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	**30 MW Solar Energy Project by AMP Solar in Karnataka, India**
PSF version number	03.0
Date of completion / Updating of this form	30/01/2023
Project Owner(s) as per LON/LOA (Shall be consistent with De-registered CDM Type B Projects)	Amp Energy Markets India Pvt Ltd [1]
Country where the Project Activity is located	India
GPS coordinates of the project site(s)	**Latitude (N)**: 12°08'51.2"N (12.1475) **Longitude (E)**: 77°19'11.6"E (77.3198)
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:**[2]

[1] To act as project owner as per GCC definition

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

	☐ Type B1 ☐ Type B2
Minimum 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)	ACM0002: Grid-connected electricity generation from renewable sources --- Version 21.0
GHG Sectoral scope(s) linked to the applied methodology(ies)	GHG-SS: Scope 1, 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[3]	☒ Project Standard	3.1
	☐ Approved GCC Methodology (XXXXX)	
	☒ Program Definitions	3.1
	☒ Environment and Social Safeguards Standard	3.0
	☒ Project Sustainability Standard	3.0
	☒ 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
☒ CDM Rules[4]	☒ Approved CDM Methodology (ACM0002)	21.0
	☒ TOOL 1- Tool for the demonstration and assessment of additionality	7.0.0
	☐ TOOL 02- Combined tool to identify the baseline scenario and demonstrate additionality	
	☒ TOOL 07- Tool to calculate the emission	7.0

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

		factor for an electricity system	
		☐ 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	3.1
		☒ TOOL 27- Investment analysis	12.0
		☐ 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[5] (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 ☐ Gold SDG Label ☐ Platinum SDG Label ☒ Diamond SDG Label ☒ CORSIA requirements (**C⁺**) ☒ Host Country Attestation on Double counting		

[5] **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.

Declaration by the 'Authorized Project Owner[6] and focal point' (Tick all applicable statements[7])	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[8] 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[9] 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. **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.

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

[7] **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.

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

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

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.

For Project Type B1 or B2:

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[10] (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[11] (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:** ***CORSIA specific requirements:*** ☒ 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[12] required for GCC projects and does not fall under the excluded unit types, methodologies, programme elements, and/or procedural classes. ☒ 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[13]. Provide details (if any) below for the boxes ticked above:

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

11 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.

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

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

	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)	Mr. Aditya Malpani
	Designation: Director Authorized signatory (Amp Energy Markets India Pvt Ltd)
	Signature Date: 30/01/2023

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

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

>>
The project involves installation of 30 MW solar PV plant at village Bandalli taluka Kollegal District Chamrajanagar, Karnataka, India by Amp Solar Solution Private Limited. The electricity generated from the project activity is sold to multiple third party consumers through long term power purchase agreements. Thereby the project replaces the equivalent amount of electricity generated by the operation of existing/ grid connected power plants (mostly fossil fuel-based power plants) and by addition of new generation sources into the grid.

Sl. No	Project Company	Capacity (MW_{AC})	Location	Date of commissioning
1	Amp Solar Solution Private Limited	30	Village: Bandalli, Taluka: Kollegal District Chamrajanagar, Karnataka, India	06/02/2018

The crediting period chosen for the project is from 06/02/2018 to 05/02/2028. The annual estimated emission reductions from this project activity is 56,680 tCO_2e/annum[14]. Total number of emission reduction estimated to be generated throughout the 10 years crediting period is 566,802 tCO_2e.

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. <u>Social well-being:</u>

The Project Activity will result in creating job opportunities for the local population on temporary and permanent basis. Manpower is required both during erection and operation of the renewable energy projects. This would result in the improvement in living standards of the local community. The installation of the renewable energy projects also led to development of basic infrastructure like roads, communication with the nearby cities etc. which also improved in living standards of the local population.

[14] Average for entire 10 years of crediting period.

2. Economic well-being:

The Project Activity will create direct and indirect job opportunities to the local community during installation and operation of the renewable energy projects. The investment for the Project Activity would lead to the improvement in the economic activity in the local area.

3. Environmental well-being:

The Project Activity utilizes renewable energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions. As renewable energy projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power. Being a renewable resource, to generate electricity contributes to resource conservation. Thus, the Project Activity causes no negative impact on the surrounding environment.

4. Technological well-being:

Clean technology transfer in renewable energy generation and optimal use of renewable energy in the industry.

The project is expected to contribute 6 SDGs which are SDG 1, 5, 7, 8, 9 and 13.

- **SDG 1 No Poverty:** The project contributes the SDG 1 target by providing employment to at least 5 persons belonging to below poverty line category.

- **SDG 5 Gender equality:** The project has planned to contribute to the SDG by ensuring there is no disparity among men and women with respect to remuneration for comparable role and responsibility. It is ensured that there is at least 1 number of women hired during operational phase of the project.

- **SDG 7 Energy:** The project contributes SDG Target 7.2 “By 2030, increase substantially the share of renewable energy in the global energy mix” by the utilization of solar power as a renewable energy source.

  SDG 8 Economic Growth: The project creates direct and indirect employment opportunities during construction and operation phases, so it contributes to SDG Target 8.5 “By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value”.

- **SDG 9 Industry, Innovation and Infrastructure:** The project provides clean and resilient energy generation facility by efficient use of the infertile drought land and provides employment opportunity to local residents in the region which is highly backward.

