78.6100)
UltraTech Cement Limited, Unit: Balaji Cement Works, Village: Budawada, Tahsil: Jaggayyapeta, District: Krishna, Andhra Pradesh - 521175	16°51'50.4"N (16.8640)	80°00'58.6"E (80.0162)

UltraTech Cement Limited, Unit: Ginigera Cement Works, Village: Ginigera, Tahsil: Ginigera, District: Koppal, Karnataka - 583228	15°21'02.9"N (15.3508)	76°15'29.0"E (76.2580)

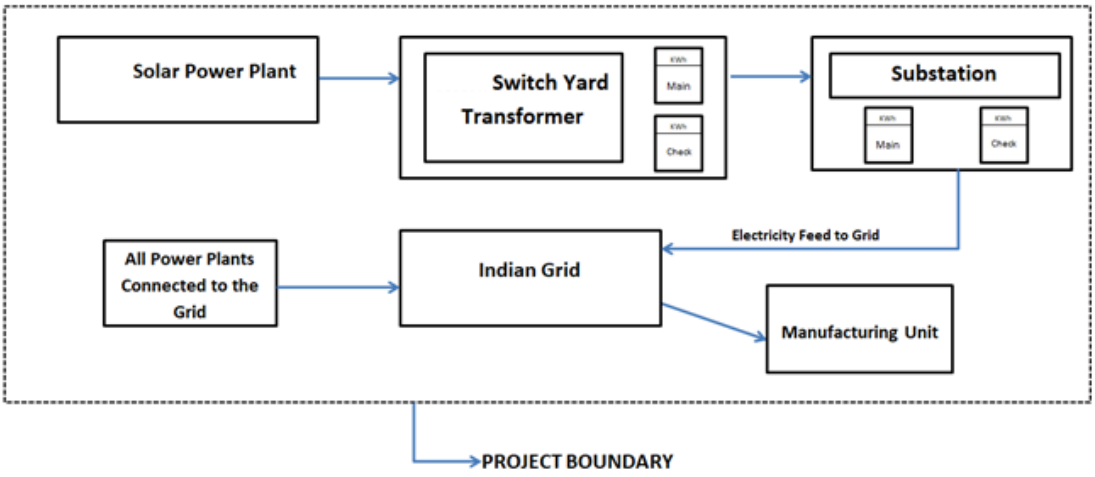
Name of the Site	Geographic location
Manikgarh Cement Works	
MSW Processing Plant Jaipur	
Navi Mumbai Bulk Terminal	

Balaji Cement Works	
Ginigera Cement works	

A.3. Technologies/measures

The Project Activity is a new facility (Greenfield) and the electricity generated by the project will be consumed by the institutional user for captive use. The Project Activity displaces an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid for captive use. The estimated lifetime of the project activity is considered as 25 years for solar technology.

In the Pre- project scenario the entire electricity, consumed by the customers or delivered to the grid by, would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources. The project shall result in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 32,750 tCO_2e per year, thereon displacing 38,285 MWh/year amount of electricity from the grid for captive use. The project activity aims to harness solar energy through installation of solar power project with total installed capacity of 17.62 MW (AC Capacity).



Technical specifications of Solar Photovoltaic Modules installed in the project are given below:

Name of the Site	**Manikgarh**	**MSW**
Capacity	15 MWp (DC) / 10.4 MW (AC)	0.251 MWp (DC) / 0.22 MW (AC)
PV Module type (mono crystalline/ poly crystalline/ Thin File/ any other)	Mono crystalline	Mono crystalline
PV Module Make	Jinko	Longi
PV Module Rating (Wp)	545/540	450
Total Number of Module	13720 No's / 13944 No's	558
Inverter Type (Central/ String)	String	String
Inverter Make	Sungrow	Sungrow
Inverter Power (kW)	200	100
Number of Inverter	52	2
Transformer Make & Specification	Transformer 1: Make: Raychem (P) Ltd. Spec: 9.0 MVA,	Not Applicable

	11KV/0.8KV/0.8KV/0.8KV, ONAN, YNd11d11d11, OCTC with NIFPS Transformer 2: Make : Raychem (P) Ltd. Spec : 2.50 MVA, 11KV/0.8KV, ONAN, YNd11, OCTC with NIFPS	
Total Number of Transformer	2	Not Applicable
DC Cable Specification	1C x 6Sq.mm Solar DC Cable XLPO	1.9kV 1C x 4 Sq.mm Flexible Copper Cable String to Inverter, XLPO
HT/AC Cable Specification	Inverter to LT Panel: 1 R x 3C x 240 sq mm Al armored, 1.9/3.3KV, XLPE. LT panel 1,2 and 3 to transformer 1: 4R/Ph x1Cx630 Sq.mm Al. XLPE. Transformer 1 to RMU (HT cable) : 2Rx3Cx400 Sq.mm 11kV (UE) Al Armored, XLPE,PVC Outersheathed. LT panel 2 to transformer 2 : 4R/Ph x1Cx630 Sq.mm Al. XLPE. Transformer 2 to RMU (HT cable) :2Rx3Cx400 Sq.mm 11kV (E) Al Armored, XLPE, PVC Outersheathed. RMU to UTCL HT panel - 2Rx3Cx400 Sq.mm 11kV (UE) Al. Armored, XLPE, PVC Outersheathed.	For Inverter to LT Panel: 1R x 3.5C x120 Sq.mm Multi stranded XLPE Armd Al. Cable, FRLS. For Solar LT Panel to UTCL LT Panel: 2R x 3.5C x185 Sq.mm Multi stranded XLPE Armd Al. Cable, FRLS.
Length of TL/ Cable from evacuation point to GSS/CSS	1500 meter from Solar ICOG(RMU) to UTCL HT panel	120 meter from Solar LT panel to UTCL LT panel
Evacuation Voltage Level	11kV	415V
Name of The Sub Station	UTCL MRSS	UTCL PMCC Room

NMBT	Balaji	Ginigera
1.5 MWp (DC) / 1 MW (AC)	4.58 MWp (DC) / 4.2 MW (AC)	2.586 MWp (DC) / 1.8 MW (AC)

Mono PERC	Mono PERC	Mono PERC
Longi	Jinko Solar	JA Solar
450	540/545	540
3360	4340/4115	4620
String	String	String
Sungrow	Sungrow	Sungrow
200	200	200
5	21	9
Make: M/s. Hammond Power Solutions Pvt. Ltd, Specs: 1100 kVA, 800V/33kV, Dyn11. ONAN, OCTC.	Make: Volt Amp, Spec: 6.6 KV/800V , 4.5MVA Dyn11 , OCTC	Make: Volt Amp Spec: 11 KV/800V, 2 MVA Dyn 11, OCTC
1	1	1
1C x 06 Sq mm Cu XLPO	1C x 04 Sq mm Cu XLPO	1C x 06 Sq mm Cu XLPO
AC cable - Inverter to LT Panel - 1RX3CX240 sq.mm AL ARM. 1.9/3.3kV XLPE HT CABLE AC Cable - LT Panel to IDT - 4R/Ph.x1Cx300Sq.mm,1.9/3.3kV, Al. XLPE, SWA ARM, HT CABLE HT Cable - IDT to PSS - 1RX3CX185Sq.mm,33kV(E) AL. XLPE, RWA ARM. HT CABLE	AC CABLE: **1.** INV To LT Panel 240sqmm X 3CX 1R FRLS/XLPE 1.9/3.3KV **2**. LT Panel To IDT: 630Sqmmx 1C X 5R 1.9/3.3 KV XLPE/FRLS **3**. IDT To MRSS: 400Sqmm x3C X 2R 11KV, XLPE/FRLS	AC CABLE: 1. Inv to LTP: 240sqmmX3CX1R FRLS/XLPE 1.9/3.3kV. 2. LT to IDT: 300SqmmX1Cx3R. 1.9/3.3 KV XLPE/FRLS. 3.IDT to MRSS :400sqmmX3CX2R 11kV, XLPE/FRLS
4 km (From PSS to GSS)	2.1 KMs From MCR To MRSS	1 KMs From MCR To MRSS
33kV	6.6 KV	11KV
Katol Substation, Dist. Nagpur, Maharashtra	UTCL MRSS	UTCL MRSS

The solar PV modules have a useful life of 25 years.

A.4. Project Owner(s)

Location/ Country	Project Owner(s)	Where applicable, indicate if the host country has provided approval (Yes/No)
India	VSV Onsite Private Ltd. (Legal Owner)	No
India	VSV Offsite Private Ltd. (Legal owner)	No
India	Ultra Tech Cement Limited (Project Owner)	No

Project proponent hereby confirms that the bundled project activity is neither applied nor registered under any other GHG reduction certification mechanism. Hence, the ACCs generated from this project activity will not be double counted under any other mechanism.

A.5. Declaration of intended use of Approved Carbon Credits(ACCs) generated by the Project Activity

The Project Activity is expected to generate ACCs for a full 10-year crediting period and supply the credits to offset the following GHG emissions:

Period		Name of the Entities	Purpose and Quantity of ACCs to be supplied
From	To		
01-07-2023	30-06-2033	Manikgarh Cement Works	For offsetting Greenhouse gases 204,196 tCO_2 for 10-year period
01-07-2023	30-06-2033	MSW Processing Plant Jaipur	For offsetting Greenhouse gases 3,855 tCO_2 for 10-year period
01-07-2023	30-06-2033	Navi Mumbai Bulk Terminal	For offsetting Greenhouse gases 19,235 tCO_2 for 10-year period
01-07-2023	30-06-2033	Balaji Cement Works	For offsetting Greenhouse gases 63,636 tCO_2 for 10-year period
01-07-2023	30-06-2033	Ginigera Cement works	For offsetting Greenhouse gases 36,551 tCO_2 for 10-year period

The project owner confirms that the ACC's generated from the project will not be double counted in any other mechanism.

A.6. Additional requirements for CORSIA

As per the CORSIA requirement, HCA is required for the verification post December 2020 and hence the Host Country Approval will be submitted during the verification post December 2020.

Also, for the project to be CORSIA eligible, the commissioning of the project should be after 01/01/2016. As per the implementation plan, the commissioning of the project is 21/02/2022 and hence the project is CORSIA eligible.

Section B. Application of selected methodology(ies)

B.1. Reference to methodology(ies) and tools applied in the project

GCCM001 Methodology for Renewable Energy Generation Projects Supplying Electricity to Grid or Captive Consumers Version 4.0[13]

This methodology is based on following baseline and monitoring methodologies of CDM.

ACM0002: Grid connected electricity generation from renewable sources; and
AMS-I-D: Grid connected renewable electricity generation.
AMS I F: Renewable energy generation for Captive use and mini-grid

Following tools have been referred during the estimation of emission reduction calculations:

Tool 01: Tool for the demonstration and assessment of additionality (Version 07.0.0 Annex 8)[14]
Tool 07: Tool to calculate the emission factor for an electricity system (Version 07.0, Annex 4)[15]
Tool 24: Common Practice (Version 3.1, Annex 7)[16]
Tool 27: Investment Analysis (Version 11.0, Annex 2)[17]

B.2. Applicability of methodology(ies)

The project activity is grid-connected solar power project. GCCM001, Version 4.0‘ Methodology for Renewable Energy Generation Projects Supplying Electricity to Grid or Captive Consumers is applied

(a) Install a Greenfield power plant’.

(b) Involve a capacity addition to (an) existing plant(s);

(c) Involve a retrofit of (an) existing operating plants/units.

[13] https://www.globalcarboncouncil.com/wp-content/uploads/2022/02/GCCM001-Methodology-for-Renewable-Energy-Generation-Projects-Supplying-Electricity-to-Grid-or-Captive-Consumers-Rev.V4.0.pdf
[14] am-tool-01-v7.0.0.pdf (unfccc.int)
[15] am-tool-07-v7.0.pdf (unfccc.int)
[16] am-tool-24-v1.pdf (unfccc.int)
[17] EB112_repan02_TOOL27_(v11.0) (unfccc.int)

(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).

The project activity is solar based renewable energy source, supplying the same to the identified user through contractual arrangement. The project activity will displace fossil fuel-based electricity generation that would have otherwise been provided by the operation and expansion of the fossil fuel-based power plants in Indian grid. The approved consolidated baseline and monitoring methodology GCCM001 Version 4.0 is the choice of the baseline and monitoring methodology and the applicability is shown as below:

Applicable Project Activities and their Eligibility Conditions	
The project activities eligible under this methodology aim to build and operate a new Utility scale power plant or new Distributed Power Plants which are subject to following eligibility conditions.	
The renewable energy generation projects shall supply electricity to user(s), either grid or a specific identified user. The project activity will displace electricity from an electricity distribution system that is or would have been supplied by from a national or a regional grid (grid hereafter); the following renewable energy generation technologies qualify under this methodology: Solar Photovoltaic; On-shore or Off-shore Wind; Tidal; Wave.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. The project activity will displace electricity from an electricity distribution system that is or would have been supplied by from a national grid which his dominated by fossil fuel fired plant, by using the Solar Photovoltaic renewable energy generation technology.
The project activities can also involve setting up and implementation of a BESS along with the renewable energy generation plant.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. Hence this criterion is not applicable.
The project activity wherein a BESS has been deployed, can either be a greenfield installation wherein the BESS had been conceptualised along with the renewable energy generation unit or may be retrofitted into an existing setup of renewable energy project, whether or not registered with GCC.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. Hence this criterion is not applicable.
In case the Project Owners want to claim carbon credits due to retrofit of BESS into existing renewable energy generation unit, they would need to demonstrate that historically the renewable	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement.

energy unit was subject to curtailed output due to low grid stability or capacity limitation3 in the grid infrastructure for handling the increased generation. This must be through evidence of existence of technical and regulatory/commercial constraints	Hence this criterion is not applicable.
The project activities shall not involve combined heat and power (co-generation) systems.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. Hence this criterion is not applicable.
The project activities shall not involve co-firing of fossil fuel of any kind.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. Hence this criterion is not applicable.
The project activities may have consumption of electricity (grid on on-site generation) for site offices.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. The project activity involves consumption of electricity (grid on on-site generation) for site offices. Hence this criterion is applicable.
DPPs that supply electricity also for domestic, commercial or industrial captive purposes either wholly or in addition to supply to grid, shall demonstrate that grid connection was available on the site before the implementation of project activity.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. The project activity is DPP supplying electricity for industrial captive purpose where grid connection was available on the site before implementation of project activity.
Under no condition would the battery storage system (BESS) be charged from the grid except in case of emergency situations like deep discharge or exceptional operational situations due to requirements from regulatory authorities in order to safeguard the safety and operational integrity of the connected grid system. BESS which consumes grid power or fossil fuel-based captive power for auxiliary load associated with BESS setup and employ cooling and/or fire suppression systems based on refrigerants or clean agents with the global warming potential (e.g. Hydrofluorocarbon (HFC) or Chlorofluorocarbon (CFC)) are not included under this methodology.	The project activity is a greenfield Solar PV plant is supplying electricity to specific identified user with contractual agreement. The project activity involves consumption of electricity (grid on on-site generation) for site offices. Hence this criterion is applicable.

Additionally, the project activity meets applicability criteria of the following tools:

TOOL 01: Tool for the demonstration and assessment of additionality[18] Version 7.0.0.

Project activities that apply this tool in context of approved methodology, only need to identify that there is at least one credible and feasible alternative that would be more attractive than the proposed

[18] am-tool-01-v7.0.0.pdf (unfccc.int)

project activity." Refer in section B.5 of PSF for details where additionality of the project activity is demonstrated using TOOL 1.

TOOL 07: Tool to calculate the emission factor for an electricity system[19] Version 7.0.0

"This tool may be applied to estimate OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g., demand-side energy efficiency projects)". Refer to section B.4 of PSF for detailed calculation.

Tool 07: Tool to calculate the emission factor for an electricity system Version 7.0	
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g., demand side energy efficiency projects).	The project activity is a greenfield solar power generation plant and hence, according to the applied methodology, the baseline scenario is electricity delivered to the grid for captive use 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 "TOOL07: Tool to calculate the emission factor for an electricity system".
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the	Since the project activity is grid connected, this condition is applicable, and the emission factor has been calculated accordingly.

[19] am-tool-07-v7.0.pdf (unfccc.int)

electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	The project activity is in India, a non-Annex I country. Therefore, this criterion is not applicable for the project activity.
Under this tool, the value applied to the CO_2emission factor of biofuels is zero.	The project activity is a captive grid connected solar power project and therefore, this criterion is not applicable for the project activity.

TOOL 27: Investment analysis[20] Version 11.0

This methodological tool is applicable to project activities that apply the methodological tool "Tool for the demonstration and assessment of additionality", the methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality" [21], or baseline and monitoring methodologies that use the investment analysis for the demonstration of additionality and/or the identification of the baseline scenario.

TOOL 24: Common practice[22] Version 3.1

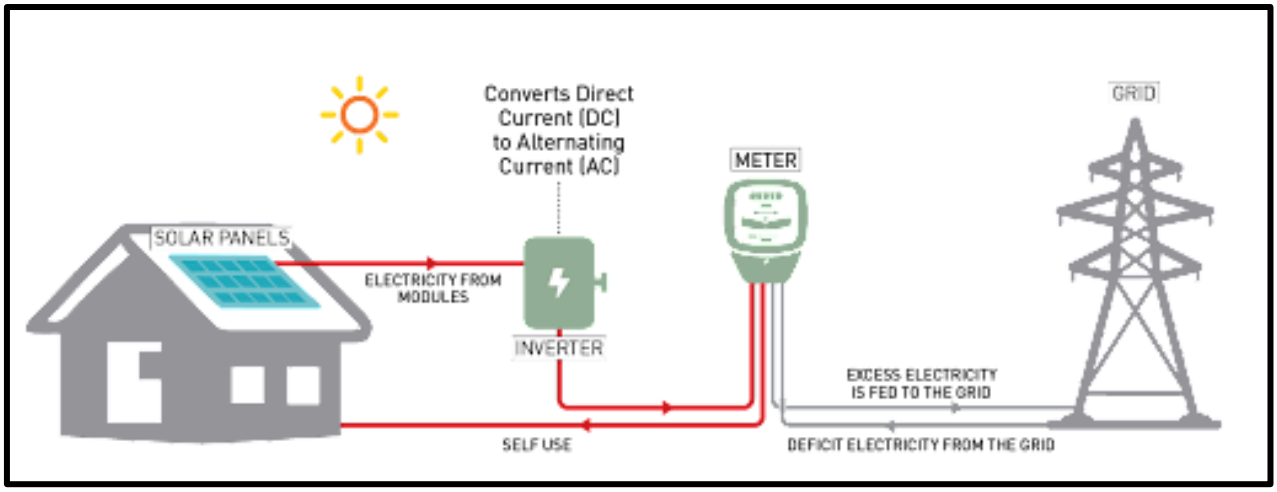
Since the proposed project activity applies the methodological tool "Tool for the demonstration and assessment of additionality", this methodological tool is applicable to project activity.

B.3. Project boundary, sources and greenhouse gases (GHGs)

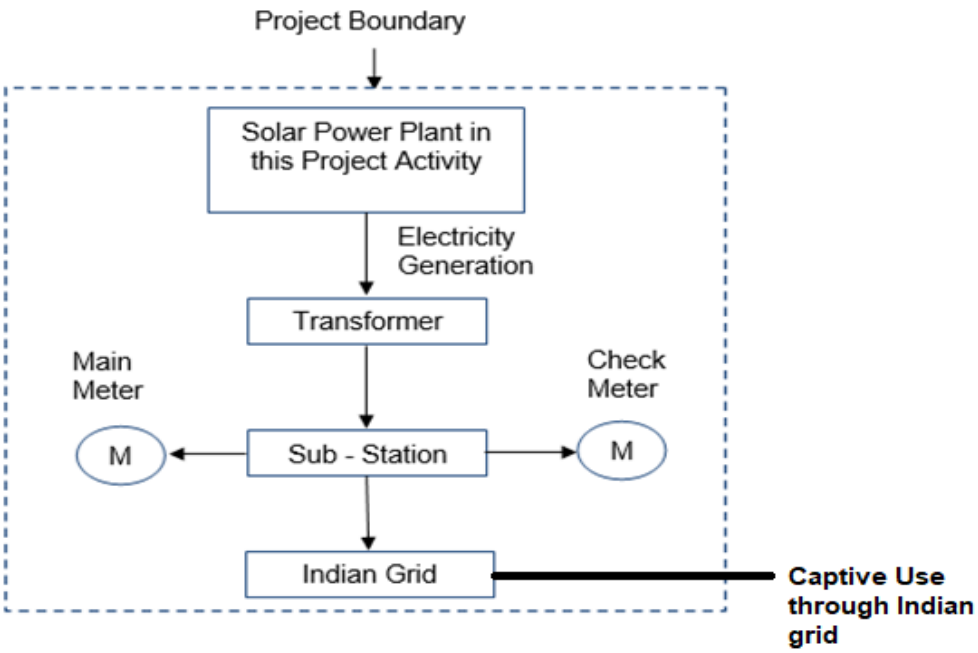
The project boundary includes the solar project, sub-stations, grid and all power plants connected to grid for captive use. The project activity will evacuate power to the Indian grid. Therefore, the entire Indian grid and all connected power plants have been considered in the project boundary for the project activity.

[20] EB112_repan02_TOOL27_(v11.0) (unfccc.int)
[21] Combined tool to identify the baseline scenario and demonstrate additionality. Version 05.0.0 (unfccc.int)

[22] CDM: Common practice (unfccc.int)



Project Boundary



The project does not involve any other emissions sources not foreseen by the methodologies. The greenhouse gases and emission sources included in or excluded from the project boundary are shown in table below.

The table below provides an overview of the emissions sources included or excluded from the project boundary for determination of baseline and project emissions.

Source		GHG	Included?	Justification/Explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to project activity	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project Activity	Solar energy projects under the project activity	CO_2	No	The project is a zero-emission captive grid connected solar energy power project; hence no emission will result.
		CH_4	No	The project is a zero-emission captive grid connected solar energy power project; hence no emissions will result.
		N_2O	No	The project is a zero-emission captive grid connected solar energy power project; hence noemissions will result.

B.4. Establishment and description of the baseline scenario

As per the approved Methodology GCCM001 Version 4.0 paragraph 14, “Hypothetically it means that a power plant with emission factor equivalent to grid mix would have supplied electricity in absence of new project plant or added capacity. A grid emission factor is a reasonable benchmark that provides the proxy performance of the baseline power plant.”.

The project activity involves setting up of solar PV plant to harness the power of solar energy to produce electricity and supply to the identified user. 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 and will be used by the identified user.

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.

During the implementation of the project activity, the relevant national and/or sectoral policies, regulations and circumstances are taken into account:

- Implementation of solar energy-based power projects for electricity generation is not mandatory under any law in India, the project activity is a voluntary action.
- Despite the gradual increase in renewable energy sources (including solar energy) in the Indian power sector, about two-thirds of installed power generation capacity is from fossil fuel-based energy sources, so the electricity grid is fed by electricity generated predominantly in fossil fuel-based power plants.

Solar energy-based power plants are categorized under the white category of industries, meaning it is non-polluting, as per the Ministry, Forest and Climate Change (MoEF& CC), Government of India and are exempted from requiring an Environmental Impact Assessment (EIA).

There is no legal and regulatory requirement that mandates the production of energy by the chosen technology. Investment in Solar energy projects in the States of Chhattisgarh and Madhya Pradesh and the Indian electricity grid are not mandatory. There are no national or local laws or regulations that require this investment to be undertaken, i.e., setting up of solar power projects. The setting up of solar energy projects is a voluntary activity.

In the absence of the project activity, the equivalent amount of electricity would have been drawn from the Indian grid. The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two Emission factor pertaining to the electricity system: the operating margin (OM) and the 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 18 is the latest available data at the time of PSF submission to GCC verifier for verification, so it has been used for emission factor calculations.

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

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9310 tCO_2 /MWh	Combined margin CO_2 emission factor	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25)

		for the project electricity system in year y	values, sourced from Baseline CO_2 Emission Database, Version 18.0, September 2022 published by Central Electricity Authority (CEA), Government of India.
$EF_{grid,OM,y}$	0.9518 tCO_2 /MWh	Operating margin CO_2 emission factor for the project electricity system in year y	Calculated as the last 3-year generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 18.0, September 2022 published by Central Electricity Authority (CEA), Government of India.
$EF_{grid,BM,y}$	0.8687 tCO_2 /MWh	Build margin CO_2emission factor for the project electricity system in year y	Baseline CO_2 Emission Database, Version 18.0. September 2022 published by Central Electricity Authority (CEA), Government of India.

B.5. Demonstration of additionality

The additionality of the Project shall be demonstrated by applying the following approach, consisting of two components:

(i) A Legal Requirement Test; and

(ii) An Additionality Test either based on a Positive List test or a projects-specific additionality test.

The project is not enforced by law. Since voluntary commitments/agreements within a sector or by an entity does not constitute the legal requirement; the project is additional.

Specify the methodology, activity requirement or product requirement that establishes deemed additionality for the proposed project (including the version number and the specific paragraph, if applicable).	This project follows an approved GCC methodology which is GCCM0001 version 4.0, "Methodology for Renewable Energy Generation Projects Supplying Electricity to Grid or Captive Consumers". Selected methodology has been applied together with the "tool to calculate the emission factor for an electricity system, version 7.0" and "tool for assessment and demonstration of additionality, version 7.0.0". These are the latest versions of the methodology and the related additionality and calculation tools.
Describe how the proposed project meets the criteria for deemed additionality.	1. Project without carbon revenue is not financially attractive as discussed in investment analysis section below (benchmark and sensitivity analysis). 2. Continuation of the current situation (Electricity supply by grid) is not

	considered as a realistic alternative due to increasing electricity demand therefore new power plants should be constructed which includes mainly thermal power plants. Implementation of the project is additional to the baseline scenario which is an alternative 2 above and therefore reduces the emissions. 3. The project activity comes under the white category of industries, as per local regulation, which means it is not required to obtain the "Consent to Operate'' due to the non-polluting nature of the project, which fulfils the compliance to the local laws and regulations The Project activity conforms to all the applicable laws and regulations in India: ✓ Power generation using renewable energy is not a legal requirement or a mandatory option. ✓ There are state and sectoral policies, framed primarily to encourage renewable power projects. ✓ These policies have also been drafted realizing the extent of risks involved in the projects and to attract private investments. ✓ The Indian Electricity Act, 2003 (May 2007 Amendment) does not influence the choice of fuel used for power generation. ✓ There is no legal requirement on the choice of a particular technology for power generation. ✓ Both alternatives are in compliance with laws and regulations required. There is no mandatory requirement to implement the project activity. 4. In accordance with common practice analysis, there are no plants similar to the proposed project and built without carbon revenue, the proposed type of project should not be considered as a common practice. Hence, project is additional in this aspect.

The present project generates power using solar energy, which is a renewable, zero emission source of energy. Baseline considerations for the project are based on approved baseline.

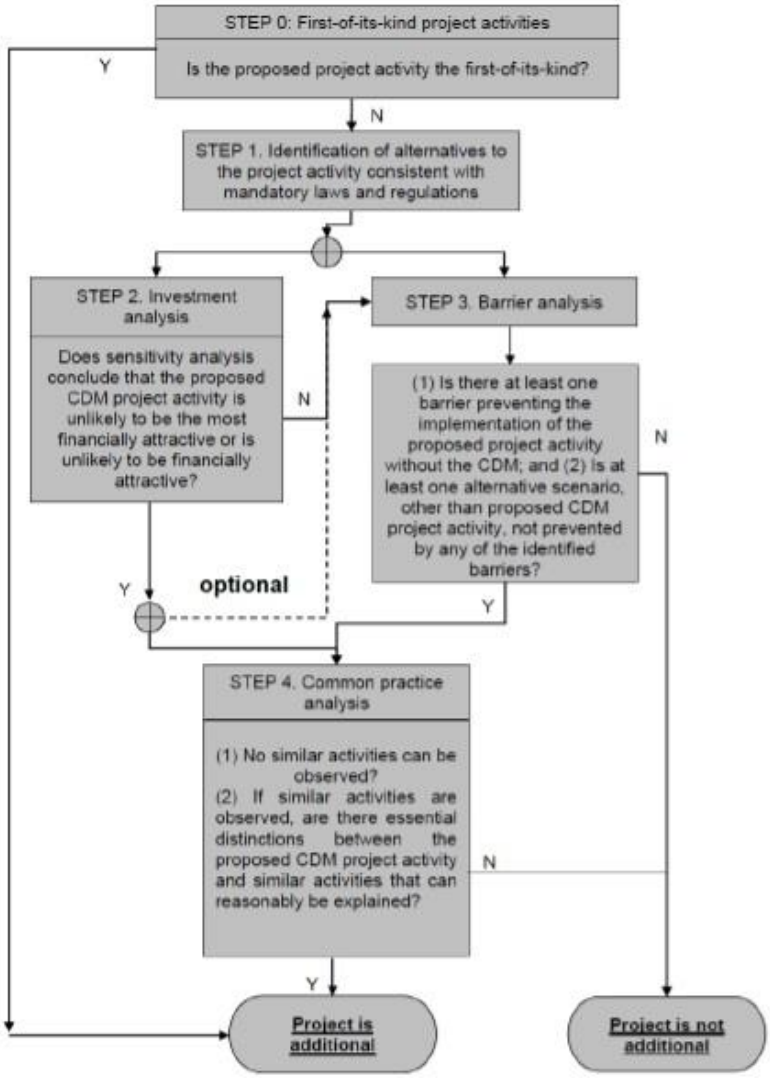
Demonstration as per GCC Clarification No. 01, V1.3 – 2022:

The project is a heterogenous bundle, hence the Two-level analysis for formulation of homogeneous bundles as per section 4 of Clarification No. 1' version (v1.3) is not applicable.

The proposed CDM project generates power using solar energy, which is a renewable, zero emission source of energy. Baseline considerations for the project are based on approved consolidated baseline methodology Approved GCC Methodology (GCCM001) version 4.0.

Thus, the project follows section 5.3.2 of the applied methodology which requires the project proponent to determine the additionality based on “Tool for the demonstration and assessment of additionality”, Version 07.0.0.

The step-wise approach to establish additionality of the project activity has been followed, details of which are provided in the following paragraphs:



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

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

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

Sub-step 1a: Define alternatives to the project activity:

"Identify realistic and credible alternative(s) available to the project participants or similar project developers that provide outputs or services comparable with the project activity."

The purpose of the project activity is to generate electrical power using solar energy and feed the electricity generated to the grid. Hence, the following alternatives are considered:

Alternative 1: The proposed project activity not undertaken as a GCC project activity.

The Project Owner could proceed with the implementation of the project without Carbon credit benefits. The electricity produced from the renewable energy project would have been sold to the grid. This is in compliance with all applicable legal and regulatory requirements and can be a part of the baseline. However, the Project activity is not feasible without revenues from sale of carbon credits. This argument has been discussed in step 2 of the Additionality section below.

Alternative 2: No proposed project activity, and equivalent amount of energy would have been produced by the grid electricity system through existing power plants and by new capacity additions to the grid when necessary (i.e., continuation of the present situation).

The Project Owner would have continued without investment in Project activity with usual business activities. The grid would continue to use fossil fuel-based power plants, resulting in continued greenhouse gas emissions. Hence, the new capacity add-on from a fossil fuel-based power plant is appropriate, realistic & credible baseline alternative for the project activity.

Alternative:

The project activity would not go ahead, and the Indian electricity grid would continue to use existing fossil fuel-based power plants to produce electricity, and any additional capacity added to the grid

would likely be more fossil fuel power plants, as indicated by the fuel mix of the Indian electricity grid and the planned capacity additions described in the Ministry of Power's 2021-22 Annual Report[23].

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

Although the two alternatives are described above, as required by step 1a of additionality tool, are technically realistic alternatives, the first alternative is not possible because the project activity is not financially viable without carbon credit benefits and the second alternative is the baseline scenario for the project activity as per the methodology mentioned in section B.4 of PSF.

It should be noted that being a greenfield project activity, "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".

"In the case of a greenfield power project, an alternative scenario may be that the project participants would not invest in the greenfield power plant, but that power would be generated in existing and/or new power plants in the electricity grid" – Combined tool to identify the baseline scenario and demonstrate additionality.

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

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

The project activity comes under white category of industries due to its non-polluting nature as per local regulation, thus it is not necessity to obtain the "Consent to Operate'' and it is in compliance with the applicable legal and regulatory requirements.

[23] MOP_Annual_Report_Eng_2021-22.pdf (powermin.gov.in)

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

- Electricity Act, 2003
- National Electricity Policy, 2005
- Tariff Policy, 2006
- Factories Act, 1948

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

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

Both alternatives listed in sub-step 1a are in compliance with the applicable laws and regulations. There are no mandatory requirements to implement the project activity.

Outcome of Sub-step 1b: Both of the alternatives listed above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. Since solar projects are categorized as a white category of industries under the Ministry of Environment and Forests, the project activity does not require consent to operate from the pollution control board.

However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity in line with methodology.

Step 2: Investment analysis[24]

[24] EB112_repan02_TOOL27_(v11.0) (unfccc.int)

The investment analysis has been done in order to make an economic and financial evaluation of the project. No public funding or Official Development Assistance (ODA)is available in India for financing of this type of project. For investment analysis, loan conditions have been determined considering the actual loan rate offered by the banks.

Sub-step 2a: Determine appropriate analysis method

There are three investment analysis methods which can be used, namely:

- Option I: Simple Cost Analysis
- Option II: Investment Comparison Analysis
- Option III: Benchmark Analysis

The Project activity envisages to export the generated power to Indian electricity grid, which will generate revenue from the sale of electricity in accordance with the terms and tariffs established in the Power Purchase Agreement (PPA). Thus, simple cost analysis (Option I) cannot be used as the analysis method because the sale of generated electricity shall result in a revenue stream during the operations of the Project activity.

In the absence of the project activity, grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity.

As Option I and Option II are not eligible methods for the project activity, the benchmark analysis (Option III) is the most suitable method. This method determines the attractiveness of the project activity for the investors, as well as provides a measure of the viability of the investment to generate revenues during its operation, as compared with other avenues and investment options. Hence, the benchmark analysis method is to be employed for analysis of the said project.

Sub-step 2b (Option III): Apply benchmark analysis

Choice of Benchmark:

According to the “Tool for demonstration and assessment of additionality”, the financial indicator can be based either on (1) project IRR or (2) equity IRR. There is no general preference between approaches (1) or (2). The benchmark chosen for analysis shall be fully consistent with the choice of approach. Therefore, in accordance with the guidance, the relevant financial indicator for project activity has been chosen as post tax equity IRR.

As per Investment Analysis tool, required/expected returns on equity are appropriate benchmarks for an equity IRR. The equity IRR is considered as the financial indicator and the benchmarks used is cost of equity. Hence, the benchmarks used are applicable to the project activity and the type of IRR calculation presented.

PO has used Methodological Tool for Investment Analysis version 11 (EB 112, Annex 2), which states the default value for cost of equity for Group 1 projects in India as10.55%[25]. This is appropriate and more conservative for a benchmark calculation and PP has considered the same tool for default value of return on equity for the respective project.