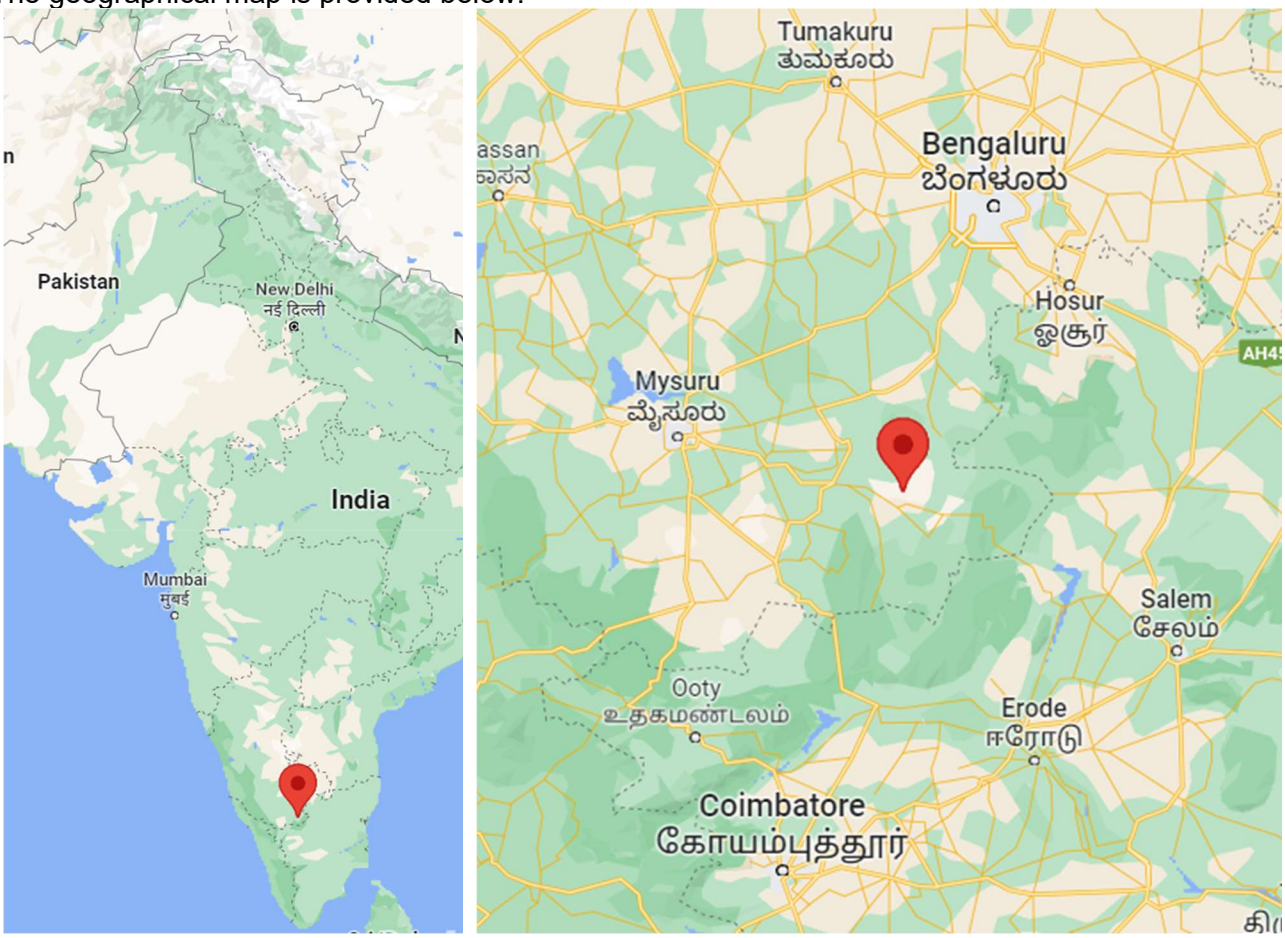
- **SDG 13 Climate Change:** The project produces clean renewable energy by diminishing CO_2 emissions. Therefore, it contributes SDG Target 13.3 “Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning”.

A.2. Location of the Project Activity

>>
The details of the project locations are mentioned in the table given below:

Address and geodetic coordinates of the physical site of the Project Activity			
Physical address	**Capacity (MW)**	**Latitude***	**Longitude***
Village: Bandalli, Taluka: Kollegal District: Chamrajanagar, Karnataka, India	30	12°08'51.2"N (12.1475)	77°19'11.6"E (77.3198)

The geographical map is provided below:



A.3. Technologies/measures

>>
The project involves the installation of Solar PV project. The total installed capacity of the project is 30 MW of Solar PV plant. The project activity is a new facility (Greenfield) and the electricity generated by the project will be exported to the Indian electricity grid. The project activity will therefore

displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The estimated lifetime of the project activity is considered as 25 years for solar technology. This may increase depending on the operation & maintenance of the plant. In the Pre- project scenario the entire 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.

Technology used in the project Activity:

Solar Photovoltaic (SPV) technology:
Solar PV panels are comprised of many small photovoltaic cells – photovoltaic meaning they can convert sunlight into electricity. These cells are made of semi-conductive materials, most often silicon, a material that can conduct electricity while maintaining the electrical imbalance needed to create an electric field.

Solar cells are generally very small, and each one may only be capable of generating a few watts of electricity. They are typically combined into modules of about 72 cells in series producing 36 to 44 volts. Bigger modules can also be assembled for desired higher output of Power. The modules are in turn assembled into PV arrays up to several meters on a side. These flat-plate PV arrays can be mounted at a fixed angle facing south, or they can be mounted on a tracking device that follows the sun, allowing them to capture more sunlight. For utility-scale electricity generating applications, hundreds of arrays are interconnected to form a single, large system.

When sunlight hits the semiconductor in the solar PV cell, the energy from the light, in the form of photons, is absorbed, knocking loose a number of electrons, which then drift freely in the cell. The solar cell is specifically designed with positively and negatively charged semiconductors sandwiched together to create an electric field. This electric field forces the drifting electrons to flow in a certain direction- towards the conductive metal plates that line the cell. This flow is known as an energy current, and the strength of the current determines how much electricity each cell can produce. Once the loose electrons hit metal plates, the current is then directed into wires, allowing the electrons to flow like they would in any other source of electric generation.

As the solar panel generates an electric current, the energy flows through a series of wires to an inverter. While solar panels generate direct current (DC) electricity, most electricity consumers need alternating current (AC) electricity to power their buildings. The inverter's function is to turn the electricity from DC to AC, making it accessible for everyday use. After the electricity is transformed into a usable state (AC power), it is sent from the inverter to the electrical panel (also called a breaker box). The AC power produced thus is of low voltage which is stepped up to a higher/transmission voltage level by a power transformer before being fed into the power grid.

Overview of 30 MW plant configuration

Technical Details are shown in below table

Module type	Poly C-Si
Module make	TRINA/JA Solar/ Jinko/Canadian Solar/Talesun
Inverter make / Capacity	GAMESA/1.375 MW

Inverter technology	Central inverter
Installed DC peak capacity (MW_p)	39
Installed AC capacity (MW)	30
Mounting Structure Type	Fixed tilt
Tilt Angle	14°
PV Module	
PV module manufacturer	JA Solar
No. of Modules	121875
Wattage (Wp)	320Wp
Inverter	
Inverter manufacturer / model	GAMESA / E-1.40
Number of inverters	22

Plant Modularity:

The PV modules are electrically connected with cables sized to minimize DC ohmic losses. The DC electrical output from the PV modules is fed through solar PV grade cables to junction boxes and then to inverters. Solar PV plants are modular in nature, with each inverter station comprising of a set of inverters, step-up transformers and related switchgear. Plant modularity is the conceptualization of typical inverter station that shall get type casted within the complete Solar PV plant.