As per paragraph 16 of Section 6: Selection and Validation of Appropriate Benchmarks in the above-mentioned document, “In situations where an investment analysis is carried out in nominal terms and the available IRR benchmarks are in real terms, project participants can convert the real term values of benchmarks to nominal by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used”. For the concerned project activity, the inflation rate has been considered from the inflation forecast published by the IMF.

As per paragraph 19 of EB 105, Annex 6 the cost of equity is determined by selecting the values provided in the Appendix, i.e., Default values for cost of equity (expected return on equity) is presented below:

[25] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v11.0.pdf

The Required return on equity (benchmark) was computed in the following manner:

Nominal Benchmark = {(1+Real Benchmark) *(1+Inflation rate)}-1

Where:

- Default value for Real Benchmark = 10.55 %[26]
- Inflation Rate forecast by IMF[27] India which is mentioned in 2019 as 3.92 % for medium term.

Benchmark estimation:

Putting the respective values in above formula for benchmark estimation provides equity IRR of 14.88 % as benchmark.

Sub-step 2c: Calculation and comparison of financial indicators

The period considered for Post Tax Equity IRR calculations is 25 years, which corresponds to the operational lifetime of the project activity. Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, is added back to net profits for the purpose of calculating the financial indicator.

Input values considered for the IRR calculation are provided below:

Calculation and comparison of financial indicators:

Key Assumptions supporting financial projections are provided in excel spreadsheet to the GCC Verifier. Based on result of IRR excel spreadsheets, equity IRR is less than Benchmark. The input assumption and the IRR outcome can be referred in below:

Project 1 – Manikgarh Cement Works

Details of the project		Source
State where the project is situated	Maharashtra	

[26] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v11.0.pdf

[27] https://www.imf.org/en/Publications/SPROLLs/world-economic-outlook-databases#sort=%40imfdate%20descending

Total Capacity in DC (MW)	15.000	
Total Capacity in AC (MW)	10.400	As per DPR
Expected Date of Commissioning	25-Feb-22	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (DC)	18.17%	
PLF (AC)	26.20%	
Annual generation (MWh)	23,869.25	
Annual degradation from 2nd year onwards (%)	0.70%	As per DPR
Tariff rate (INR/kWh)	2.86	PPA
Operation and maintenance cost		
O & M Expenses (INR Mn.)/year	7.50	As per DPR
Escalation in the operational expenses (%)	5.00%	As per DPR
O & M free for (Yr.)	-	As per DPR
Financial parameters		
TOTAL COST (INR Mn.)	634.70	As per DPR
Equity Investment (INR Mn.)	190.45	Calculated Value
Loan Amount (INR Mn.)	444.26	Calculated Value
Insurance		
Insurance Cost (INR (Mn.)	3.17	
Term loan		
Margin (%)	30.00%	As per DPR
Loan Amount (INR Mn.)	444.26	Calculated Value
Interest rate (%)	11.75%	As per DPR
Loan Tenure (Qtr.)	20	As per DPR
Moratorium Period (Qtr.)	-	As per DPR
Repayment Period (Qtr.)	20	Calculated Value
Repayment instalments value (INR Mn.)	22.213	Calculated Value
1st instalment from (Qtr. end)	30-Jun-22	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	60	As per CERC Order Dt: 31.03.2015; Pg 202
O&M Expenses (Days)	30	As per CERC Order Dt: 31.03.2015; Pg 202
Interest on Working Capital Debt	3.00%	As per DPR

Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	As per DPR
Gross Depreciable Value (INR Mn.)	627.13	Calculated Value
Salvage Value (%)	10.00%	As per CERC Order Dt: 31.03.2015; Pg 29
Salvage value (INR Mn.)	62.71	Calculated Value
Net Depreciable Value (INR Mn.)	564.42	Calculated Value
Residual Value (INR Mn.)	62.71	Calculated Value
IT Depreciation (SLM Method)		
IT Depreciation Rate (%)	40.00%	As Per Income Tax , Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2020-21	
Income tax rate (%)	25.00%	As per DPR
MAT (%)	15.00%	As per DPR
GST(%)	18.00%	As Per Service Tax Rule
Surcharge (%)	7.00%	Tax rates applicable to a domestic company
Education cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	27.82%	Calculated Value
MAT (%)	16.69%	Calculated Value
Service Tax (%)	18.00%	Calculated Value

Post Tax Equity IRR for the project activities against the benchmark values are shown in table below. Thus, it is evident that the project is not financially attractive as the equity IRR is less below the benchmark value.

Post tax Equity IRR	4.10%
Benchmark Value	14.88%

Sensitivity Analysis

Addressing Guidance 28 & 29 of EB 105, Annex 06, following factors has been subjected to sensitivity analysis:

1. PLF

2. O&M Cost
3. Project Cost
4. Tariff

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

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate. Equity IRR is significantly lower than the benchmark and it is evident from the results given below; the project remains additional even under the most favorable conditions.

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Corresponding Value	Unit
PLF	2.48%	4.10%	5.66%	71.45%	44.92	%
O&M	4.43%	4.10%	3.77%	-418.00%	-23.85	INR Mn.
Project Cost	5.26%	4.10%	3.18%	-42.50%	364.95	INR Mn.
Tariff Rate	2.48%	4.10%	5.66%	71.45%	4.9	INR/kWh

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per DPR in line with “Guidelines for the reporting and validation of Plant load factors” stated in EB 48 Annex 11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data. Further, the actual generation data is available with the Project Owner which confirms that PLF breaching value of 44.92% is not achieved and is unlikely scenario.
Sensitivity Parameter 2 :O&M
The sensitivity analysis reveals that O & M cost will breach the benchmark at negative value i.e -418.00% and is a hypothetical case. Since the O & M cost is generally subject to escalation and also subject to inflationary pressure, any reduction in the O & M costs is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The Sensitivity is carried out for 10% variation and for threshold level below which benchmark is not breached. The project activity is already commissioned and actual project cost value is above the breaching value i. e. 364.95 INRmillion.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/- 10% even then the benchmark is not breached. The breaching value of 4.9 INR/kWh cannot be achieved as tariff is constant for entire lifetime @ 2.86 INR / kWh.

Final Result

Equity IRR without carbon fund (GCC)	Benchmark (Equity IRR)
4.10%	14.88%

Based on the above result, the equity IRR is less than Benchmark.

Project 2 – MSW Processing Plant Jaipur

Details of the project		Source
State where the project is situated	Rajasthan	
Total Capacity in DC (MW)	0.251	
Total Capacity in AC (MW)	0.220	As per DPR
Expected Date of Commissioning	21-Feb-22	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (DC)	18.17%	
PLF (AC)	23.65%	
Annual generation (MWh)	455.00	
Annual degradation from 2nd year onwards (%)	0.70%	As per DPR
Tariff rate (INR/kWh)	3.65	PPA
Operation and maintenance cost		
O & M Expenses (INR Mn.)/year	0.13	As per DPR
Escalation in the operational expenses (%)	5.00%	As per DPR
O & M free for (Yr.)	-	As per DPR
Financial parameters		

TOTAL COST (INR Mn.)	10.60	As per DPR
Equity Investment (INR Mn.)	3.16	Calculated Value
Loan Amount (INR Mn.)	7.44	Calculated Value
Insurance		
Insurance Cost (INR (Mn.)	0.05	
Term loan		
Margin (%)	30.00%	As per DPR
Loan Amount (INR Mn.)	7.44	Calculated Value
Interest rate (%)	11.75%	As per DPR
Loan Tenure (Qtr.)	25	As per DPR
Moratorium Period (Qtr.)	-	As per DPR
Repayment Period (Qtr.)	25	Calculated Value
Repayment instalments value (INR Mn.)	0.297	Calculated Value
1st instalment from (Qtr. end)	30-Jun-22	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	60	As per CERC Order Dt: 31.03.2015; Pg 202
O&M Expenses (Days)	30	As per CERC Order Dt: 31.03.2015; Pg 202
Interest on Working Capital Debt	3.00%	As per DPR
Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	As per DPR
Gross Depreciable Value (INR Mn.)	3.03	Calculated Value
Salvage Value (%)	10.00%	As per CERC Order Dt: 31.03.2015; Pg 29
Salvage value (INR Mn.)	0.30	Calculated Value
Net Depreciable Value (INR Mn.)	2.73	Calculated Value
Residual Value (INR Mn.)	0.30	Calculated Value
IT Depreciation (SLM Method)		

IT Depreciation Rate (%)	40.00%	As Per Income Tax , Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2020-21	
Income tax rate (%)	25.00%	As per DPR
MAT (%)	15.00%	As per DPR
GST(%)	18.00%	As Per Service Tax Rule
Surcharge (%)	7.00%	Tax rates applicable to a domestic company
Education cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	27.82%	Calculated Value
MAT (%)	16.69%	Calculated Value
Service Tax (%)	18.00%	Calculated Value

Post Tax Equity IRR for the project activities against the benchmark values are shown in table below. Thus, it is evident that the project is not financially attractive as the equity IRR is less below the benchmark value.

Post tax Equity IRR	8.64%
Benchmark Value	14.88%

Sensitivity Analysis

Addressing Guidance 28 & 29 of EB 105, Annex 06, following factors has been subjected to sensitivity analysis:

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

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

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate. Equity IRR is significantly lower than the benchmark and it is evident from the results given below; the project remains additional even under the most favorable conditions.

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Corresponding Value	Unit
PLF	6.54%	8.64%	10.77%	30.10%	30.77	%

O&M	8.92%	8.64%	8.36%	-259.00%	-0.20	INR Mn.
Project Cost	10.33%	8.64%	7.27%	-24.60%	7.99	INR Mn.
Tariff Rate	6.54%	8.64%	10.77%	43.15%	4.75	INR/kWh

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per DPR in line with "Guidelines for the reporting and validation of Plant load factors" stated in EB 48 Annex 11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data. Further, the actual generation data is available with the Project Owner which confirms that PLF breaching value of 30.77% is not achieved and is unlikely scenario.
Sensitivity Parameter 2 :O&M
The sensitivity analysis reveals that O & M cost will breach the benchmark at negative value and is a hypothetical case. Since the O & M cost is generally subject to escalation and also subject to inflationary pressure, any reduction in the O & M costs is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The Sensitivity is carried out for 10% variation and for threshold level below which benchmark is not breached. The project activity is already commissioned, and actual project cost value is above the breaching value i. e. 7.99 INRmillion.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/- 10% even then the benchmark is not breached. The breaching value of 4.75 INR/KWh cannot be achieved as tariff is constant for entire lifetime @ 3.65 INR / kWh.

Final Result

Equity IRR without carbon fund (GCC)	Benchmark (Equity IRR)
8.64%	14.88%

Based on the above result, the equity IRR is less than Benchmark.

Project 3 – NAVI MUMBAI BULK TERMINAL

Details of the project		Source
State where the project is situated	Maharashtra	

Total Capacity in DC (MW)	1.500	
Total Capacity in AC (MW)	1.000	As per DPR
Expected Date of Commissioning	11-Aug-22	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (DC)	17.12%	
PLF (AC)	25.68%	
Annual generation (MWh)	2,249.00	
Annual degradation from 2nd year onwards (%)	0.70%	As per DPR
Tariff rate (INR/kWh)	3.45	PPA
Operation and maintenance cost		
O & M Expenses (INR Mn.)/year	0.75	As per DPR
Escalation in the operational expenses (%)	5.00%	As per DPR
O & M free for (Yr.)	-	As per DPR
Financial parameters		
TOTAL COST (INR Mn.)	60.00	As per DPR
Equity Investment (INR Mn.)	18.20	Calculated Value
Loan Amount (INR Mn.)	41.80	Calculated Value
Insurance		
Insurance Cost (INR (Mn.)	0.30	
Term loan		
Margin (%)	30.00%	As per DPR
Loan Amount (INR Mn.)	41.80	Calculated Value
Interest rate (%)	9.90%	As per DPR
Loan Tenure (Qtr.)	20	As per DPR
Moratorium Period (Qtr.)	-	As per DPR
Repayment Period (Qtr.)	20	Calculated Value
Repayment instalments value (INR Mn.)	2.090	Calculated Value
1st instalment from (Qtr. end)	31-Dec-22	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	60	As per CERC Order Dt: 31.03.2015; Pg 202
O&M Expenses (Days)	30	As per CERC Order Dt: 31.03.2015; Pg 202
Interest on Working Capital Debt	3.00%	As per DPR

Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	As per DPR
Gross Depreciable Value (INR Mn.)	52.43	Calculated Value
Salvage Value (%)	10.00%	As per CERC Order Dt: 31.03.2015; Pg 29
Salvage value (INR Mn.)	5.24	Calculated Value
Net Depreciable Value (INR Mn.)	47.19	Calculated Value
Residual Value (INR Mn.)	5.24	Calculated Value
IT Depreciation (SLM Method)		
IT Depreciation Rate (%)	40.00%	As Per Income Tax , Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2020-21	
Income tax rate (%)	25.00%	As per DPR
MAT (%)	15.00%	As per DPR
GST(%)	18.00%	As Per Service Tax Rule
Surcharge (%)	7.00%	Tax rates applicable to a domestic company
Education cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	27.82%	Calculated Value
MAT (%)	16.69%	Calculated Value
Service Tax (%)	18.00%	Calculated Value

Post Tax Equity IRR for the project activities against the benchmark values are shown in table below. Thus, it is evident that the project is not financially attractive as the equity IRR is less below the benchmark value.

Post tax Equity IRR	3.98%
Benchmark Value	14.88%

Sensitivity Analysis

Addressing Guidance 28 & 29 of EB 105, Annex 06, following factors has been subjected to sensitivity analysis:

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

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

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate. Equity IRR is significantly lower than the benchmark and it is evident from the results given below; the project remains additional even under the most favorable conditions.

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Corresponding Value	Unit
PLF	2.11%	3.98%	5.75%	59.75%	41.02	%
O&M	4.31%	3.98%	3.64%	-405.00%	-2.29	INR Mn.
Project Cost	5.01%	3.98%	3.13%	-48.61%	30.83	INR Mn.
Tariff Rate	3.11%	3.98%	5.75%	59.75%	5.51	INR/kWh

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per DPR in line with “Guidelines for the reporting and validation of Plant load factors” stated in EB 48 Annex 11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data. Further, the actual generation data is available with the Project Owner which confirms that PLF breaching value of 41.02% is not achieved and is unlikely scenario.
Sensitivity Parameter 2 :O&M
The sensitivity analysis reveals that O & M cost will breach the benchmark at negative value and is a hypothetical case. Since the O & M cost is generally subject to escalation and also subject to inflationary pressure, any reduction in the O & M costs is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The Sensitivity is carried out for 10% variation and for threshold level below which benchmark is not breached. The project activity is already commissioned and actual project cost value is above the breaching value i. e. 30.83 INR million.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence,

there is no probability to get variation for the same. However, Sensitivity is carried out for +/- 10% even then the benchmark is not breached. The breaching value of 5.51 INR/kWh cannot be achieved as tariff is constant for entire lifetime @ 3.45 INR / kWh.

Final Result

Equity IRR without carbon fund (GCC)	Benchmark (Equity IRR)
3.98%	14.88%

Based on the above result, the equity IRR is less than Benchmark.

Project 4 – Balaji Cement Works

Details of the project		Source
State where the project is situated	Andhra Pradesh	
Total Capacity in DC (MW)	4.580	
Total Capacity in AC (MW)	4.200	As per DPR
Expected Date of Commissioning	1-Jan-23	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (DC)	18.55%	
PLF (AC)	20.22%	
Annual generation (MWh)	7,439.00	
Annual degradation from 2nd year onwards (%)	0.70%	As per DPR
Tariff rate (INR/kWh)	3.01	PPA
Operation and maintenance cost		
O & M Expenses (INR Mn.)/year	2.29	As per DPR
Escalation in the operational expenses (%)	5.00%	As per DPR
O & M free for (Yr.)	-	As per DPR

Financial parameters		
TOTAL COST (INR Mn.)	194.00	As per DPR
Equity Investment (INR Mn.)	194.00	Calculated Value
Loan Amount (INR Mn.)	-	Calculated Value
Insurance		
Insurance Cost (INR (Mn.)	0.97	
Term loan		
Margin (%)	30.00%	As per DPR
Loan Amount (INR Mn.)	-	Calculated Value
Interest rate (%)	0.00%	As per DPR
Loan Tenure (Qtr.)	20	As per DPR
Moratorium Period (Qtr.)	-	As per DPR
Repayment Period (Qtr.)	20	Calculated Value
Repayment instalments value (INR Mn.)	-	Calculated Value
1st instalment from (Qtr. end)	30-Jun-23	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	60	As per CERC Order Dt: 31.03.2015; Pg 202
O&M Expenses (Days)	30	As per CERC Order Dt: 31.03.2015; Pg 202
Interest on Working Capital Debt	3.00%	As per DPR
Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	As per DPR
Gross Depreciable Value (INR Mn.)	186.43	Calculated Value
Salvage Value (%)	10.00%	As per CERC Order Dt: 31.03.2015; Pg 29
Salvage value (INR Mn.)	18.64	Calculated Value
Net Depreciable Value (INR Mn.)	167.79	Calculated Value
Residual Value (INR Mn.)	18.64	Calculated Value
IT Depreciation (SLM Method)		
IT Depreciation Rate (%)	40.00%	As Per Income Tax , Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2020-21	
Income tax rate (%)	25.00%	As per DPR
MAT (%)	15.00%	As per DPR

GST(%)	18.00%	As Per Service Tax Rule
Surcharge (%)	7.00%	Tax rates applicable to a domestic company
Education cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	27.82%	Calculated Value
MAT (%)	16.69%	Calculated Value
Service Tax (%)	18.00%	Calculated Value

Post Tax Equity IRR for the project activities against the benchmark values are shown in table below. Thus, it is evident that the project is not financially attractive as the equity IRR is less below the benchmark value.