A photovoltaic module is a packaged interconnected assembly of photovoltaic cells, which converts sunlight into energy. For this project, poly crystalline PV technology solar module of 320 Wp has been considered (Specification sheet enclosed in Annexure-IV). The module confirms to IEC 61215, IEC 61730 and IEC 61701 standards.

Solar inverter is a critical component in the solar energy system. It performs the conversion of the variable DC power output of array (string of the Photovoltaic (PV) modules) into a utility frequency AC power, which can be fed into the commercial electrical grid. There are mainly two categories of solar inverters are available central, and string. A central inverter is generally for adopted for MW scale plant and string inverter can handle comparatively less power.

A.4. Project Owner(s)

Location/ Country	Project Owner(s)	Where applicable[15], indicate if the host country has provided approval (Yes/No)
India	Amp Energy Markets India Pvt Ltd	Not Applicable

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

[15] For example, *Project Coordination Form* is to be filled-in by Project Owners for projects located in Qatar. A written attestation from the host country's national focal point or the focal point's designee, as required by CORSIA (Refer section A.5 of the PSF guidelines).

>> 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		
06/02/2018	05/02/2028	Amp Energy Markets India Pvt Ltd	56,680 tCO_2/annum[16]

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

>>
Please see Section E and F.

Section B. Application of selected methodology(ies)

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

>>
Title: Grid-connected electricity generation from renewable sources
Reference: ACM0002, version 21[17]

Tools applied for this Project activity are:

- ✓ TOOL01: Methodological Tool: Tool for the demonstration and assessment of additionality- Version 07.0.0, EB 70, Annex 8[18]
- ✓ TOOL 07: Tool to calculate the emission factor for an electricity system - Version 7.0[19]
- ✓ TOOL 24: Common Practice - Version 03.1[20]
- ✓ TOOL27: Investment analysis – Version 12.0[21]

B.2. Applicability of methodology(ies) and tools applied in the project

>>
Scope 01- Energy Industries (Renewable/non-renewable sources).
ACM0002: Grid-connected electricity generation from renewable sources --- Version 21.0. The project activity will meet the applicability conditions of the applied methodology, Sectoral Scope 1, as described below;

[16] Average for entire 10 years of crediting period
[17] https://cdm.unfccc.int/methodologies/DB/HF3LP6O41YY0JIP1DK6ZRJO9RSCX3S
[18] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf
[19] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[20] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf
[21] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v13.1.pdf

Applicability	Project activity vis-à-vis applicability Conditions
This methodology is applicable to grid-connected renewable power generation project activities that: • install a Greenfield power plant; • involve a capacity addition to (an) existing plant(s); • involve a retrofit of (an) existing operating plants/units; • involve a rehabilitation of (an) existing operating plants/units; • involve a replacement of (an) existing operating plants/units;	The project activity is installation of a new grid connected renewable energy power plant (solar PV) at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable.
The methodology is applicable under the following conditions: a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	The project activity includes an installation of a new grid connected renewable energy power plant (solar PV) and hence this first condition is met. The project activity does not involve any capacity additions, retrofits or replacements and therefore this second condition is not applicable.
In case of hydro power plants, one of the following conditions shall apply: a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is	The project activity is a grid connected renewable energy project (solar PV). This condition is applicable only for hydro power plants and not applicable for solar projects. Hence this criterion is not applicable.

increased and the power density calculated using equation (3), is greater than 4 W/m^2; or c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m^2. d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m^2, all of the following conditions shall apply: I. The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m^2; II. Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; III. Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 shall be; a) Lower than or equal to 15 MW; and b) b) Less than 10 per cent of the total installed capacity of integrated hydro power project.	
In the case of integrated hydro power projects, project proponent shall: • Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or • Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore,	The project activity is a grid connected renewable energy project (solar PV). This condition is applicable only for hydro power plants and not applicable for solar projects. Hence this criterion is not applicable.

this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	
Methodology is not applicable to the following • Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site • Biomass fired power plants/units	The project activity will be installation of a new grid connected renewable energy project (Solar PV) and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant. This project activity does not involve any biomass-based power plants and hence this criterion is not applicable to the project activity
In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance"	The project activity will be a new grid connected renewable energy plant (Solar PV) and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.

Applicability conditions of "Tool to calculate the emission factor for an electricity system"

Applicability	Project activity vis-à-vis applicability Conditions
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g., demand-side energy efficiency projects).	This condition is applicable. OM, BM and CM are estimated using the tool for calculating baseline emissions.
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	Since project activity is grid connected (solar PV), this condition is applicable and the emission factor has been calculated accordingly.

system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	
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.	Project activity will be located 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_2 emission factor of biofuels is zero.	The project activity will be grid connected renewable energy project (solar PV) and CO_2 emission factor is not considered for biofuels.

In addition to the above applicability criteria, the project also meets the criteria of the flowing methodological tools;

1. Compliance to applicability conditions of Methodological Tool, TOOL01: "Tool for the demonstration and assessment of additionality- Version 07.0.0, EB 70, Annex 8 is demonstrated in section B.5
2. Compliance to applicability conditions of Methodological Tool: TOOL 27: Investment analysis - Version 12.0 is demonstrated in section B.5 (step 2)
3. Compliance to applicability conditions of Methodological Tool: TOOL24: common practice - Version 3.1 is demonstrated in section B.5 (step 4).

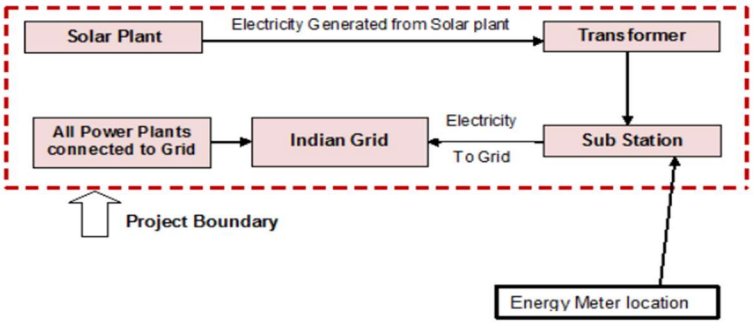
B.3. Project boundary, sources and greenhouse gases (GHGs)

>>

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	Grid connected electricity generation	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Others	No	Project activity does not emit other forms of GHG emissions
Project Activity	Greenfield Solar PV Power Project Activity	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Others	No	Project activity does not emit other forms of GHG emissions

The pictorial depiction of the project boundary is given below:



Project Boundary

B.4. Establishment and description of the baseline scenario

>>
As per the approved consolidated methodology ACM0002, v21, para 24, If the project activity is the installation of a Greenfield power plant, the baseline scenario is the following:
"Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".
The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM), in accordance with the Tool to calculate the emission factor for an electricity system - Version 07 Calculations for this combined margin must be based on data from an official source (where available) and made publicly available. In India, Central Electricity Authority (CEA), Government of India provides this data, and accordingly the same has been used.

In the absence of the project activity, the equivalent amount of electricity would have been drawn from the state grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian Grid.

The combined margin ($EF_{grid, CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM).

Calculations for this combined margin must be based on data from an official source (where available) and made publicly available. The CEA database version 18.0 is the latest available data at the time of PSF submission to GCC verifier for project verification, hence same is considered for emission factor calculations.

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

Parameter	Value	Nomenclature	Source

$EF_{grid,CM,y}$	0.9310 tCO_2/MWh	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.25) & build margin (0.75) 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 (2019-20, 2020-21 & 2021-22) generation-weighted average, sourced from Baseline CO2 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_2 emission 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 a GCC 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.

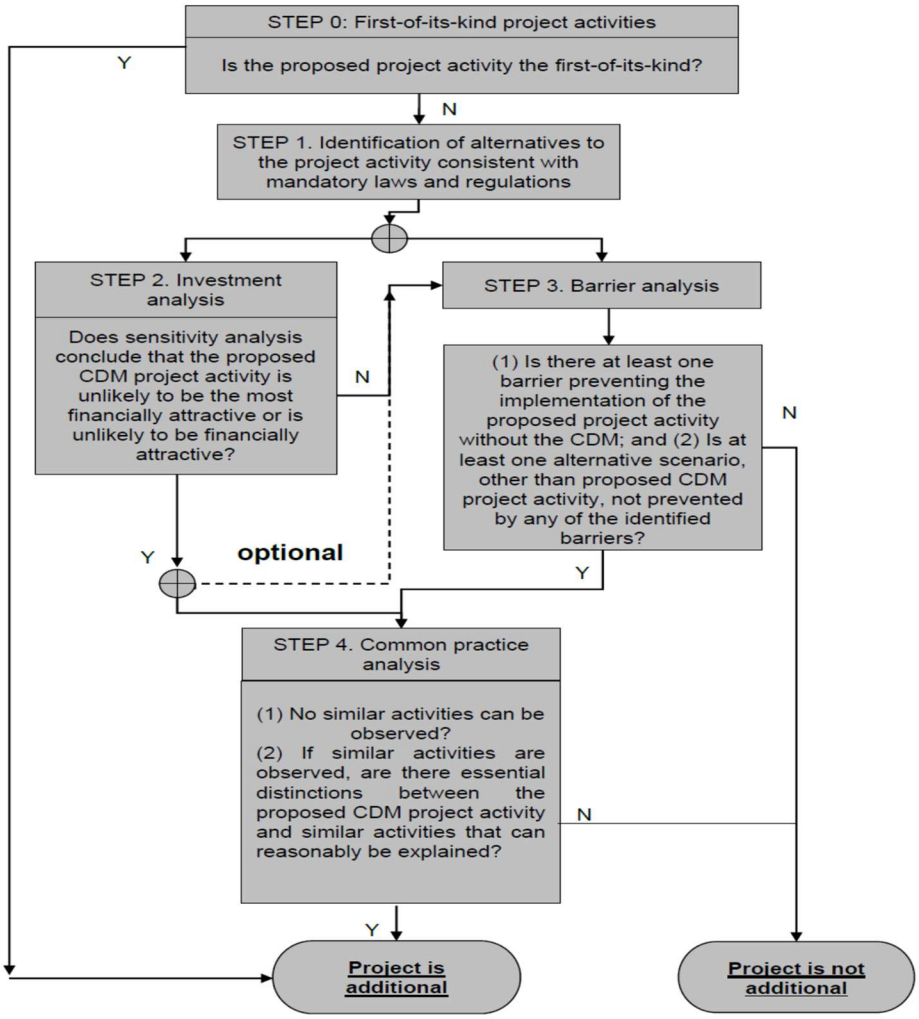
(a) Legal Requirement Test

The project is not enforced by law. The project passes the legal requirement test since there are no enforced laws, statutes, regulations, court orders, environmental-mitigation agreements, permitting conditions of other legally-binding mandates requiring its implementation. Since voluntary commitments/agreements within a sector or by an entity do not constitute the legal requirement, the outcome of the legal requirement test is concluded as positive.

(b) Additionality Test

The project activity 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 ACM0002 (Version 21). 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 proposed project activity is solar project; hence not the first of its kind. Hence, this step is not applicable.

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

As per the applied methodology ACM0002 version 21; Para 24, "If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid connected power plant and by the addition of new generation sources".

As the baseline scenario is prescribed by applied methodology, hence no further analysis is carried out to identify alternatives.

Step 2: Investment Analysis

As per para 29 of "Tool for the demonstration and assessment of additionality" v7.0.0, it is determined that the proposed project activity is not an economically or financially feasible option. To conduct the investment analysis, Methodological tool: Investment analysis, version 10.0 (EB 105 annex 06) has been referred.

Sub-step 2a: Determine appropriate analysis method

As per "Tool for the demonstration and assessment of additionality" (version 07.0.0), for financial analysis of the project, the following three options are available:

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

The project will generate revenues from sale of electricity, therefore Option I is not applicable. Option II also does not apply since there is no comparable investment alternative available to the project participant in line with para 32 of the Methodological tool: "Tool for the demonstration and assessment of additionality" (version 07.0.0)

The most appropriate financial analysis method is therefore option III: the benchmark analysis, where the returns on investment in the project activity are compared to benchmark returns that are available to any investors in the country.