Post tax Equity IRR	4.99%
Benchmark Value	14.88%

Sensitivity Analysis

Addressing Guidance 28 & 29 of EB 105, Annex 06, following factors has been subjected to sensitivity analysis:

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

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

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate. Equity IRR is significantly lower than the benchmark and it is evident from the results given below; the project remains additional even under the most favorable conditions.

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Corresponding Value	Unit
PLF	3.64%	4.99%	6.26%	80.90%	36.58	%
O&M	5.24%	4.99%	4.73%	-522.00%	-9.66	INR Mn.
Project Cost	5.94%	4.99%	4.18%	-54.40%	88.46	INR Mn.
Tariff Rate	3.64%	4.99%	6.26%	80.90%	5.45	INR/kWh

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per DPR in line with "Guidelines for the reporting and validation of Plant load factors" stated in EB 48 Annex 11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data. Further, the actual generation data is available with the Project Owner which confirms that PLF breaching value of 36.58% is not achieved and is unlikely scenario.
Sensitivity Parameter 2 :O&M
The sensitivity analysis reveals that O & M cost will breach the benchmark at negative value and is a hypothetical case. Since the O & M cost is generally subject to escalation and also subject to inflationary pressure, any reduction in the O & M costs is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The Sensitivity is carried out for 10% variation and for threshold level below which benchmark is not breached. The project activity is already commissioned and actual project cost value is above the breaching value i. e. 88.46 INRmillion.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/- 10% even then the benchmark is not breached. The breaching value of 5.45 INR/kWh cannot be achieved as tariff is constant for entire lifetime @ 3.01 INR / kWh.

Final Result

Equity IRR without carbon fund (GCC)	Benchmark (Equity IRR)
4.99%	14.88%

Based on the above result, the equity IRR is less than Benchmark.

Project 5 – Ginigera Cement Works

Details of the project		Source
State where the project is situated	Karnataka	
Total Capacity in DC (MW)	2.586	
Total Capacity in AC (MW)	1.800	As per DPR
Expected Date of Commissioning	1-Jan-23	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (DC)	18.55%	

PLF (AC)	27.10%	
Annual generation (MWh)	4,273.00	
Annual degradation from 2nd year onwards (%)	0.70%	As per DPR
Tariff rate (INR/kWh)	3.30	PPA
Operation and maintenance cost		
O & M Expenses (INR Mn.)/year	1.29	As per DPR
Escalation in the operational expenses (%)	5.00%	As per DPR
O & M free for (Yr.)	-	As per DPR
Financial parameters		
TOTAL COST (INR Mn.)	109.40	As per DPR
Equity Investment (INR Mn.)	109.40	Calculated Value
Loan Amount (INR Mn.)	-	Calculated Value
Insurance		
Insurance Cost (INR (Mn.)	0.55	
Term loan		
Margin (%)	30.00%	As per DPR
Loan Amount (INR Mn.)	-	Calculated Value
Interest rate (%)	0.00%	As per DPR
Loan Tenure (Qtr.)	20	As per DPR
Moratorium Period (Qtr.)	-	As per DPR
Repayment Period (Qtr.)	20	Calculated Value
Repayment instalments value (INR Mn.)	-	Calculated Value
1st instalment from (Qtr. end)	30-Jun-23	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	60	As per CERC Order Dt: 31.03.2015; Pg 202
O&M Expenses (Days)	30	As per CERC Order Dt: 31.03.2015; Pg 202
Interest on Working Capital Debt	3.00%	As per DPR
Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	As per DPR
Gross Depreciable Value (INR Mn.)	101.83	Calculated Value
Salvage Value (%)	10.00%	As per CERC Order Dt: 31.03.2015; Pg 29

Salvage value (INR Mn.)	10.18	Calculated Value
Net Depreciable Value (INR Mn.)	91.65	Calculated Value
Residual Value (INR Mn.)	10.18	Calculated Value
IT Depreciation (SLM Method)		
IT Depreciation Rate (%)	40.00%	As Per Income Tax , Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2020-21	
Income tax rate (%)	25.00%	As per DPR
MAT (%)	15.00%	As per DPR
GST(%)	18.00%	As Per Service Tax Rule
Surcharge (%)	7.00%	Tax rates applicable to a domestic company
Education cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	27.82%	Calculated Value
MAT (%)	16.69%	Calculated Value
Service Tax (%)	18.00%	Calculated Value

Post Tax Equity IRR for the project activities against the benchmark values are shown in table below. Thus, it is evident that the project is not financially attractive as the equity IRR is less below the benchmark value.

Post tax Equity IRR	5.60%
Benchmark Value	14.88%

Sensitivity Analysis

Addressing Guidance 28 & 29 of EB 105, Annex 06, following factors has been subjected to sensitivity analysis:

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

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

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate. Equity IRR is significantly lower than the benchmark and it is evident

from the results given below; the project remains additional even under the most favorable conditions.

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Corresponding Value	Unit
PLF	4.18%	5.60%	7.07%	70.40%	46.18	%
O&M	5.84%	5.60%	5.36%	-502.00%	-5.20	INR Mn.
Project Cost	6.70%	5.60%	4.78%	-52.42%	52.05	INR Mn.
Tariff Rate	4.18%	5.60%	7.07%	70.40%	5.62	INR/kWh

Probability to breach the benchmark:
Sensitivity Parameter 1 : PLF
PLF considered in financials for is as per DPR in line with "Guidelines for the reporting and validation of Plant load factors" stated in EB 48 Annex 11 option 3(b). Hence, variation in PLF of more than 10% is unlikely to happen as the PLF has been reported as per the Third-Party Report based on long term data. Further, the actual generation data is available with the Project Owner which confirms that PLF breaching value of 46.18% is not achieved and is unlikely scenario.
Sensitivity Parameter 2 :O&M
The sensitivity analysis reveals that O & M cost will breach the benchmark at negative value and is a hypothetical case. Since the O & M cost is generally subject to escalation and also subject to inflationary pressure, any reduction in the O & M costs is highly unlikely.
Sensitivity Parameter 3 : Project Cost
Project Cost for financial analysis is considered from DPR of the project activity, being available at the time of investment making decision to go ahead with the project activity. The Sensitivity is carried out for 10% variation and for threshold level below which benchmark is not breached. The project activity is already commissioned and actual project cost value is above the breaching value i. e. 52.05 INRmillion.
Sensitivity Parameter 4 : Tariff Rate
The tariff is determined by PPA which is fixed for entire lifetime of the project activity. Hence, there is no probability to get variation for the same. However, Sensitivity is carried out for +/- 10% even then the benchmark is not breached. The breaching value of 5.62 INR/kWh cannot be achieved as tariff is constant for entire lifetime @ 3.30 INR / kWh.

Final Result

Equity IRR without carbon fund (GCC)	Benchmark (Equity IRR)
5.60%	14.88%

Based on the above result, the equity IRR is less than Benchmark.

Outcome of Step 2:

This substantiates that the investment is not financially attractive (Equity IRR for the project activity is less than the Benchmark Equity IRR) for any investor, therefore finding the project activity additional and not a business-as-usual scenario.

The investment and sensitivity analysis shows that the ACC revenues will improve the financial indicators of the project remarkably. Considering that the figures above are based on a higher price rather than the government guaranteed floor price, optimistic estimations for yearly generation, and that those figures do not reflect the risk for investment, the role of carbon credit income is a significant number that enables the project to proceed.

Step 3: Barrier analysis

Barrier analysis has not been used.

Step 4: Common practice analysis

The project activity involves generation of electricity from solar energy.

Stepwise approach for common practice analysis has been carried out as per Methodological tool "Common Practice", version 03.1 EB 84, Annex 7:

Project 1 – Manikgarh Cement Works

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

Range	Capacity (MW)
+50 %	5.20
Capacity of the project activity	10.40
-50 %	15.60

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

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the project activity;
- The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the project activity;
- The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g., clinker) as the proposed project plant;
- The capacity or output of the projects is within the applicable capacity range for the chosen projects.
- The projects started commercial operation before the PSF is published for global stakeholder consultation or before the start date of project activity, whichever is earlier for the project activity.

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

- The applicable geographical area is the states Maharashtra in India because each state has different tariff structures for renewable energy projects, thus each state has a different investment climate for renewable energy projects. Therefore, projects located in Andhra Pradesh have been chosen for analysis.
- The project activity is a greenfield solar power project and uses measure (b) “Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies”. Therefore, projects applying the same measure (b) are candidates for similar projects.
- The energy source used by the project activity is solar so only solar energy projects have been considered for analysis.
- The project activity produces electricity, therefore, all power plants that produce electricity are candidates for similar projects.
- The project activity is a captive solar power plant, therefore, all captive solar power plants that produce electricity are candidates for similar projects.
- The capacity range of the similar projects shall fall within the applicable capacity range from 5.20 MW to 15.60 MW.

- We have considered the project above from 4.5 MW for common practice .
- The start date of the concerned project activity is expected on 25/02/2022. Therefore projects, which have started commercial operation before 25/02/2022, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are:
N_{solar}= 0

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number as N_{all}. CDM project activities, which are registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the GCC Verifier. After excluding the registered and under validation projects, the total number of projects are:

N_{all} = 0

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

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis of point (d) Investment climate on the date of the investment decision, (iv) Legal regulations. The project activity is established on group captive model and selling their electricity to offtakers (power purchaser) according the signed PPA with respective offtakers. The tariff is regulated/governed by the respective PP investment analysis.

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

1. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on these criteria, there are no any different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – The solar projects developed under different phases and different batches of National Solar Mission (NSM) can considered

as different technology projects. For project activity, there are no any different technology project considered out of similar identified projects.

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

$N_{diff} = 0$

Step (5): calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the project activity.

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

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

$N_{all} - N_{diff} = 0$---------- (ii)

As per methodological tool “common practice” version 3.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3. Thus, if both conditions are fulfilled, then project activity will be a common practice. Otherwise, the project activity is treated as not a common practice.
Since there are no captive solar project found in above mentioned geographical with same technology/measures & both the conditions are not fulfilled , Hence the proposed project activity is not common.

Project 2 – MSW Processing Plant Jaipur

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

Range	Capacity (MW)
+50 %	0.11

Capacity of the project activity	0.22
-50 %	0.33

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

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the project activity;
- The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the project activity;
- The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g., clinker) as the proposed project plant;
- The capacity or output of the projects is within the applicable capacity range for the chosen projects.
- The projects started commercial operation before the PSF is published for global stakeholder consultation or before the start date of project activity, whichever is earlier for the project activity.

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

- The applicable geographical area is the states Rajasthan in India because each state has different tariff structures for renewable energy projects, thus each state has a different investment climate for renewable energy projects. Therefore, projects located in West Bengal have been chosen for analysis.
- The project activity is a greenfield solar power project and uses measure (b) “Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies”. Therefore, projects applying the same measure (b) are candidates for similar projects.
- The energy source used by the project activity is solar so only solar energy projects have been considered for analysis.
- The project activity produces electricity, therefore, all power plants that produce electricity are candidates for similar projects.

- The project activity is a captive solar power plant, therefore, all captive solar power plants that produce electricity are candidates for similar projects.
- The capacity range of the similar projects shall fall within the applicable capacity range from 0.11 MW to 0.33 MW.
- The start date of the concerned project activity is expected on 21/02/2022. Therefore projects, which have started commercial operation before 21/02/2022, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are:

N_{solar}= 2

Plant Name	Fuel used	Industry	Installed capacity	Source/Address
Kotputli Cement Works	solar	Cement	0.11 MW	Captive Power Plant List-Solar.xlsx / list_CPP_2018-19.pdf
J.K. White Cement Works	solar	Cement	0.17 MW	Captive Power Plant List-Solar.xlsx / list_CPP_2018-19.pdf

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number as N_{all}. CDM project activities, which are registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the GCC Verifier. After excluding the registered and under validation projects, the total number of projects are:

N_{all} = 2

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

As per the tool on Common Practice, the project activities have been separated from the different

technologies on the basis of point (d) Investment climate on the date of the investment decision, (iv) Legal regulations. The project activity is established on group captive model and selling their electricity to offtakers (power purchaser) according the signed PPA with respective offtakers. The tariff is regulated/governed by the respective PP investment analysis.

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

1. Size of Installation – Since project activity is small scale project, small and micro scale projects are considered as different technology project. Based on these criteria, there are all different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – The solar projects developed under different phases and different batches of National Solar Mission (NSM) can considered as different technology projects. For project activity, there are no any different technology project considered out of similar identified projects.

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

$N_{diff} = 2$

Step (5): calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the project activity.

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

$F = 1 - (2/2) = 1$ ---------- (i)

$N_{all} - N_{diff} = 2 - 2 = 0$ ---------- (ii)

As per methodological tool “common practice” version 3.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and $N_{all} - N_{diff}$ is greater than 3. Thus, if both conditions are fulfilled, then project activity will be a common

practice. Otherwise, the project activity is treated as not a common practice.

Since there are no captive solar project found in above mentioned geographical with same technology/measures & both the conditions are not fulfilled , Hence the proposed project activity is not common.

Project 3 – NMBT

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

Range	Capacity (MW)
+50 %	0.50
Capacity of the project activity	1.00
-50 %	1.50

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

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the project activity;
- The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the project activity;
- The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g., clinker) as the proposed project plant;
- The capacity or output of the projects is within the applicable capacity range for the chosen projects.
- The projects started commercial operation before the PSF is published for global stakeholder consultation or before the start date of project activity, whichever is earlier for the project activity.

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

- The applicable geographical area is the states Maharashtra in India because each state has different tariff structures for renewable energy projects, thus each state has a different investment climate for renewable energy projects. Therefore, projects located in Punjab have been chosen for analysis.
- The project activity is a greenfield solar power project and uses measure (b) “Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies”. Therefore, projects applying the same measure (b) are candidates for similar projects.
- The energy source used by the project activity is solar so only solar energy projects have been considered for analysis.
- The project activity produces electricity, therefore, all power plants that produce electricity are candidates for similar projects.
- The project activity is a captive solar power plant, therefore, all captive solar power plants that produce electricity are candidates for similar projects.
- The capacity range of the similar projects shall fall within the applicable capacity range from 0.50 MW to 1.50 MW.
- The start date of the concerned project activity is expected on 11/08/2022. Therefore projects, which have started commercial operation before 11/08/2022, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are:
N_{solar}= 0

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number as N_{all}. CDM project activities, which are registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the GCC Verifier. After excluding the registered and under validation projects, the total number of projects are:

N_{all} = 0

Step (4): Within similar projects identified in Step 3, identify those that apply technologies that are

different to the technology applied in the proposed project activity. Note their number N_{diff}.

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis of point (d) Investment climate on the date of the investment decision, (iv) Legal regulations. The project activity is established on group captive model and selling their electricity to offtakers (power purchaser) according the signed PPA with respective offtakers. The tariff is regulated/governed by the respective PP investment analysis.

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

1. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on these criteria, there are no any different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – The solar projects developed under different phases and different batches of National Solar Mission (NSM) can considered as different technology projects. For project activity, there are no any different technology project considered out of similar identified projects.

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

$N_{diff} = 0$

Step (5): calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the project activity.

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

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

$N_{all}- N_{diff} = 0$---------- (ii)

As per methodological tool “common practice” version 3.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and N_{all} - N_{diff} is greater than 3. Thus, if both conditions are fulfilled, then project activity will be a common practice. Otherwise, the project activity is treated as not a common practice.

Since there are no captive solar project found in above mentioned geographical with same technology/measures & both the conditions are not fulfilled, Hence the proposed project activity is not common.

Project 4– Balaji Cement Works

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

Range	**Capacity (MW)**
+50 %	2.10
Capacity of the project activity	4.20
-50 %	6.30

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

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the project activity;
- The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the project activity;
- The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g., clinker) as the proposed project plant;
- The capacity or output of the projects is within the applicable capacity range for the chosen projects.
- The projects started commercial operation before the PSF is published for global stakeholder consultation or before the start date of project activity, whichever is earlier for the project activity.

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

- The applicable geographical area is the states Andhra Pradesh in India because each state has different tariff structures for renewable energy projects, thus each state has a different investment climate for renewable energy projects. Therefore, projects located in Madhya Pradesh have been chosen for analysis.
- The project activity is a greenfield solar power project and uses measure (b) “Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies”. Therefore, projects applying the same measure (b) are candidates for similar projects.
- The energy source used by the project activity is solar so only solar energy projects have been considered for analysis.
- The project activity produces electricity, therefore, all power plants that produce electricity are candidates for similar projects.
- The capacity range of the similar projects shall fall within the applicable capacity range from 2.10 MW to 6.30 MW.
- The start date of the concerned project activity is expected on 01/01/2023. Therefore projects, which have started commercial operation before 01/01/2023, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are:
N_{solar}= 0

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number as N_{all}. CDM project activities, which are registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the GCC Verifier. After excluding the registered and under validation projects, the total number of projects are:

N_{all} = 0

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

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis of point (d) Investment climate on the date of the investment decision, (iv) Legal regulations. The project activity is established on group captive model and selling their electricity to offtakers (power purchaser) according the signed PPA with respective offtakers. The tariff is regulated/governed by the respective PP investment analysis.

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

1. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on these criteria, there are no any different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – The solar projects developed under different phases and different batches of National Solar Mission (NSM) can considered as different technology projects. For project activity, there are no any different technology project considered out of similar identified projects.

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

$N_{diff} = 0$

Step (5): calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the project activity.

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

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

$N_{all} - N_{diff} = 0$---------- (ii)

As per methodological tool “common practice” version 3.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and N_{all} - N_{diff} is greater than 3. Thus, if both conditions are fulfilled, then project activity will be a common practice. Otherwise, the project activity is treated as not a common practice.
Since there are no captive solar project found in above mentioned geographical with same technology/measures & both the conditions are not fulfilled , Hence the proposed project activity is not common.