Sub-step 2b: Option III. Apply benchmark analysis

Project owner has considered Post-Tax Equity IRR for investment analysis at the time of decision-making. As Project investor is only interested in the returns project is generating on the portion of investment costs, which is financed by them in the form of equity. As per Para 15 of TOOL 27: Investment analysis, Version 12.0 states that Required/expected returns on equity are appropriate benchmarks for an equity IRR. Therefore, the Expected return on equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for **Investment Analysis.**

Default Value Benchmark
As per para 19 of TOOL 27: Investment analysis, Version 12.0 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:

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

Nominal Benchmark[22] = {(1+Real Benchmark) *(1+Inflation rate)}-1
Where:
- Default value for Real Benchmark is the default value of expected return on equity in real terms for Energy Industries (Group 1) in India as provided in the Appendix
- Inflation Rate forecast for by Reserve Bank of India (RBI)

[22] As per Fisher Equation, https://en.wikipedia.org/wiki/Fisher_equation

Benchmark estimation

The Cost of Equity has been considered using the "Methodological tool: Investment analysis" available at the time of decision making.

Default Value at the time of investment decision:

Appendix A, TOOL 27: Methodological Tool: Investment Analysis, Version 07 which was available at the time of investment decision[23] specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India as 11.06%

Thus, the Default Value considered for calculation of Benchmark = 11.06%

As per Para 17 of TOOL 27: Investment analysis, Version 12.0, the inflation forecast should be for the duration of the crediting period. Inflation forecast (CPI Combined Mean for 10 yrs) published bimonthly by Reserve Bank of India which is the central bank of India is used to convert the real rate of equity return to nominal value. Thus, the value considered as per the Results of the Survey of Professional Forecasters on Macroeconomic Indicators – Round 44 published by RBI is 4.60%[24].

The nominal benchmark has been calculated as;
{(1+11.06) *(1+4.60)} – 1 = 16.17**%**

Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III):

Input values used in the investment analysis:

Details of the project		Source
Project Location	Kollegal, Chamarajnagar, Karnataka	DPR/Commissioning cert.
Total Capacity (MWac)	30.00	DPR
Expected Date of Commissioning	31-03-2018	DPR
Life of the plant (Yrs.)	25	DPR
Generation of electricity		
PLF (%)	23.9%	DPR
Annual generation (kWh)	6,28,62,000	Calculated Value
Annual Degradation per year from 2nd Yr onwards	0.70%	DPR
Tariff rate at the decision making (INR/kWh)	Multiyear tariff[25]	DPR
Operation and maintenance cost and Insurance		
O & M Expenses (INR Mn.)	18.41	DPR
O & M free for (Yr.)	-	DPR

[23] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v7.0.pdf
[24] https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=17433
[25] Please refer financial spread sheet

Details of the project		Source
Escalation in the operational expenses (%)	5.00%	DPR
Management Fee	9.20	DPR
Escalation (%)	0.00%	
Admin Fee (₹ mn)	1.50	DPR
Escalation (%)	5.72%	DPR
Salary (₹ mn)	1.00	DPR
Escalation (%)	5.72%	DPR
Lenders maintainance (₹ mn)	1.00	DPR
Escalation (%)	5.72%	DPR
Insurance (₹ mn)	1.33	DPR
Escalation (%)	0.00%	DPR
Any other cost	0.00	DPR
Financial parameters		
TOTAL COST (INR Mn.)	1,750.00	DPR
Loan Amount (INR Mn.)	1,225.00	DPR
Equity Investment (INR Mn.)	525.00	Calculated Amount
Term loan		
Loan Amount (INR Mn.)	1,225.00	70:30 ratio as per DPR
Interest rate (%)	10.75%	DPR
Loan Tenure (Qtr.)	60.00	DPR
Moratorium Period (Qtr.)	4.00	DPR
Repayment Period (Qtr.)	56.00	Calculated Value
Repayment instalments value (INR Mn.)	21.88	Calculated Value
1st instalment from (Qtr. end)	31-Mar-19	Considered from the next Quarter End
Book Depreciation (SLM Method)		
Gross Depreciable Value (INR Mn.)	1,750.00	Calculated Value
Salvage Value (%)	10.00%	DPR
Salvage value (INR Mn.)	175.00	Calculated Value
Net Depreciable Value (INR Mn.)	1,575.00	Calculated Value
Residual Value (INR Mn.)	175.00	Calculated Value
IT Depreciation		
IT Depreciation(%)	40.00%	IT act
Income Tax		
Financial Year	**FY 2018-19**	
Income tax rate (%)	25.00%	As Per Income Tax Rule
Corporate Tax / MAT (%)	18.50%	As Per IT rule
Servcie tax (%)	18.00%	As Per Service Tax Act
Surcharge (%)	12.00%	As Per Income Tax Rule

Details of the project		Source
Health & Education cess (%)	3.00%	As Per Income Tax Rule
Final Tax rates		
Income tax rate (%)	28.84%	Calculated Value
MAT (%)	21.34%	Calculated Value
Service tax (%)	18.00%	Calculated Value

Considering the input values, Equity IRR is calculated as 10.21% against the benchmark of 16.17%. Hence, the project activity cannot be considered as financially attractive as the equity IRR for the project activity is less than the Benchmark.

Sub-step 2d: Sensitivity Analysis

In line with Guidance 27 & 28 of TOOL 27: Investment analysis, Version 12.0, 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 are as follows:

Variation %	-10%	Normal	10%	Variation required to reach benchmark
PLF	6.66%	10.21%	13.89%	15.90%
O&M	10.82%	10.21%	9.59%	-104.90%
Project Cost	13.65%	10.21%	7.55%	-15.78%
Tariff Rate	7.81%	7.81%	13.89%	15.90%

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

Parameters	Probability to breach the benchmark
PLF	The project is already commissioned since 2018. The actual average annual PSF is found to be marginally less than what has been assumed for the equity IRR calculation. Therefore, it can be considered that the PLF assumed for financial analysis is appropriate.
O&M	A reduction of O&M cost by more than 100% to breach the benchmark is improbable.
Project Cost	The project is already commissioned and the actual project cost has been found to be close to what has been assumed for the investment analysis. Any further reduction in project cost is impossible.