Project 5 – Ginigera Cement Works

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

Range	Capacity (MW)
+50 %	0.90
Capacity of the project activity	1.80
-50 %	2.70

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

- The projects are located in the applicable geographical area;
- The projects apply the same measure as the project activity;
- The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the project activity;
- The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g., clinker) as the proposed project plant;
- The capacity or output of the projects is within the applicable capacity range for the chosen projects.
- The projects started commercial operation before the PSF is published for global stakeholder consultation or before the start date of project activity, whichever is earlier for the project activity.

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

- The applicable geographical area is the states Karnataka in India because each state has different tariff structures for renewable energy projects, thus each state has a different investment climate for renewable energy projects. Therefore, projects located in Rajasthan have been chosen for analysis.
- The project activity is a greenfield solar power project and uses measure (b) “Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies”. Therefore, projects applying the same measure (b) are candidates for similar projects.
- The energy source used by the project activity is solar so only solar energy projects have been considered for analysis.
- The project activity produces electricity, therefore, all power plants that produce electricity are candidates for similar projects.
- The project activity is a captive solar power plant, therefore, all captive solar power plants that produce electricity are candidates for similar projects.
- The capacity range of the similar projects shall fall within the applicable capacity range from 0.90 MW to 2.70 MW.
- The start date of the concerned project activity is expected on 01/01/2023. Therefore projects, which have started commercial operation before 01/01/2023, have been considered for analysis.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are:

N_{solar}= 1

Plant Name	Fuel used	Industry	Installed capacity	Source/Address
Ultra Tech Cements Ltd. (Unit;Rajashree Cements),Gulbarga	solar	Cement	0.100 MW	Captive Power Plant List-Solar.xlsx / list_CPP_2018-19.pdf

Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number as N_{all}. CDM project activities, which are registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the GCC Verifier. After excluding the registered and under validation projects, the total number of projects are:

$N_{all} = 1$

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

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis of point (d) Investment climate on the date of the investment decision, (iv) Legal regulations. The project activity is established on group captive model and selling their electricity to offtakers (power purchaser) according the signed PPA with respective offtakers. The tariff is regulated/governed by the respective PP investment analysis.

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

1. Size of Installation – Since project activity is large scale project, small and micro scale projects are considered as different technology project. Based on these criteria, there are no any different technology project out of similar identified projects.
2. Investment climate on the date of the investment decision – The solar projects developed under different phases and different batches of National Solar Mission (NSM) can considered as different technology projects. For project activity, there are no any different technology project considered out of similar identified projects.

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

$N_{diff} = 0$

Step (5): calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the project activity.

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

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

$N_{all}- N_{diff} = 1 – 0 = 1$ ---------- (ii)

As per methodological tool “common practice” version 3.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is greater than 0.2 and N_{all} - N_{diff} is greater than 3. Thus, if both conditions are fulfilled, then project activity will be a common practice. Otherwise, the project activity is treated as not a common practice.

Since both the conditions are not fulfilled , Hence the proposed project activity is not common.

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

As per the paragraph 30 of the methodologyGCCM001 version 4.0 emission reductions are calculated as follows:

$ER_y=BE_y– PE_y-LE_y$

Where,

ER_y	=	Emission reductions in year y (tCO_2e/)
BE_y	=	Baseline emissions in year y (tCO_2e/)
PE_y	=	Project emissions in year y (tCO_2e/)
LE_y	=	Leakage emissions in year y (tCO_2e/)

As the project activity is a solar project, there is no any project emissions from the project activity.

Hence, $PE_y = 0$

As per paragraph 29 of the applicable methodology, no leakage emissions are anticipated.

Baseline emissions:

For proposed project activity, baseline emissions are calculated as per paragraph 24, case-1.

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

Where

BE_y = Baseline emissions in year y (tCO_2/yr)

$EG_{PJ,y}$= Quantity of net electricity generation that is produced and fed into the grid or supplied to recipient captive user replacing grid power as a result of the implementation of the GCC project activity in project year y in a greenfield project activity (MWh)

$EF_{grid,CM,y}$ = CO_2 emission factor for grid connected power generation in year y (t CO_2/MWh) determined as per option 1 using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

As per the "Tool to calculate the emission factor for an electricity system" version 07, combined margin is calculated as below:

CO_2 Baseline Database for The Indian Power Sector, Version 18, September 2022, published by Central Electricity Authority (CEA), the Government of India has been used for the calculation of emission reduction.

(a) Step 1: Identify the relevant electricity systems:

(b) Step 2: Choose whether to include off-grid power plants in the project electricity system (optional):

(c) Step 3: Select a method to determine the operating margin (OM):

(d) Step 4: Calculate the operating margin emission factor according to the selected method:

(e) Step 5: Calculate the build margin (BM) emission factor:

(f) Step 6: Calculate the combined margin (CM) emission factor.

Step1: Identify the relevant electricity systems

As described in Methodological tool to calculate the emission factor for an electricity system, “For determining the electricity emission factors, the project participants shall identify the relevant project electricity system. Similarly, the project participants shall identify any connected electricity systems.” It also states that “If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used”.

As of August 2006, all Indian regional grids, except the southern grid, have been integrated and are operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids are treated as a single grid, known as NEWNE grid from FY 2007-08 onwards. As of 31 December 2013, the southern grid has also been synchronized with the NEWNE grid, hence forming one unified Indian Grid. Since the project supplies electricity to the Indian grid, emissions generated due to the electricity generated by the Indian grid as per CM calculations will serve as the baseline for this project.

Table: Geographical Scope of the Indian Electricity Grid

Northern	Eastern	Western	North-	Southern
Chandigarh	Bihar	Chhattisgarh	Arunachal	Andhra
Delhi	Jharkhand	Gujarat	Assam	Karnataka
Haryana	West Bengal	Daman & Diu	Manipur	Kerala
Himachal	Sikkim	Dadar & Nagar	Meghalaya	Tamil Nadu
Jammu & Kashmir	Andaman & Nicobar	Madhya Pradesh	Mizoram	Telangana
Punjab		Maharashtra	Nagaland	Puducherry
Rajasthan		Goa	Tripura	Lakshadweep
Uttar Pradesh				
Uttarakhand				

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.

Option II: Both grid power plants and off-grid power plants are included in the calculation.

The Project Participants has chosen only grid power plants in the calculation.

Step-3: Select a method to determine the operating margin (OM)

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described under Step 4:

(a) Simple OM: or

(b) Simple adjusted OM: or

(c) Dispatch data analysis OM: or

(d) Average OM.

The data required to calculate (b) simple adjusted OM and (c) dispatch data analysis OM is not available to project developers. Choosing between (a) simple OM and (b) average OM methods to calculate operating margin emission factor depends on the electricity generation of low-cost/must-run sources. In the context of the methodology, low-cost/must-run resources typically include hydro, geothermal, solar, low cost biomass, nuclear, and solar generation.

Share of Must-Run (Hydro/Nuclear) (% of Net generation)

	2016-17	2017-18	2018-16	2019-20	2020-21	2021-22
India	14.6%	14.3%	14.5%	17.0%	16.5%	15.8%

Data Source:Central Electricity Authority (CEA) database Version 18.0, September 2022[28]

The above data shows that the percentage of total grid generation by low-cost/must-run plants (on the basis of average of five most recent years) for the Indian grid is less than 50% of the total generation. Thus, the Average OM method cannot be applied, as low-cost/must-run resources constitute less than 50% of total grid generation

The Simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving this system, not including low-cost/must-run power plants/units.

[28] https://cea.nic.in/cdm-co2-baseline-database/?lang=en

For the simple OM, the simple adjusted OM and the average OM methods, the emissions factor can be calculated using either of the following data vintages:

(a) Ex-ante options: If the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emission factor during the crediting period is required.

OR

(b) Ex-post option: If the ex post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

PP has chosen the ex-ante option for calculation of Simple OM emission factor using a three-year generation-weighted average, based on the most recent data available at the time of submission of PSF for validation.

OM determined at validation stage will be the same throughout the crediting period. There will be no requirement to monitor and recalculate the emission factor during the crediting period.

Step 4: Calculate the operating margin emission factor ($EF_{grid,OMSimple,y}$) according to the selected method

The operating margin emission factor has been calculated using a 3-year data vintage:

Net Generation in operating Margin (GWh) (Incl. Imports)			
	2019-20	**2020-21**	**2021-22**
Indian Grid	9,65,009	9,58,218	10,35,672

Simple Operating Margin (t C02/MWh) (incl. imports)			
	2019-20	**2020-21**	**2021-22**
Indian Grid	0.9541	0.9402	0.9605

Weighted Generation Operating Margin	
Indian Grid	0.9518

Step 5: Calculate the build margin (BM) emission factor ($EF_{grid,BM,y}$)

As per Methodological tool “Tool to calculate the emission factor for an electricity system” (Version 07.0, EB 100, Annex 4) paragraph 72:

In terms of vintage of data, project participants can choose between one of the following two options:

a) **Option 1-** for the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of PSF submission to the GCC Verifier for project verification. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the GCC Verifier. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

b) **Option 2-** For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex-ante as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Option 1 as described above is chosen by PP to calculate the build margin emission factor for the project activity. BM is calculated ex-ante based on the most recent information available at the time of submission of PSF and is fixed for the entire crediting period.

Build Margin (tCO_2/MWh) (not adjusted for imports)	
	2021-22
Indian Grid	**0.8687**

Step 6: Calculate the combined margin (CM) emission factor ($EF_{grid,CM,y}$)

As per Methodological too “Tool to calculate the emission factor for an electricity system” (Version 07.0, EB 100, Annex 4) paragraph 81:

The calculation of the combined margin (CM) emission factor ($EF_{grid,CM,y}$) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM.

PP has chosen option (a) weighted average CM to calculate the combined margin emission factor for the project activity.

The combined margin emissions factor is calculated as follows:

$EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * {}_{BM}$

Where

$EF_{grid,BM,y}$ = Build margin CO_2emission factor in year y (tCO_2/ MWh)

$EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year y (tCO_2/MWh)

W_{OM}= Weighting of operating margin emissions factor (per cent)

W_{BM}= Weighting of build margin emissions factor (per cent)

The following default values should be used for WOM and WBM:

For solar project activities W_{OM} =0.75 and W_{BM} = 0.25 (owing to their intermittent and non-dispatchable nature) for the second crediting period and for subsequent crediting periods. Since project activity is of power generation by using solar, the above weightage has been considered for OM and BM.

Therefore, $EF_{grid,CM,y}$ =0. 9518*0.75+ 0.8687*0.25

= **0.9310** tCO_2/MWh

Baseline emission factor (EF_y):

The baseline emission factor is calculated using the combined margin approach as described in Step 6 above:

Therefore, $EF_{grid,y} = EF_{grid,CM,y}$ = 0.9310 tCO_2/MWh

B.6.2. Data and parameters fixed ex ante

Data / Parameter Table 1.

Data / Parameter:	**$EF_{grid,CM,y}$**
Methodology reference	GCCM001 version 4.0
Data unit	tCO_2/MWh
Description	Combined Margin CO_2 emission factor in the year y
Measured/calculated /default	Calculated
Data source	CO_2 Emission Database, Version 18.0, September 2022 published by Central Electricity Authority (CEA), Government of India.
Value(s) of monitored parameter	0.9310 tCO_2/MWh
Measurement/ Monitoring equipment (if applicable)	<table><tr><td></td><td></td></tr><tr><td>Type of meter</td><td>Electronic Tri-vector and Bi-directional Energy Meters</td></tr><tr><td>Location of meter</td><td>Substation</td></tr><tr><td>Accuracy of meter</td><td>0.2s</td></tr><tr><td>Serial number of meter</td><td>To be confirmed during registration process</td></tr><tr><td>Calibration frequency</td><td>Once in five years[29]</td></tr><tr><td>Date of Calibration/ validity</td><td>To be confirmed during registration process</td></tr><tr><td>Reference No. of Calibration Certificate</td><td>To be confirmed during registration process</td></tr><tr><td>Calibration Status</td><td>To be confirmed during registration process</td></tr></table>
Measuring/reading/ recording frequency (if applicable)	Not Applicable
Calculation method (if applicable)	The combined margin emissions factor is calculated as follows: $EF_{grid,\ CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (tCO_2/MWh). $EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (tCO_2/MWh). W_{OM} = Weighting of operating margin emissions factor (%) =75% W_{BM} =Weighting of build margin emissions factor (%)=25%
QA/QC procedures	Not Applicable
Purpose of data	To calculate baseline emissions
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

[29] https://cea.nic.in/wp-content/uploads/2020/04/review_regulation.pdf

B.6.3. Ex-ante calculation of emission reductions

Formula used to calculate the net emission reduction for the project activity is

$ER_y = BE_y - PE_y - LE_y$

Where,
ER_y = Emission Reduction in year y (t CO_2)
BE_y = Baseline emission year y (t CO_2)
PE_y = Project emissions year y (t CO_2)

Baseline Emission (BE_y)

The baseline emissions are the product of electrical energy baseline $EG_{PJ,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor.

$BE_y = EG_{PJ,y} * EF_{grid,cm,y}$

Where,

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

As per the applied methodology ACM0002 V 20.0, no project and leakage emissions are considered in the project activity.
Hence,
project emissions PE_y = 0 tCO_2e
Leakage emissions LE_y = 0 tCO_2e

Therefore, $ER_y = BE_y$

Investor Name	Average Baseline emissions	Project emissions	Leakage Emissions	Average Emission reductions
	(tCO_2e/ year)	(tCO_2e/ year)	(tCO_2e/ year)	(tCO_2e/ year)
Manikgarh Cement Works	20,420	0	0	20,420
MSW Processing Plant Jaipur	389	0	0	389
NMBT	1,924	0	0	1,924
Balaji Cement Works	6,364	0	0	6,364
Ginigera Cement Works	3,655	0	0	3,655
Total	**32,750**	**0**	**0**	**32,750**

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions	Project emissions	Leakage	Emission reductions
	(t CO_2e)	(t CO_2e)	(t CO_2e)	(t CO_2e)
1	17,966	0	0	17,966
2	35,392	0	0	35,392
3	35,141	0	0	35,141
4	34,892	0	0	34,892
5	34,642	0	0	34,642
6	34,393	0	0	34,393
7	34,143	0	0	34,143
8	33,895	0	0	33,895
9	33,644	0	0	33,644
10	33,395	0	0	33,395
Total	327,503	0	0	327,503
Total number of crediting years	10			
Annual average over the crediting period	32,750			32,750

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored *EX-POST*

Data / Parameter Table 01

<table>
<tr><td>Data / Parameter:</td><td>$EG_{PJ,BUNDLE\ 7}$(SDG 7)</td></tr>
<tr><td>Methodology reference</td><td>GCCM001 Methodology for Renewable Energy Generation Projects Supplying Electricity to Grid or Captive Consumers Version 4.0</td></tr>
<tr><td>Data unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Quantity of net electricity generation supplied by the project plants to the grid in year y</td></tr>
<tr><td>Measured/calculated /default</td><td>Measured and calculated based on values for 5 project activities</td></tr>
<tr><td>Data source</td><td>Meter readings by legal owners</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>
<table>
<tr><th>Project</th><th>Value Monitored (MWh)</th></tr>
<tr><td>Manikgarh Cement Works</td><td>23,869</td></tr>
<tr><td>MSW Processing Plant Jaipur</td><td>455</td></tr>
<tr><td>Navi Mumbai Bulk Terminal</td><td>2,249</td></tr>
<tr><td>Balaji Cement Works</td><td>7,439</td></tr>
<tr><td>Ginigera Cement works</td><td>4,273</td></tr>
<tr><td>TOTAL</td><td>38,285</td></tr>
</table>
</td></tr>
<tr><td>Measurement/ Monitoring equipment</td><td>
<table>
<tr><td colspan="2"></td></tr>
<tr><td>Type of meter</td><td>Electronic Tri-vector and Bidirectional Energy Meters</td></tr>
<tr><td>Location of meter</td><td>Substation</td></tr>
<tr><td>Accuracy of meter</td><td>0.2s</td></tr>
<tr><td>Serial number of meter</td><td>To be confirmed during registration process</td></tr>
<tr><td>Calibration frequency</td><td>Once in five years[30]</td></tr>
<tr><td>Date of Calibration/ validity</td><td>To be confirmed during registration process</td></tr>
<tr><td>Reference No. of Calibration Certificate</td><td>To be confirmed during registration process</td></tr>
<tr><td>Calibration Status</td><td>To be confirmed during registration process</td></tr>
</table>
</td></tr>
<tr><td>Measuring/reading/ recording frequency</td><td>Continuous measurement & monthly recording</td></tr>
<tr><td>Calculation method (if applicable)</td><td>The net electricity generation is calculated based on Export – Import to the meters connected at the project switchyard/sub- station. Thus, the value of net electricity supplied is directly sourced from the meter reading statement, so the actual value obtained in the statement is the</td></tr>
</table>

[30] https://cea.nic.in/wp-content/uploads/2020/04/review_regulation.pdf

	value calculated based on the (export– import) value. The same calculation method has been used for the ER Calculations.
QA/QC procedures	The calibration of all the meters will be undertaken at required intervals (at least once every five years) and faulty meters will be duly replaced immediately. The meters will be of accuracy class 0.5s or better. The meter(s) shall be calibrated and maintained by the state utility per their own schedule and the frequency of meter calibration is not within the control of the Project Owner. Calibration of electricity meters is carried out in-line with the National standard, which recommends this take place at least once in five years or whenever abnormalities or inconsistencies are observed between the main meter and check meter.
Purpose of data	To calculate baseline emissions.
Additional comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

Data/Parameter 2

Data / Parameter:	**End poverty in all its forms everywhere (SDG 1)**
Methodology reference	GCC Project Sustainability Standard_V3.1
Data unit	Number of persons employed
Description	Number of persons employed considering both direct and indirect (Engagement of persons through contracting agency).
Measured/calculated /default	Measured
Data source	Employee logbook or register and confirmation from contractual service Agency
Value(s) of monitored parameter	To be determined at the time verification/issuance
Measurement/ Monitoring equipment	

Type of meter	Not applicable
Location of meter	Not applicable
Accuracy of meter	Not applicable
Serial number of meter	Not applicable
Calibration frequency	Not applicable
Date of Calibration/ validity	Not applicable

	Reference No. of Calibration Certificate	Not applicable
	Calibration Status	Not applicable
Measuring/reading/ recording frequency	Yearly	
Calculation method (if applicable)	The total number of direct and indirect employment to be confirmed from the appointment letter and confirmation by contractual agency.	
QA/QC procedures	The number of persons employed is mentioned in the employment Register	
Purpose of data	To justify SDG Goal 1 - End poverty in all its forms	
Additional comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.	