Tariff Rate	The long term PPA has already been executed between the project owner and the other third-party consumers. The same rate has been assumed for financial analysis. From 11h year onwards, the tariff rate has not been fixed; the tariff rate for 11th year onwards has been assumed to be linked with the solar tariff which would prevail at that time. The Solar tariffs in India, as discovered in various tenders floated by SECI, has shown the decreasing trend in recent years and it is expected that the trend will continue. For simplicity, the Average Power Purchase Cost (APPC) of 2018-18 has been considered as the tariff rate applicable from 11th year onwards and this tariff is expected to follow the general declining trend observed in Solar tariff.

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). Thus, it can be easily concluded that project activity is additional & is not business as usual scenario.

Step 3: Barrier analysis
Barrier analysis has not been used.

Step 4: Common practice analysis

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

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

Range	***Capacity (MW_{AC})***
+50%	45
Capacity of the proposed project activity	30
-50%	15

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

a) The projects are located in the applicable geographical area;
b) The projects apply the same measure as the proposed project activity;
c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;
d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;
e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;
f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

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

a) a) As the project is located in Karnataka state of India, therefore, the applicable geographical area of Karnataka state has been chosen for analysis.
b) The project activity is a green-field solar power project and uses measure (c) "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies". Therefore, all projects applying same measure (b) as the proposed project activity are candidates for similar projects.
c) The energy source used by the project activity is solar. Hence, only solar energy projects have been considered for analysis.
d) The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.
e) The capacity range of the projects is within the applicable capacity range from 15 MW_{AC} to 45 MW_{AC}. This is to be noted that since the capacity of the solar projects installed in the India are available in AC, the AC capacity of the project is considered for demonstration of common practice analysis of the project.
f) The start date of the project activity is 25/05/2017. Kyoto Protocol was ratified by India on 26/08/2002[26], therefore projects which had started commercial operation between 26/08/2002 to 25/05/2017, have been identified.

Numbers of Similar projects identified, which fulfil above-mentioned conditioned are N_{solar} = 11[27]

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

Hence, N_{all} = 11

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}.

All the identified projects have been found to be commissioned on the arrangement of sell of 100% of the generated power to distribution companies (DISCOMs) under various promotional policies of the state and central government[28] whereas the candidate project sells the generated power through third party power selling mechanism. The DISCOMs are the public sector enterprises and selling power to them through long term power purchase agreements (PPAs) are risk free business proposition in contrast to third party power sell where the PPAs are executed with the with private consumers who runs the business bearing some inherent risks of business disruptions due to various external and internal factors. These factors may include economic slowdown, bankruptcy, workers strike, raw material shortage and act of God events. Therefore, all the 11 nos. of projects identified are of different technologies when compared with the candidate project in line with para 12 of methodological tool: Common Practice, Version 03.1.

Hence, N_{diff} = 11

Step (5): calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of

[26] http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php
[27] List of plant wise details of all India Renewable Energy Projects Published by Central Electricity Authority
[28] https://kredl.karnataka.gov.in/storage/pdf-files/SG/Solar_alot_com_list.pdf

the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity

Calculate $F = 1-N_{diff}/N_{all} = 1-(11/11) = 0$
$N_{all} - N_{diff} = 11 - 11 = 0$

Outcome of Step 5:

F = 0, less than 0.20 and
$N_{all}-N_{diff} = 0$; is less than 3, thus:

As the project activity does not satisfy both condition (i) and (ii), the proposed project activity is not a "common practice" within a sector in the applicable geographical area.

The above discussions show that solar power development is not a common practice and the project activity is not financially attractive; hence the project activity is additional.

B.6. Estimation of emission reductions

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B.6.1. Explanation of methodological choices

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According to the approved baseline methodology ACM0002 Version 21.0.0, EB 116, Annex 1

Baseline Emission:

As per para 47 of ACM0002 version 21, "Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants". The baseline emissions are to be calculated as follows:

$BE_y = EG_{PJ,y} X EF_{grid,CM,y}$
Where,
BE_y = Baseline Emissions in year y; t CO_2
$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using TOOL07 (t CO_2/MWh)

As per methodology, combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system", Version 7.0.

CO_2 Baseline Database for the Indian Power Sector, Version 18, September-2022[29] published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

As per Methodological tool: Tool to calculate the emission factor for an electricity system (Version 7.0, EB 100, Annex 4), following six steps have been followed:

(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.

Step 1: Identify the relevant electricity systems
As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, 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". Keeping this into consideration, the Central Electricity Authority (CEA), Government of India have Indian grid.

However, since August 2006, however, all regional grids except the Southern Grid had been integrated and were operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids were treated as a single grid named as NEWNE grid from FY 2007-08 onwards for the purpose of this CO_2 Baseline Database. 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 Indian Electricity Grid

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

[29] https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission__2021_22.pdf

Uttar Pradesh				
Uttarakhand				

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)
GCC project owner 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.
GCC project owner 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 Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers. The choice of other two options for calculating operating margin emission factor depends on generation of electricity from 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	2018-19	2019-20	2020-21	2021-2
India	14.6%	14.3%	14.5%	17.0%	16.5%	15.8%

Data Source: Central Electricity Authority (CEA) database Version 18, September-2022[30]

The above data clearly 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 the system, not including low-cost/must-run power plants/units.

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

(a) **Ex-ante option:** if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting

[30] https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission__2021_22.pdf

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.

Project Owner has chosen ex-ante option for calculation of Simple OM emission factor using a 3-year generation-weighted average, based on the most recent data available at the time of submission of the PD to the GCC Verifier for validation.

OM determined at validation stage will be the same throughout the crediting period. There will be no requirement to monitor & 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	965,009	958,218	1,035,672

Simple Operating Margin (t CO_2/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 7.0, EB 100, Annex 4) para 72:

In terms of vintage of data, GCC project owner 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 PD submission to the GCC Verifier for validation. 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 Project Owner 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 PD and is fixed for the entire crediting period.

Option 1 as described above is chosen by Project Owner 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 PD 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 tool: "Tool to calculate the emission factor for an electricity system" (Version 7.0, EB 100, Annex 4) para 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.

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

The combined margin emissions factor is calculated as follows:

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

Where:
$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)
$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (t CO_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 W_{OM} and W_{BM}:

For solar project activities: W_{OM} = 0.25 and W_{BM} = 0.75 (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, $EF_y = EF_{grid,CM,y} = 0.9310$ tCO_2/MWh.