Data/Parameter 3.

Data / Parameter:	**Promote sustained, inclusive and sustainable economic growth,full and productive employment and decent work for all (SDG 8)**	
Methodology reference	GCC Project Sustainability Standard_V3.1	
Data unit	Number	
Description	Number of local employment generation including both direct or indirect employment during project construction and project operation.	
Measured/calculated /default	Measured	
Data source	Employee logbook or register and confirmation from contractual service Agency	
Value(s) of monitored parameter	To be determined at the time verification/issuance	
Measurement/ Monitoring equipment		
	Type of meter	Not applicable
	Location of meter	Not applicable
	Accuracy of meter	Not applicable
	Serial number of meter	Not applicable
	Calibration frequency	Not applicable
	Date of Calibration/ validity	Not applicable
	Reference No. of Calibration Certificate	Not applicable
	Calibration Status	Not applicable
Measuring/reading/ recording frequency	Yearly	

Calculation method (if applicable)	The total number of local people employed can be confirmed from the employee logbook or register and confirmation from contractual service agency
QA/QC procedures	The number of persons employed is mentioned in the plant register, which can be crossed checked with daily attendance register. Additionally, confirmation from contractual service agency will confirm about the temporary employment.
Purpose of data	To justify SDG 8- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Additional comments	Data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.

Data / Parameter 04.

Data / Parameter:	**CO_2 Emissions (SDG 13)**
Methodology reference	GCC Environment and Social Safeguards Standard v2.0
Data unit	tCO_2
Description	Reduction of CO_2 emissions due to the implementation of the project activity that would otherwise be emitted by thermal power plants.
Measured/calculated /default	Calculated
Data source	Electricity generated and OM & BM calculations
Value(s) of monitored parameter	327,503 tCO_2e
Measurement/ Monitoring equipment	
Measuring/reading/ recording frequency	Continuous reading& monthly recording

Type of meter	Electronic Tri-vector and Bidirectional Energy Meters
Location of meter	Substation
Accuracy of meter	0.2s
Serial number of meter	To be confirmed during registration process
Calibration frequency	Once in five years[31]
Date of Calibration/ validity	To be confirmed during registration process
Reference No. of Calibration Certificate	To be confirmed during registration process
Calibration Status	To be confirmed during registration process

[31] https://cea.nic.in/wp-content/uploads/2020/04/review_regulation.pdf

Calculation method (if applicable)	The net electricity supplied by the Project will be continuously measured and recorded.
QA/QC procedures	The meters will be tested and sealed by the State Utility and are in the custody of State Utility. The metering arrangement, accuracy class of meters, and calibration frequency is under control of state utility, and the Project Owner does not have any control. The calibration of all the meters is planned to be carried out in-line with the National standard, which recommends calibration at least once in five years. Faulty meters will be duly replaced. The meters will be of accuracy class 0.2s.
Purpose of data	To assess the contribution SDG 13 Climate Action / 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions development.
Additional comments	Data will be archived in paper and electronically for a period of two years beyond the end of crediting period.

For Parameters to be monitored for E+/S+ assessments and SDG labels (positive impacts)

Data / Parameter:	Long term job creation
Purpose:	To demonstrate positive impacts of aspects w. r. t. baseline scenario / BAU / pre-existing scenario and to demonstrate that they do not cause any net harm to environment / society or have an impact on SDG as per selected indicators.
Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	Long-term jobs (> 1 year) created
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG	

Parameter to be monitored	Long term jobs
Frequency of monitoring	Annual
Legal /regulatory / corporate limits (if any)	No

	QA/QC: To be checked against HR records
Remarks	Data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.

Data / Parameter:	Short term job creation
Purpose:	To demonstrate positive impacts of aspects w. r. t. baseline scenario / BAU / pre-existing scenario and to demonstrate that they do not cause any net harm to environment / society or have an impact on SDG as per selected indicators.
Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	Short-term jobs (< 1 year) created
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	Parameter to be monitored: Short term jobs Frequency of monitoring: Annual Legal /regulatory / corporate limits (if any): No QA/QC: To be checked against HR records
Remarks	Data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.

Data / Parameter:	Income generation sources
Purpose:	To demonstrate positive impacts of aspects w.r.t. baseline scenario / BAU / pre-existing scenario and to demonstrate that they do not cause any net harm to environment / society or have an impact on SDG as per selected indicators.

Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	Sources of income generation increased
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td></td><td></td></tr><tr><td>Parameter to be monitored</td><td>New jobs created/continued over the project crediting period</td></tr><tr><td>Frequency of monitoring</td><td>Annual</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>No</td></tr><tr><td>QA/QC</td><td>The parameter will be checked based on HR records, salary slips, PF slips etc.</td></tr></table>
Remarks	Data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.

Data / Parameter:	Trainings to employed personnel
Purpose:	To demonstrate positive impacts of aspects wrt baseline scenario / BAU / preexisting scenario and to demonstrate that they do not cause any net harm to environment / society or have an impact on SDG as per selected indicators.
Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	Job related training imparted
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td></td><td></td></tr><tr><td>Parameter to be monitored</td><td>Training records of the employed people</td></tr><tr><td>Frequency of monitoring</td><td>Annual</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>No</td></tr><tr><td>QA/QC</td><td>HR training records</td></tr></table>
Remarks	Data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.

Data / Parameter:	Working conditions at the project site
Purpose:	To demonstrate positive impacts of aspects wrt baseline scenario / BAU / preexisting scenario and to demonstrate that they do not cause any net harm to environment / society or have an impact on SDG as per selected indicators.
Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	Improving working conditions
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td>Parameter to be monitored</td><td>Working conditions as the project site will be monitored</td></tr><tr><td>Frequency of monitoring</td><td>Annual</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>No</td></tr><tr><td>QA/QC</td><td>A grievance register will be maintained which will be used to check any grievance regarding working conditions and actions taken.</td></tr></table>
Remarks	Data will be archived in paper & electronically for a period of 2 years beyond the end of crediting period or of the last issuance of credits for this project activity, whichever occurs later.

B.7.2. Data and parameters to be monitored for E+/S+ assessments (negative impacts)

Data / Parameter:	Ground use due to the project activity
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for land use of the project activity (PRMA 01)**
Purpose:	To monitor environmental impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 01.
Describe the environment /social impact risk that needs to be mitigated.	Solar power plants are constructed on a land either leased on a long term/purchased from the legal land owners. Thus negative impacts due to the project on land use are not envisaged. .
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	The land use pattern within the project premises will be monitored on a yearly basis to understand the impact of the project on the same.

<table>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td>Monitoring of land use</td><td>Project Participant</td><td>01</td><td>To be monitored for complete monitoring period</td><td>Land use monitoring</td><td>To be monitored for complete monitoring period</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="2">End date of crediting period</td><td colspan="2"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Record will be maintained and submitted during verification.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>Monitored data and record will be submitted to verifier during the emission reduction verification.</td></tr>
</table>

Data / Parameter:	**Solid waste Pollution from Hazardous wastes**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for hazardous waste due to operation of the project activity (PRMA 03)**
Purpose:	To monitor environmental impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 03.
Describe the environment /social impact risk that needs to be mitigated.	Hazardous waste is generated during end of the life for the equipment used i. e. turbines/wind blades/generators/ generator oil etc.
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	The project is bound by local laws and regulations regarding hazardous waste I e. Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016. As pet this rule, project participants have to give hazardous waste to the identified hazardous waste collector who takes care of its disposal.

Program of Risk Management Actions to achieve the target(s):	

S.No.	Action and targets	Responsibility	Resource Requirement	Target to be Achieved by *(insert date)*	Key Performance Indicators (KPI)	Targets achieved on *(insert date)*
1	Hazardous waste disposal through government authorized waste collector who disposes it in secure landfills	Project Participant	01	This parameter will be monitored for total crediting period since commercial operation of the project	Waste transport records	This parameter will be monitored for total crediting period since commercial operation of the project
Date of Closing the Program:			End date of crediting period			

QA/QC procedures:	Record will be maintained and submitted during verification.
Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).	Monitored data and record will be submitted to verifier during the emission reduction verification.

Data / Parameter:	**Solid waste Pollution from E-waste wastes**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for E-waste due to the project activity (PRMA 03)**
Purpose:	To monitor environmental impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 03.
Describe the environment /social impact risk that needs to be mitigated.	E-waste is generated during end of the life for the equipment used i. e. panels/ batteries/inverters/oil etc.

<table>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>The project is bound by local laws and regulations regarding E-waste i. e. E-Waste (Management) Amendment Rules, 2018. As pet this rule, project participants have to dispose E-waste in a way identified in the rules.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td>E-waste disposal</td><td>Project Participant</td><td>01</td><td>This parameter will be monitored for total crediting period since commercial operation of the project</td><td>E-waste disposal records</td><td>This parameter will be monitored for total crediting period. since commercial operation of the project</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="2">Date of Closing the Program:</td><td colspan="2">End date of crediting period</td><td colspan="2"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Record will be maintained and submitted during verification.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>Monitored data and record will be submitted to verifier during the emission reduction verification.</td></tr>
</table>

Data / Parameter:	**No child/forced labour employed**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for employment to child/forced labour due to operation of the project activity (PRMA 06)**
Purpose:	To monitor environmental impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 06.

<table>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td>To observe no child/force labour is employed to the project activity</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>The construction and operation phase of the wind power project generates employment and it is possible that project participants/ contractors employ child/forced labour. Through risk mitigation and document control e. g. employment records PP will ensure that child/forced labour is not employed.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td>Documentation of employment through HR records</td><td>Project Participant</td><td>01</td><td>This parameter will be monitored for total crediting period since commercial operation of the project</td><td>Child/forced labor</td><td>This Parameter will be monitored for total crediting period. since commercial operation of the project</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="2">End date of crediting period</td><td colspan="2"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Record will be maintained and submitted during verification.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>Monitored data and record will be submitted to verifier during the emission reduction verification.</td></tr>
</table>

Data / Parameter:	**Accidents / Incidents / Fatalities**
Objective of the Program of Risk Management Actions	**Program of Risk Management Actions for Accidents / Incidents / Fatalities due to operation of the project activity (PRMA 07)**

<table>
<tr><td>Purpose:</td><td>To monitor social impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 07.</td></tr>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td>To observe and reduce Accidents / Incidents / Fatalities due to the project activity</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>The construction and operation phase of the wind power project may lead to Accidents / Incidents / Fatalities. Through risk mitigation and safety procedures/trainings PP will ensure that these are reduced/does not happen.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td>Records Of accidents/ Incidents/ Fatalities</td><td>Project Participant</td><td>01</td><td>This parameter will be monitored for total crediting period since commercial operation of the project</td><td>Accidents / Incidents/Fatalities</td><td>This parameter will be monitored for total crediting period. since commercial operation of the project</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="2">Date of Closing the Program:</td><td colspan="2">End date of crediting period</td><td colspan="2"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Record will be maintained and submitted during verification.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>Monitored data and record will be submitted to verifier during the emission reduction verification.</td></tr>
</table>

Data / Parameter:	**Sanitation/health**

<table>
<tr><td>Objective of the Program of Risk Management Actions</td><td>Program of Risk Management Actions for Sanitation/Health due to operation of the project activity (PRMA 07)</td></tr>
<tr><td>Purpose:</td><td>To monitor social impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 07.</td></tr>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td>To observe sanitation/health issues due to the project activity</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>The construction and operation phase of the wind power project may lead to sanitation/health issues. Through adequate sanitation facilities and health related trainings, PP will ensure that these are reduced/does not happen.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td>No sanitation/ heath</td><td>Project Participant</td><td>01</td><td>This parameter will be monitored for total crediting period since commercial operation of the project .</td><td>Sanitation/Health issue</td><td>This parameter will be monitored for total crediting period. since issue commercial operation of the project.</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="2">End date of crediting period</td><td colspan="2"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Record will be maintained and submitted during verification.</td></tr>
<tr><td>Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).</td><td>Monitored data and record will be submitted to verifier during the emission reduction verification.</td></tr>
</table>

<table>
<tr><td>Data / Parameter:</td><td>Women empowerment</td></tr>
<tr><td>Objective of the Program of Risk Management Actions</td><td>Program of Risk Management Actions for women empowerment due to operation of the project activity (PRMA 07)</td></tr>
<tr><td>Purpose:</td><td>To monitor social impact identified as not harmful (in the risk assessment and to develop a program of risk management actions plan to address the risk of PRMA 07.</td></tr>
<tr><td>Describe the environment /social impact risk that needs to be mitigated.</td><td>To observe women empowerment due to the project activity</td></tr>
<tr><td>Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.</td><td>The construction and operation phase of the wind power project will lead to women empowerment through direct/indirect way.</td></tr>
<tr><td>Program of Risk Management Actions to achieve the target(s):</td><td>
<table>
<tr><th>S.No.</th><th>Action and targets</th><th>Responsibility</th><th>Resource Requirement</th><th>Target to be Achieved by (insert date)</th><th>Key Performance Indicators (KPI)</th><th>Targets achieved on (insert date)</th></tr>
<tr><td>1</td><td>Women empowerment</td><td>Project Participant</td><td>01</td><td>This parameter will be monitored for t otal crediting period since commercial operation of the project</td><td>Women empowerment</td><td>This Parameter will be monitored for total crediting period. since commercial operation of the project.</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td colspan="2">End date of crediting period</td><td colspan="2"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
<tr><td>QA/QC procedures:</td><td>Record will be maintained and submitted during verification.</td></tr>
</table>

Describe whether the Project Activity has achieved the targets set out in this Program of Risk Management Actions. If yes, describe the outcome(s).	Monitored data and record will be submitted to verifier during the emission reduction verification.

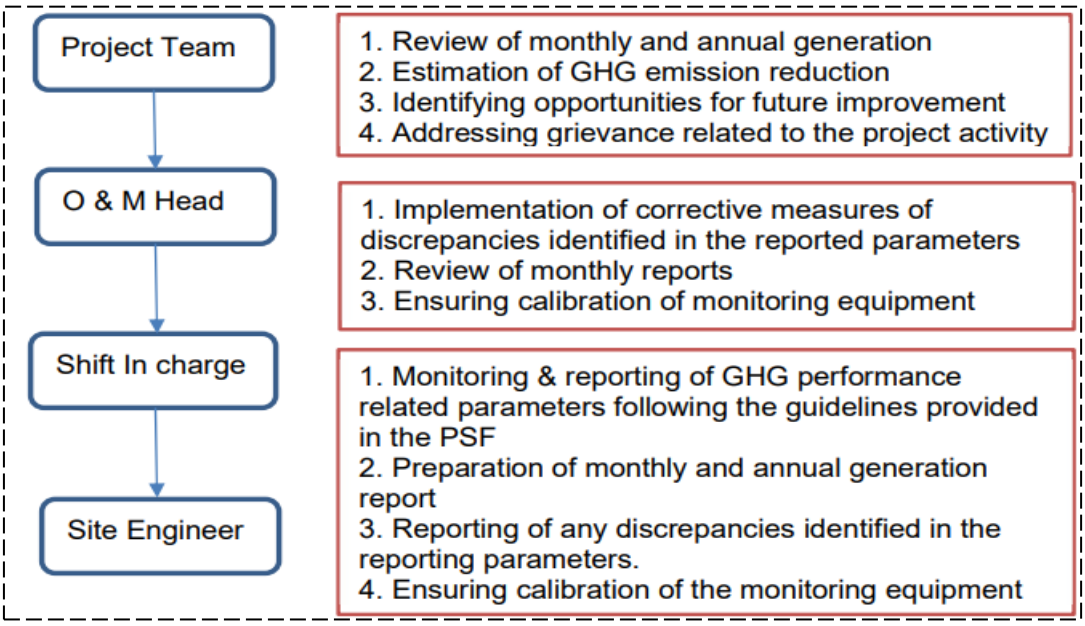
B.7.3. Sampling plan

Not Applicable

B.7.4. Other elements of the monitoring plan

The monitoring plan is developed in accordance with the modalities and procedures of the project activity and is proposed for grid-connected solar energy power projects being implemented in Madhya Pradesh, India. The monitoring plan describes the monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the Project Owner (PO). PO has proposed the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises of the following members:



Data Measurement

The export and import energy will be measured continuously using Main and Check meters located at the substations. Readings of meters shall be taken on monthly basis by authorized officer of utility in the presence of the representative of PO. Based on the Meter Reading Statement, invoices will be raised.These invoices can be used for cross checking the meter readings taken for the respective project activity.

Data Collection and Achieving

Readings from meters will be collected in the presence of the plant in-charge. Export and Import data would be recorded and stored in logs as well as in electronic form. The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor.

Emergency Preparedness

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized. In the event that the main meter, which is used to record the net electricity exported by the project, is found to be faulty it will be repaired or replaced by authorized officer of SEB and the data from the check meter will be used in its place. In the unlikely event that the check meter fails it will also be repaired or replaced

Personnel Training

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff will be trained. The plant staffs will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

QA/QC Procedures

The energy meters at the feeders are maintained and owned by state electricity board. Neither the project owner nor the site personnel have any control over it. The records will be crosschecked with the records of sold electricity to state electricity board. The meters are calibrated by state electricity board out in-line with the Nation standard which recommends at least once in 5-year calibration or whenever abnormal difference/inconsistency is observed between main meter and check meter.

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

Start date of the project activity is the earlies date of commissioning of the project activity i.e. 21/02/2022.

C.2. Expected operational lifetime of the Project Activity

25 Years 00 months

C.3. Crediting period of the Project Activity

C.3.1. Start and end date of the crediting period

Start date: 21/02/2022

End date: 20/02/2032

C.3.2. Start date of crediting period

21/02/2022

C.3.3. Duration of crediting period

10 years 00 months

Section D. Environmental impacts

D.1. Analysis of environmental impacts

The project activity does not involve any major construction activity. It primarily requires the installation of the Solar Panels, interfacing the generators with the State Electricity Board by setting up HT transmission lines, and the installation of other accessories.
The project is in operation phase. The report “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by the Ministry of New and Renewable Energy (MNRE) of the Indian government dated September 2013 clearly states that solar project activity operations do not result in direct air pollution or noise pollution.
There are no significant environmental impacts on air, water, soil quality and ambience are envisaged due to the implementation of the project activity.

D.2. Environmental impact assessment and management action plans

The guidelines on Environmental Impact Assessment have been published by Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India (GOI) under Environmental Impact Assessment notification 14/09/2006. Further amendments to the notification were completed on 14/07/2018. The notification states:
“The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall herein after referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category ‘A’ in the Schedule and at Category ‘B’ in the said schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

1) All new projects or activities listed in the Schedule to this notification:
2) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits given in the Schedule, after expansion or modernization:
3) Any change in product-mix in a manufacturing unit included in Schedule beyond the specified range.”

As the solar energy projects are not listed in any of the categories in the Schedule, the project is considered environmentally safe and, as per Indian regulations, no EIA is required.

Section E. Environmental and social safeguards

>>

E.1. Environmental safeguards

Impact of Project Activity on		Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards								Project Owner's Conclusion		GCC Project Verifier's Conclusion (To be included in Project Verification Report only)
		Description of Impact *(positive or negative)*	**Legal/ voluntary corporate requirement / regulatory/ voluntary corporate threshold Limits**	**Do-No-Harm Risk Assessment (choose which ever is applicable)**			**Risk Mitigation Action Plans for aspects marked as Harmful**		**Performance indicator for monitoring of impact**	***Ex-ante* scoring of environmental impact**	***Explanation of the Conclusion***	**3rd Party Audit**
				Not Applicable	**Harmless**	**Harmful**	**Operational Controls**	**Program of Risk Management Actions**	**Monitoring parameter and frequency of monitoring**	**Ex- Ante scoring of the environmental impact (as per scoring matrix Appendix-02)**	**Ex- Ante description and justification/explanation of the scoring of the environmental impact**	**Verification Process**
Environmental Aspects on the identified categories [32] ***indicated below.***	*Indicators for environmental impacts*	*Describe and identify anticipated and actual significant environmental impacts, both positive and negative from all sources (stationary and mobile) during normal and abnormal/emergency conditions, that may result from the construction and operations of the Project Activity, within and outside the project boundary, over which the Project Owner(s) has/have control.*	*Describe the applicable national regulatory requirements /legal limits / voluntary corporate limits related to the identified risks of environmental impacts.*	*If no environmental impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Not Applicable***	*If environmental impacts exist but are expected to be in compliance with applicable national regulatory /stricter voluntary corporate requirements and will be within legal/ voluntary corporate limits by way of plant design and operating*	*If negative environmental impacts exist that will not be in compliance with the applicable national legal/ regulatory requirements or are likely to exceed legal limits, then the Project Activity is likely to cause harm (may be*	*Describe the operational controls and best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as '****Harmful*** *at least to a level that is in compliance with applicable legal/regulatory requirements or industry best practice or stricter voluntary corporate requirements*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., installation of pollution control equipment) that will be adopted to reduce or eliminate the risk of impacts that have been identified as* ***Harmful****.*	*Describe the monitoring approach and the parameters (KPI) to be monitored for each impact irrespective of whether it is harmless of harmful. The frequency of monitoring to be specified as well including the data source.*	*-1* *0* *+1*	*Confirm the score of environmental impact of the project with respect to the aspect and its monitored value in relation to legal /regulatory limits (if any) including basis of conclusion.*	*Describe how the GCC Verifier has assessed that the impact of the Project Activity against the particular aspect and in case of "harmful impacts" how has the project adopted Risk Mitigation Action Plans to mitigate the risks of negative environmental impacts to levels that are unlikely to cause any harm as well as the net positive impacts of the project with respect to the most likely baseline alternative.* .

[32] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

					principles, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as ***Harmless*** */If the project has a positive impact on the environment mark it as "harmless" as well.*	*un-safe) and shall be indicated as* ***Harmful***						
Reference to paragraphs of Environmental and Social Safeguards Standard		*Paragraph 12 (a)*	*Paragraph 13 (c)*	*Paragraph 13 (d) (i)*	*Paragraph 13 (d) (ii)*	*Paragraph 13 (d) (iii)*	*Paragraph 13 (e) (i)*	*Paragraph 13 (e) (ii)*	*Paragraph 12 (c) and Paragraph 13 (f)*	*Paragraph 22*		*Paragraph 24 and Paragraph 26 (a) (i)*
Environment - *Air*	*SO_x emissions (EA01)*	The project is a solar power project and is not expected have an impact on this indicator	*None*	*Not applicable*	-	-	-	-	-	-	-	
	NO_x emissions (EA02)	The project is a solar power project and is not expected have an impact on this indicator	*None*	*Not applicable*	-	-	-	-	-	-	-	
	CO_2 emissions (EA03)	The project is a solar power project and is not expected have an impact on this indicator	*None*	-	*Harmless* *The overall impact is positive with respect to the baseline alternative*	-	-	-	*GHG emission reduction (Tons of CO_2e / Yr.) , the parameter will be monitored on monthly basis*	*+1*	*CO2e emissions will be saves due to the project activity.*	
	CO emissions (EA04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	

	Suspended particulate matter (SPM) emissions (EA05)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	
	Fly ash generation (EA06)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	
	Non-Methane Volatile Organic Compounds (NMVOCs) (EA07)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	
	Odor (EA08)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	
	Noise Pollution (EA09)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	
	Others (EA10)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	
	Add more rows if required and corresponding notation with EA as prefix)											
Environment - *Land*	*Solid waste Pollution from Plastics (EL-01)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-

	Solid waste Pollution from Hazardous wastes (EL02)	The project is a solar power project and is not expected have an impact on this indicator	*Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016*	-	Harmless	-	-	-	Waste records	+1	*disposal*	-
	Solid waste Pollution from Bio-medical wastes (EL03)	The project is a solar power project and is not expected have an impact on this indicator	*E- Waste (Management) Amendment Rules, 2018*	-	*Harmless*	-	-	-	*Waste records*	*+1*	*disposal*	-
	Solid waste Pollution from E-wastes (EL04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Solid waste Pollution from Batteries (EL05)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Solid waste Pollution from end-of-life products/ equipment (EL06)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury) (EL07)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-

	Soil erosion	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Others (EL09)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Add more rows if required	The project is a solar power project and is not expected have an impact on this indicator	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	NA	NA	NA
Environment - *Water*	*Reliability/ accessibility of water supply (EW01)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Water Consumption from ground and other sources (EW02)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Generation of wastewater (EW03)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Wastewater discharge without/with insufficient treatment (EW04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Pollution of Surface, Ground and/or Bodies of water (EW05)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Discharge of harmful	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-

	chemicals like marine pollutants / toxic waste (EW06)											
	Others (EW07)	*NA*	None	Not applicable	-	-	-	-	-	-	-	-
	Add more rows if required	*NA*	None	Not applicable	-	-	-	-	-	-	-	-
										-	-	-
Environment – *Natural Resources*	*Conserving mineral resources (ENR01)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Protecting/ enhancing plant life (ENR02)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Protecting/ enhancing species diversity (ENR03)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Protecting/ enhancing forests (ENR04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Protecting/ enhancing other depletable natural resources (ENR05)	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	-	Land use change records	+1	Disposal	-
	Conserving energy (ENR06)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-	-
	Replacing fossil fuels with renewable sources of	*Not Applicable*	None	Not applicable	-	-	-	-	-	-	-	-

	energy (ENR07)											
	Replacing ODS with non-ODS refrigerants (ENR08)	*Not Applicable*	None	Not applicable	-	-	-	-	-	-	-	-
Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to Environment. Score is obtained after adding the individual scores in each of the rows in the last column of the above table.												
Net Score:					**+4**							
Project Owner's Conclusion in PSF:					The Project Owner confirms that the Project Activity will not cause any net harm to Environment.							
GCC Project Verifier's Opinion:					The GCC Verifier certifies that the Project Activity [is not likely to cause any] or [is likely to cause] net harm to the environment...							

E.2. Social Safeguards

Impact of Project Activity on	Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards							Project Owner's Conclusion		GCC project Verifier's Conclusion (To be included in Project Verification Report only)
	Description of Impact (*positive or negative*)	Legal requirement /Limit, Corporate policies / Industry best practice	Do-No-Harm Risk Assessment (Choose which ever is applicable)			Risk Mitigation Action Plans (for aspects marked as Harmful)	Performance indicator for monitoring of impact.	Ex-ante scoring of environmental impact	Explanation of the Conclusion	3rd Party Audit
			Not Applicable	Harmless	Harmful	Operational / Management Controls	Monitoring parameter and frequency of monitoring (as per scoring matrix Appendix-02)	Ex- Ante scoring of social impact of the project	Ex- Ante description and justification/explanation of the scoring of social impact of the project	Verification Process Will the Project Activity cause any harm?

Social Aspects on the identified categories[33] indicated below.	*Indicators for social impacts*	*Describe and identify actual and anticipated impacts on society and stakeholders, both positive or negative, from all sources during normal and abnormal/emergency conditions that may result from constructing and operating of the Project Activity within or outside the project boundary, over which the project Owner(s) has/have control*	*Describe the applicable national regulatory requirements / legal limits or organizational policies or industry best practices related to the identified risks of social impacts*	*If no social impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Not Applicable***	*If social impacts exist but are expected to be in compliance with applicable national regulatory requirements/ stricter voluntary corporate limits by way of plant design and operating principles then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as* ***Harmless****), project having positive impact on society. To the BAU / baseline scenario must also mark their aspect as* ***"harmless"***	*If negative social impacts exist that will not be in compliance with the applicable national legal/ regulatory requirements or are likely to exceed legal limits, then the Project Activity is likely to cause harm and shall be indicated as* ***Harmful***	*Describe the operational or management controls that can be implemented as well as best practices, focusing on how to implement and operate the Project Activity, to reduce the risk of impacts that have been identified as* ***Harmful****.*	*Describe the monitoring approach and the parameters (KPI) to be monitored for each impact irrespective of whether it is harmless of harmful. The frequency of monitoring to be specified as well. Monitoring parameters can be quantitative or qualitative in nature along with the data source*	*-1* *0* *+1*	*Confirm the score of the social impacts of the project with respect to the aspect and its monitored value in relation to legal/regulatory limits (if any) including basis of conclusion*	*Describe how the GCC Verifier has assessed that the impact of Project Activity on social aspects (based on monitored parameters, quantitative or qualitative) and in case of "harmful aspects how has the project owner adopted Risk Mitigation Action / management actions plans and policies to mitigate the risks of negative social impacts to levels that are unlikely to cause any harm.* *Also describe the positive impacts of the project on the society as compared to the baseline alternative or BAU scenario.*
Reference to paragraphs of Environmental and Social Safeguards Standard		*Paragraph 12 (a)*	*Paragraph 13 (c)*	*Paragraph 13 (d) (i)*	*Paragraph 13 (d) (ii)*	*Paragraph 13 (d) (iii)*	*Paragraph 13 (e) (i)*	*Paragraph 12 (c) and Paragraph 13 (f)*	*Paragraph 23*		*Paragraph 24 and Paragraph 26 (a) (ii)*
Social - *Jobs*	*Long-term jobs (> 1 year) created/ lost*	The project creates long term job opportunities during operation.	There is no legal requirement from local authority to create permanent employment from the project activity.	Not Applicable	-	-	Not Applicable	Nos of people employed by the project with long-term jobs. This will be monitored through checking payroll records or the social insurance.	+1	Nos of people employed by the project with long-term jobs. This will be monitored through checking payroll records or the social insurance.	
	New short-term jobs (< 1	The project creates short term job opportunities during construction.	There is no legal requirement from local authority to create permanent	Not Applicable	_	_	Not Applicable	Nos of people employed by the project with new short - term jobs. This	+1	Nos of people employed by the project	

[33] sourced from the CDM SD Tool and the sample reports are available (https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx)

	year) created/ lost		employment from the project activity					will be monitored through checking payroll records or the social insurance.		with new short - term jobs. This will be monitored through checking payroll records or the social insurance.	
	Sources of income generation increased / reduced	There is a positive impact of the project activity on the creation of jobs during its construction and operational lifetime resulting in increase of income	There is no legal requirement from local authority to create permanent employment from the project activity.	Not Applicable	No Action Required	No Action Required	Not Applicable	This will be monitored through checking payroll records or the social insurance/ Salary Slips.	+1	This will be monitored through checking payroll records or the social insurance/ Salary Slips.	
	Avoiding discrimination when hiring people from different race, gender, ethnics, religion, marginalized groups, people with disabilities (SJ04) *(Human rights)*	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Social - *Health & Safety*	*Disease prevention (SHS01)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Occupational health hazards (SHS02)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-

	Reducing / increasing accidents /Incidents/fatality (SHS03)	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	This will be monitored through checking the annual site safety audits and no's of accidents/ Incidents/ fatality reported	+1	This will be monitored through checking the annual site safety audits and no's of accidents/ Incidents/ fatality reported	-
	Reducing / increasing crime (SHS04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Reducing / increasing food wastage (SHS05)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Reducing / increasing indoor air pollution (SHS06)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Efficiency of health services (SHS07)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Sanitation and waste management (SHS08)	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	This will be monitored through checking the annual site sanitation and waste management records	+1	This will be monitored through checking the annual site sanitation and waste management records	-
	Other health and safety issues (SHS09)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-

	Add more rows if required	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
Social - *Education*	*specialized training / education to local personnel (SE01)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Educational services improved or not (SE02)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Project-related knowledge dissemination effective or not (SE03)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Other educational issues (SE03)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-
	Add more rows if required (SE04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-
Social - *Welfare*	*Improving/ deteriorating working conditions*	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	This will be monitored through checking the working conditions at the project site annually.	+1	This will be monitored through checking the working conditions at the project site annually.	-
	Community and rural welfare	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-

	Poverty alleviation (more people above poverty level) (SW03)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-
	Improving / deteriorating wealth distribution/ generation of income and assets (SW04)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-
	Increased or / deteriorating municipal revenues (SW05)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-
	Women's empowerment (SW06) *(Human rights)*	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	This will be monitored through checking payroll records or the social insurance/ Salary Slips.	+1	This will be monitored through checking payroll records or the social insurance/ Salary Slips.	
	Reduced / increased traffic congestion (SW07)	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Exploitation of Child labour	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	This will be monitored through checking payroll records or the social insurance/ Salary Slips.	+1	This will be monitored through checking	

	(Human rights) *(SW08)*									payroll records or the social insurance/ Salary Slips.	
	Minimum wage protection *(Human rights) (SW09)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Abuse at workplace. (With specific reference to women and people with special disabilities / challenges) *(Human rights) (SW10)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Other social welfare issues (SW11)	The project is a solar power project and is not expected have an impact on this indicator	None	-	Harmless	-	-	This will be monitored through the CSR activities conducted project owner in and around vicinity of project site.	+1	This will be monitored through the CSR activities conducted project owner in and around vicinity of project site.	-
	Avoidance of human traffickin g and forced labour	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	0	-

	(Human rights) *(SW12)*										
	Avoidance of forced eviction and/or partial physical or economic displacement of IPLCs *(Human rights)* *(CW13)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Provisions of resettlement and human settlement displacement *(Human rights)* *(CW14)*	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
	Add more rows if required	The project is a solar power project and is not expected have an impact on this indicator	None	Not applicable	-	-	-	-	-	-	-
Net Score:		**+9**									
Project Owner's Conclusion in PSF:		The Project Owner confirms that the Project Activity will not cause any net harm to society.									

GCC Project Verifier's Opinion:	The GCC Verifier certifies that the Project Activity [is not likely to cause any] or [is likely to cause] net harm to society.

Section F. United Nations Sustainable Development Goals (SDG)

UN-level SDGs	**UN-level Target**	**Declared Country level SDG**	**Defining Project-level SDGs**				**GCC Project Verifier's Conclusion** (to be included in Project Verification Report only)	
			Project-level Indicators	Project-level Targets/ Actions	Contribution of Project level Actions to SDG Targets	Monitoring	Verification Process	Are Goal/ Targets Likely to be Achieved?
Describe UN SDG targets and indicators *See: https://unstats.un.org/sdgs/indicators/indicatorslist/*	*Describe the UN-level target(s) and corresponding indicator no(s)*	*Has the host country declared the SDG to be a national priority? Indicate (Yes or No)*	*Define project level indicators by suitably modifying and customizing UN/Country-level indicators to the project scope or creating a new indicator(s). Refer to the previous column for guidance*	*Define project-level targets/actions in line with the project level indicator chosen. Define the target date by which the Project Activity is expected to achieve the project-level SDG target(s).*	*Describe and justify how actions taken under the Project Activity are likely to result in a direct positive effect that contributes to achieving the defined project-level SDG targets*	*Describe the monitoring approach and the monitoring parameters to be applied for each project-level SDG indicator and its corresponding target, frequency of monitoring and data source*	*Describe how the GCC Verifier has verified the claims that the Project Activity is likely to achieve the identified project-level SDG targets*	*Describe whether the project-level SDG target(s) is likely to be achieved by the target date (Yes or No)*
Goal 1: End poverty in all its forms everywhere	*SDG Target 1.4 By 2030, ensure that all men and women, the poor and the vulnerable, have equal rights to*	*Yes*	*Employment at the site through project activity*	*At least 10 including all sites*	*Direct and indirect employment through project activity.*	*Daily Employee attendance register at site .*		

	economic resource s, as well as access to basic services, ownership and control over land and other.							
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Goal 3. Ensure healthy lives and promote well-being for all at all ages	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 5. Achieve gender equality and empower all women and girls	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 6. Ensure availability and sustainable management of water and sanitation for all	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	*SDG target 7.2 "By 2030, Increase substantially the share of renewable energy in the global energy mix" Indicator . 7.2.1 renewable energy share in the total final energy consumption.*	*Yes*	*Electricity generation from renewable sources*	*The project activity provides 17.62 MW installed capacity of renewable energy and will deliver zero emission electricity annually.*	*The Solar power plant contributes directly to achieve the SDG target, because the project activity delivers renewable energy, which would otherwise generate by fossil fuel dominated grid connect power plants.*	*The net generated renewable electricity, which will be delivered to the grid over a period 10 years will be used as project level indicator.*		
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	*SDG Target 8.2 "Achieve higher levels of economic growth, full and productive employment through diversification ethnological upgrading and decent work for all.*	*Yes*	*Employment at the site through project activity*	*At least 10 including all sites*	*Direct and indirect employment through project activity*	*Daily Employee attendance register at site*		
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 10. Reduce inequality within and among countries	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 12. Ensure sustainable consumption and production patterns	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 13. Take urgent action to combat climate change and its impacts	*Target 13.2: Integrate climate change measures into national policies, strategies and planning*	*Yes*	*Amount of emission reduction achieved by project*	*32,750 $TCO2_e$ per yr.*	*The project has been implemented as per design spec and is likely to provide clean renewable energy of around 38,285 MWh per year thus resulting in around 32,750 $TCO2_e$ emission reduction per year.*	*Calculation of amount of actual emission reduction achieved by the project, measurement of monthly energy generation from project.*		
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
Goal 17. Strengthen the means of	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
implementation and revitalize the global partnership for sustainable development								
SUMMARY					**Targeted**		**Likely to be Achieved**	
Total Number of SDGs					**4**		**4**	
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF					**Gold**		**Gold**	

Section G. Local stakeholder consultation

G.1. MODALITIES FOR LOCAL STAKEHOLDER CONSULTATION

The local stakeholder consultation for the project activity have been carried out. The Local Stakeholder consultation documents have been provided to GCC Verifier during project verification of project activity.

The group of stakeholders invited:

- Land Lessors and Land Aggregators
- Local Laborers and Grazers
- Vulnerable social groups such as women, people living below the poverty line, and members of the Schedule Class
- Local Communities in Area of Interest villages

The means for inviting stakeholders' participation:

Most of the stakeholders were given private phone calls followed by official letters and invitation posters where possible & newspaper advertisement was published. The nearby village heads were asked to inform their communities about the project and the meeting.

Agenda of Meeting:

- Introduction of the project
- Brief of Climate Change and Certification Process
- Social No-net-harm Label
- Environmental No-net-harm Label
- Sustainable Development Goals and project benefits to the local stakeholders

Sl. No.	Legal Owner	Location	Invitation Date	Meeting Date
1	Manikgarh Cement Works	UltraTech Cement Limited, Unit: Manikgarh Cement Works, Village: Gadchandur, Tal: Gadchandur, Dist: Chandrapur, Maharashtra - 442908.	13.06.2022	16.06.2022
2	MSW Processing Plant Jaipur	UltraTech Cement Limited, Unit: MSW Processing Plant, Khasra no 338,Village: Langriavas, Tehseel: Jamwa Ramgarh, Dist: Jaipur, Rajasthan - 302027	01.11.2022	04.11.2022
3	Navi Mumbai Bulk Terminal	Village: Pathar, Taluka: Katol, District: Nagpur, State: Maharashtra - 441302	29.11.2022	30.11.2022
4	Balaji Cement Works	UltraTech Cement Limited, Unit: Balaji Cement Works, Village: Budawada, Tahsil: Jaggayyapeta, District: Krishna, Andhra Pradesh - 521175	01.11.2022	04.11.2022
5	Ginigera Cement works	UltraTech Cement Limited, Unit: Ginigera Cement Works, Village: Ginigera, Tahsil: Ginigera, District: Koppal, Karnataka - 583228	01.11.2022	04.11.2022

A presentation about the project was given to stakeholders, which focused on the non-technical specifications of the project, its environmental effects, the issue of climate change, and the climate change benefits of the project. Representatives of the project owner also explained the benefits that will come with the project like new employment opportunities and CSR activities that will be conducted by the Project Owner.

Questionnaires were distributed to collect comments from Social Organizations and local residents, and all questionnaires have been recollected.

Some Insights of Local Stakeholder Consultation conducted:-

Invitation Tracking Tool

Local Stakeholder Consultation Meeting

Organized by: UltraTech Cement Limited, Unit- Manikgarh Cement Works

Title of the Program: Solar Power Plant, Capacity -15 MW

Location: Staff Club, Manikgarh Cement Works, Gadchandur

Date:

S No.	Category	Stakeholder Type/Organization	Name of invitee	Male/ Female	Method of invitation	Date of invitation	Status of Confirmation
1			Ami Ahuja	Male	letter	18-05-22	
2			Anant D	Male	"	"	
3			Dilip V.	Male	"	"	
4			Anil.M	Male	"	"	
5			Nagaraj A.	"	"	"	
6			Bhimrao A.	"	"	"	
7			Pratip R.	"	"	"	
8			Mangesh D	"	"	"	
9			Sushil Singh	"	"	"	
10			Ramesh	Ramesh	"	"	

Attendance Sheet

Local Stakeholder Consultation Meeting

Organized by: M/s VSV Offsite Private Limited for M/s UltraTech Cement Limited (Unit: Navi Mumbai Bulk Terminal) "1.5MWp Solar Power Project"

Title of the Project: 1.5 MWp Solar Power Project

Location: Village: Pathar, Taluka: Katol, District: Nagpur, State: Maharashtra - 441302

Date: 30/11/2022

S No.	Name	Age	Male/ Female	Occupation	Position in the Community	Role in the project activity	Address	Contact Number	Signature
1	Chandrashekhar Parteti	32	M	Labour & Farmer	Villager		Pathar	7350644237	
3	Laxman Kalambe	58	M	Farmer	Villager		Pathar	9764913389	
4	Aruna Kishor Dhurve	35	F	Labour	-u-		Pathar		
5	Sangita Vinod Dhurve	32	F	Labour	-u-		Pathar		
6	Vanita Subhash Udake	35	F	Labour	-u-		Pathar		
7	Nathuji Vadite	64	M	Labour	-u-		Pathar	9146038836	
8	Purushotham Santakke	65	M	Farmer	-u-		Pathar	7447502607	

1

प्रांतोक्रेया प्रपत्र

स्थानीय हितधारक परामर्श बैठक

परियोजना का शीर्षक: **SOLAR** परियोजना से कार्बन क्रेडिट
परियोजना के मालिक / कार्यान्वयन भागीदार: - मानिकगढ़ सीमेंट वर्क्स, गदचांदूर
स्थान: स्टाफ क्लब, मानिकगढ़ सीमेंट वर्क्स, गदचांदूर
दिनांक: - 16/6/22

हितधारक का नाम	सुझाव समझ हुये.
लिंग	पुरुष ~ महिला
UltraTech द्वारा परियोजना के बारे में सामान्य विचार	अति उत्कृष्ट ~ अच्छा अच्छा नहीं
परियोजना गतिविधि स्थानीय समुदाय की मदद कैसे करेगी	अत्यन्त ~ मध्यम नगण्य
क्या यह परियोजना रोजगार के अवसर प्रदान करने में मदद करेगी?	हाँ ~ नहीं निश्चित नहीं
क्या परियोजना गतिविधि पर्यावरण प्रदूषण में योगदान देगी?	हाँ ~ नहीं निश्चित नहीं
परियोजना के पर्यावरण का समग्र प्रभाव?	पॉज़िटीव ~ मध्यम नगण्य
क्या आप परियोजना गतिविधि के कार्यान्वयन के बाद किसी भी सुधार की उम्मीद करते हैं?	हाँ ~ नहीं
क्या आपको परियोजना की स्थापना के बारे में कोई चिंता थी?	हाँ नहीं ~
यदि हां, तो क्या आपकी चिंताओं को उचित रूप से संबोधित किया गया था?	हाँ नहीं ~
कृपया परियोजना गतिविधि के कारण सकारात्मक और नकारात्मक प्रभाव (यदि कोई हो) को सूचीबद्ध करें?	कोई भी नहीं हुई.

The following questions were asked in the questionnaires:

- Are you aware of the project?
- In your opinion, what are the pros and cons of the project?
- What is your concern over the project?
- Do you support the implementation of the project?
- Any other comments.

G.2. SUMMARY OF COMMENTS RECEIVED

All stakeholders interviewed are supportive of the implementation of the project, believing that the Project will help mitigate air pollution by reducing greenhouse gas emissions, improve the community environment, and promote local economic development.

Local stakeholders also raised their concerns about environmental and social impacts of the project during construction and operation periods.

Q: Will there be free supply of power to the local people?

A: The generated power will be fed in the grid. Project promoter can't supply directly power to the local people. They must get authorized connection from Govt. body. But due to the project activity the supply of power in the area will increase.

Q: Will there be employment generation due to the project activity for youth from the adjoining areas?

A: Responding about the increased possibilities for employment of local youth due to the project activity, it was pointed out that preference would be given for locals in the employment opportunities.

Q: Will it impact the underground water level in the nearby area?

A: No, it will not impact the underground water level of the nearby area.

Also, the project was listed for global stakeholder commenting and no comments received during the above period.

G.3. CONSIDERATION OF COMMENTS RECEIVED

All the queries received form stakeholders are responded by the PP representative. Please refer above. No negative comments received from any of the stakeholders.

Section H. Approval and authorization

As per the CORSIA requirement, HCA is required for the verification post December 2020 and hence the Host Country Approval will be submitted during the verification post December 2020.

Also, for the project to be CORSIA eligible, the commissioning of the project should be after 01/01/2016. As per the implementation plan, the commissioning of the project is 21/02/2022 and hence the project is CORSIA eligible.

APPENDIX 1. CONTACT INFORMATION OF PROJECT OWNERS

Project Owner name (as per LON/LOA)	UltraTech Cement Limited
Country	India
Address	'A' Wing, Ahura Centre, 1st Floor, Mahakali Caves Road, Andheri E, Mumbai 400093
Telephone	+91-2266917400
Fax	+91-2228244770
E-mail	anand.bindal@adityabirla.com
Website	www.ultratechcement.com
Contact person	Anand Prakash Bindal

APPENDIX 2. AFFIRMATION REGARDING PUBLIC FUNDING

Project Owner and legal owners did not receive any public funding, government incentives or Official Development Assistance (ODA) in any of the project activities.

APPENDIX 3. APPLICABILITY OF METHODOLOGY(IES)

Refer to section B.6.1.

APPENDIX 4. FURTHER BACKGROUND INFORMATION ON EX ANTE CALCULATION OF EMISSION REDUCTIONS

Refer to section B.6.2

APPENDIX 5. FURTHER BACKGROUND INFORMATION ON MONITORING PLAN

Refer to section B.7

APPENDIX 6. SUMMARY REPORT OF COMMENTS RECEIVED FROM LOCAL STAKEHOLDERS

All the queries received form stakeholders are responded by the PP representative. Please refer above. No negative comments received from any of the stakeholders.

APPENDIX 7. SUMMARY OF DE-REGISTERED CDM PROJECT OR PROJECTS FROM OTHER GHG / NON-GHG PROGRAMS (TYPE B)

It is left blank intentionally as project is not de-registered CDM project of projects from other GHG / NON-GHG programs (type B).

Complete this form in accordance with the instructions attached at the end of this form.	
Program Name	
Project registration number	
Date of registration in the program	
Title of the Project Activity	
Project de-registration reference number	
Date of de-registration of the Project	
Project Participants (Authorized by the host / annex 1 country letter of approval)	
Country where the project is located	

Applied methodology(ies) (Provide reference and version number(s))	
Pre-registration changes to the Project Activity (Tick as applicable)	

Pre-registration Changes	Reference number	Approved	Provide a summary of pre-registration changes
Deviations from approved baseline and monitoring methodology		☐	
Deviations from applied Tool & Guidance		☐	
Deviations from the rules		☐	
Other…….		☐	

Post-registration changes to the Project Activity

(Tick as applicable)

Post registration Changes	Reference number	Approved	Provide a summary of post-registration changes
Change in project design		☐	
Request for revision of monitoring plan		☐	
Request for change in start date of crediting period		☐	
Renewal of crediting period		☐	
Temporary deviations		☐	
Other…….		☐	

Crediting Period(s)						
	Crediting period(s)			**Period** (start & end dates)	**ERs as per registered PDD/MR/Project documents**	**Credits issued**
	Crediting Period (Shall start on or after 1 Jan 2016)	Fixed 10 year				
		Renewable (7 years, with 2 approved renewals)	1st			
			2nd			
			3rd			
	Period for which Credits have been issued					
	Period for which Credits have been requested but not issued					-
	Period for which Credits have never been requested for issuance (No monitoring reports submitted)					-
	Period for which Credits have never been requested for issuance prior to CDM de-registration					-
	Remaining Crediting period, after de-registration, for which Credits have not been issued by the program , subject to a ceiling of 10 years as allowed under the GCC Program					-

<table>
<tr><td>Details of Previous Issuance Requests</td><td>
<table>
<tr><th>Issuance Request</th><th>Period (start & end dates)</th><th>ERs as per registered PDD</th><th>Quantity of Credits requested to be issued</th><th>Quantity of Credits issued</th></tr>
<tr><td>1st</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2nd</td><td></td><td></td><td></td><td></td></tr>
<tr><td>3rd</td><td></td><td></td><td></td><td></td></tr>
<tr><td>4th</td><td></td><td></td><td></td><td></td></tr>
<tr><td>5th</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Add rows …….</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>List any open issues in the Validation and last Verification Report (e.g., FARs, if any) and how they have been addressed</td><td></td></tr>
<tr><td>Any other relevant information that has not been reported in the registered documents and that may have adverse impacts on the environmental integrity of the Project Activity</td><td></td></tr>
<tr><td>Provide the list of all the registered documents related to this project, as available on the program’s website and the corresponding URLs.</td><td></td></tr>
</table>

Appendix 8. FURTHER INFORMATION ON DETERMINATION OF BUNDLE IN PROJECT ACTIVITY.

As per the para 9 of the Clarification No. 01, V1.3 – 2022 of GCC, the activities included in this project activity are clubbed and submitted as a bundled project, the additionality and common practice analysis is demonstrated at individual activity level, as required by the applicable methodology.

Appendix 9. PUBLIC DECLARATION FOR A2 (Sub Type 2 and 3), B1 & B2 PROJECTS ON NON CONTINUATION FROM CDM/GHG/NON-GHG PROGRAMS.

DOCUMENT HISTORY

Version	Date	Comment
V 4.0	27/09/2022	▪ Revised version released on approval by Steering Committee as per GCC Program Process. ▪ Revised version contains following changes: ○ Introduced A3 type projects A2 project sub-types. ○ Included revised Declaration by the 'Authorized Project Owner and focal point' on GCC requirements. ○ Included modified format for E+/S+/ SDG assessment. ○ Revised instructions for filling in the PSF. ○ Editorial changes to the document.
V 3.2	31/12/2020	▪ The name of GCC Program's emission units has been changed from "Approved Carbon Reductions" or ACRs to "Approved Carbon Credits" or ACCs.
V 3.1	17/08/2020	▪ Editorial revisions made ○ Revised Table in section B.7.2 on Monitoring-program of risk management actions ○ Revised Table in section E.1 on Environmental Safeguards ○ Revised Table in section E.1 on Social Safeguards ○ Revised Table in section F on United Nations Sustainable Development Goals (SDG)
V 3.0	05/07/2020	▪ Revised version released on approval by Steering Committee as per GCC Program Process. ▪ Revised version contains following changes: ○ Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC). ○ Considered and addressed comments raised by Steering Committee: ➢ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and ➢ electronic consultations EC01-Round 01 (15.09.2019 – 25.09.2019), EC01-Round 02 (27.03.2020 – 27.06.2020). ○ Feedback from Technical Advisory Board (TAB) of ICAO on GCC submission for

		approval under CORSIA[34];
V 2.0	25/06/2019	▪ Revised version released for approval by the GCC Steering Committee. ▪ Revised version includes additional details and instructions on the information to be provided, consequent to the latest developments world-wide (e.g., CORSIA EUC).
V 1.0	01/11/2016	Initial version released under the GCC Program Version 1

[34]See ICAO recommendation for conditional approval of GCC at https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/Excerpt_TAB_Report_Jan_2020_final.pdf

المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL

A member of

GORD
المنظمة الخليجية للبحث والتطوير
Gulf Organisation for Research & Development