Project Emission
As per the ACM0002, versio n 21.0, Project Emission for most renewable energy power generation project activities, PEy = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

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

Where

PE_y	= Project emissions in year y (tCO_{2e}/yr)
$PE_{FF,y}$	= Project emissions from fossil fuel consumption in year y (tCO_2/yr)
$PE_{GP,y}$	= Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (tCO_2e/yr)
$PE_{HP,y}$	= Project emissions from water reservoirs of hydro power plants in year y (tCO_2e/yr)
$PE_{BESS,y}$	= Project emissions from charging of a BESS using electricity from the grid or from fossil fuel electricity generators (t CO_2e/yr)

The project activity involves the generation of electricity from the installation of solar projects. Hence, as per ACM0002, Version 21.0, there is no project emission for solar projects. Therefore, project emissions are zero.

Leakage Emissions
No leakage emissions are considered in the project activity. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g., extraction, processing, and transport). Since the emissions sources are small, it is neglected.

Hence, $LE_y = 0$

Emission reduction (ER_y):
The project activity mainly reduces carbon dioxide through substitution of grid electricity generation with fossil fuel fired power plant by renewable electricity. The emission reduction ER_y by the project activity during a given year y is the difference between Baseline emission and Project emission & Leakage emission.

Thus, as per equation 17 of ACM0002 Version 21,

$$ER_y = BE_y - PE_y$$

Where,

ER_y	= Emission Reduction in year y (tCO_{2e}/year)
BE_y	= Baseline emissions in year y (tCO_{2e}/year)

PE_y = Project emissions in year y (tCO_{2e}/year)

B.6.2. Data and parameters fixed *ex ante*

>>

Data / Parameter Table 1.

Data / Parameter:	**$EF_{grid,OM,y}$**
Methodology reference	ACM 0002 (Version 21.0)
Data unit	tCO_2e/MWh
Description	Operating Margin CO_2 emission factor in year y
Measured/calculated /default	Calculated as the last 3-year (2019-20, 2020-21 & 2021-22) generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 18.0, September 2022 published by Central Electricity Authority (CEA), Government of India.
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	0.9518
Measurement/ Monitoring equipment (if applicable)	Not Applicable
Calculation method (if applicable)	Not Applicable
QA/QC procedures	This parameter is fixed ex-ante for the entire crediting period.
Purpose of data	For the calculation of the Baseline Emission.
Additional comments	-

Data / Parameter Table 2.

Data / Parameter:	**$EF_{grid,BM,y}$**
Methodology reference	ACM 0002 (Version 21.0)
Data unit	tCO_2e/MWh
Description	Build Margin CO_2 emission factor in year y
Measured/calculated /default	Calculated as the last 3-year (2019-20, 2020-21 & 2021-22) generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 18.0, September 2022 published by Central Electricity Authority (CEA), Government of India.
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	0.8687
Measurement/ Monitoring equipment (if applicable)	Not Applicable
Calculation method (if applicable)	Not Applicable
QA/QC procedures	This parameter is fixed ex-ante for the entire crediting period.
Purpose of data	For the calculation of the Baseline Emission.
Additional comments	-

Data / Parameter Table 3.

Data / Parameter:	**$EF_{grid,CM,y}$**
Methodology reference	ACM 0002 (Version 21.0)
Data unit	tCO_2e/MWh
Description	Combined Margin CO_2 emission factor in year y
Measured/calculated /default	Calculated as the last 3-year (2019-20, 2020-21 & 2021-22) generation-weighted average, sourced from Baseline CO_2 Emission Database,

	Version 18.0, September 2022 published by Central Electricity Authority (CEA), Government of India.
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
Measurement/ Monitoring equipment (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	This parameter is fixed ex-ante for the entire crediting period.
Purpose of data	For the calculation of Baseline Emission.
Additional comments	-

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 (tCO_2/yr)
BE_y = Baseline emission year y (tCO_2/yr)
PE_y = Project emissions year y (tCO_2/yr)
LE_y = Leakage Emissions year y (tCO_2/yr)

Baseline Emission (BE_Y)

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

$BE_Y = EG_{PJ,y} * EF_{grid,y}$

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 CDM project activity in year y (MWh).

As per para 26 of methodology, project activity is the installation of a Greenfield power plant, hence

$EG_{pj,y} = EG_{pj,facility,y}$

The notation of same parameter $EG_{PJ,,y}$ can be $EG_{PJ,facility,y}$ as project activity is installation of a greenfield power plant.

$EG_{PJ,facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh).

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

>>

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
Year 1	58,524	0	0	58,524
Year 2	58,114	0	0	58,114
Year 3	57,704	0	0	57,704
Year 4	57,295	0	0	57,295
Year 5	56,885	0	0	56,885
Year 6	56,475	0	0	56,475
Year 7	56,066	0	0	56,066
Year 8	55,656	0	0	55,656
Year 9	55,246	0	0	55,246
Year 10	54,837	0	0	54,837
Total	566,802	0	0	566,802
Total number of crediting years	10			
Annual average over the crediting period	56,680	0	0	56,680

B.7. Monitoring plan

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B.7.1. Data and parameters to be monitored *ex-post*

>>

Data / Parameter Table 4.

Data / Parameter:	**$EG_{PJ,,y}$**
Methodology reference	ACM 0002 (Version 21.0)
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)
Measured/calculated /default	Measured
Data source	Credit Report /JMR as per Monthly Generation Report
Value(s) of monitored parameter applied with basis	60,882[31] (Estimated)
Measurement/ Monitoring equipment	

Type of meter(s)	Energy Meter
Location of meter(s)	Interconnection
Accuracy of meter(s)	0.5s or better
Serial number of meter(s)	To be confirmed in the final version of PSF
Calibration frequency	As per Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2019[32], all Interface Meters shall be tested on-site using accredited test laboratory for routine accuracy testing at least once in five years and recalibrated if required.
Date of Calibration/ validity	To be confirmed in the final version of PSF
Reference No. of Calibration Certificates	To be confirmed in the final version of PSF
Calibration Status	To be confirmed in the final version of PSF

[31] Annual average for 10 years' generation

[32] https://cea.nic.in/old/reports/regulation/CEA_metering_regulation_amendment_2019.pdf

Frequency of Measuring/reading	Continuous monitoring and recording
Recording frequency	Monthly
Calculation method (if applicable)	Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. The Bi directional energy meter measures both export and import of project activity. The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid, electricity imported from the grid obtained from joint meter reading certificates/credit notes issued by state electricity board as per below equation: $EG_{facility,y} = EG_{Export} - EG_{Import}$ The joint reading at metering point is carried out once in a month in presence of O&M officials and state electricity board personnel. The calculations/measurement of net electricity supplied to grid is under purview of state electricity board and the project owner has no role on it. Project owner will get value of net electricity supplied to grid and hence this parameter is mentioned as a part of monitoring plan. Cross Checking: Quantity of net electricity supplied to the grid will be cross checked from the invoices raised to the State Electricity Board.
QA/QC procedures	The calibration of all the meters will be undertaken at required intervals and faulty meters will be duly replaced immediately. The meters will be of accuracy class 0.5s or better. The energy meters will be calibrated at a frequency of once in five years.
Purpose of data	The Data/Parameter is required to calculate the baseline emission
Additional comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

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

Data / Parameter:	**CO_2 emissions**
Purpose:	To demonstrate positive impacts of aspects wrt 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.	This aspect has a positive impact. There is no associated environment /social/ SDG risk.

Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td colspan="2"></td></tr><tr><td>Parameter to be monitored</td><td>Tons of CO_{2e} saved</td></tr><tr><td>Frequency of monitoring</td><td>As and when ACC issuance is done.</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	The value will be sourced from the monitoring report prepared during the time of issuance.

Data / Parameter:	**Replacing fossil fuels with renewable sources of energy**
Purpose:	*To demonstrate positive impacts of aspects wrt 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.	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td colspan="2"></td></tr><tr><td>Parameter to be monitored</td><td>Replacing fossil fuels with renewable sources of energy</td></tr><tr><td>Frequency of monitoring</td><td>Continuous</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	

Data / Parameter:	**Long-term jobs (> 1 year) created/ lost**
Purpose:	To demonstrate positive impacts of aspects wrt 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.	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td colspan="2"></td></tr><tr><td>Parameter to be monitored</td><td>No. of employees appointed</td></tr><tr><td>Frequency of monitoring</td><td>Continuous monitoring</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	-

Data / Parameter:	**New short-term jobs (< 1 year) created/ lost**
Purpose:	*To demonstrate positive impacts of aspects wrt 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.	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td colspan="2"></td></tr><tr><td>Parameter to be monitored</td><td>No. of jobs given</td></tr><tr><td>Frequency of monitoring</td><td>Yearly</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	-

<table>
<tr><td>Data / Parameter:</td><td>Sources of income generation increased / reduced</td></tr>
<tr><td>Purpose:</td><td>To demonstrate positive impacts of aspects wrt 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.</td></tr>
<tr><td>Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.</td><td></td></tr>
<tr><td>Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG</td><td>
<table>
<tr><td colspan="2"></td></tr>
<tr><td>Parameter to be monitored</td><td>Sources of income generation increased / reduced</td></tr>
<tr><td>Frequency of monitoring</td><td>Annually</td></tr>
<tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr>
<tr><td>QA/QC</td><td>-</td></tr>
</table>
</td></tr>
<tr><td>Remarks</td><td>-</td></tr>
</table>

Data / Parameter:	**Employment discrimination**
Purpose:	To demonstrate positive impacts of aspects wrt 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.	The appointment is done on the basis of nature of job and skill required for the same irrespective of race, gender, ethnic and religion etc. The employees are hired purely on basis of their skill. education and capability w.r.t the job requirement and it is irrespective of their identity.
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>Number of employees appointed</td></tr><tr><td>Frequency of monitoring</td><td>Continuous monitoring</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>Labour Laws In India</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	The employee payroll record shall be checked to confirm diversification vis-à-vis their qualification and job role.

Data / Parameter:	**Safety Training**
Purpose:	*To demonstrate positive impacts of aspects wrt 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.	Occupational accidents at the site may be occurred. All trainings and precautions are completed according to the Law. The safety training is expected to be provided to the site personnel as per normal industry practice and local law.
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>Records of safety training for occupational hazard and other accidents shall be monitored to check if adequate training is provided to the site personnel or not.</td></tr><tr><td>Frequency of monitoring</td><td>Continuous monitoring</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	-

Data / Parameter:	**Minimum wage**
Purpose:	To demonstrate positive impacts of aspects wrt 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.	There could be possibility that the workers/employee appointed are provided with less remuneration/wage than the benchmark set by the host country. Hence, this shall be monitored.
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td colspan="2"></td></tr><tr><td>Parameter to be monitored</td><td>List of employees and salary/remuneration they receive shall be monitored.</td></tr><tr><td>Frequency of monitoring</td><td>Continuous monitoring</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>Minimum Wages Act 1948</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	To be sourced from the Payroll records of the project owner.

Data / Parameter:	**Grievance record**
Purpose:	To demonstrate positive impacts of aspects wrt 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.	There could be possibility that any of the employee show dissent to the conduct of workplace and concern in regard to abuse or misbehaviours. The necessary legal regulation in this regard shall be followed to avoid this at the workplace.
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table><tr><td colspan="2"></td></tr><tr><td>Parameter to be monitored</td><td>Number of grievance recorded and their resolution conclusion.</td></tr><tr><td>Frequency of monitoring</td><td>Continuous monitoring</td></tr><tr><td>Legal /regulatory / corporate limits (if any)</td><td>-</td></tr><tr><td>QA/QC</td><td>-</td></tr></table>
Remarks	A complain register is maintained at project site to register any grievance any individual/group of employees at any hierarchy level.

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

>>

<table>
<tr><td>Data / Parameter:</td><td>PV Modules Waste</td></tr>
<tr><td>Purpose:</td><td>To demonstrate compliance of PV Modules Waste disposal aspects to legal/regulatory/corporate requirements or to demonstrate that they do not cause any net harm to environment as per selected indicators.</td></tr>
<tr><td>Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.</td><td>The defunct / damaged PV modules may be generated and storage/ disposal can lead to contamination of soil.</td></tr>
<tr><td>Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG</td><td>
<table>
<tr><td>Parameter to be monitored</td><td>The details of damaged and refurbished solar PV modules</td></tr>
<tr><td>Frequency of monitoring</td><td>As and when any solar module is damaged beyond repair and completes its useful life.</td></tr>
<tr><td>Legal /regulatory / corporate limits (if any)</td><td>The E-waste (Management and Handling) Rules is applicable for the disposal of the solar PV, however, the scope and disposal guideline is not framed yet under this which is expected soon.</td></tr>
<tr><td>QA/QC</td><td>The details of damaged and refurbished solar PV modules will be maintained in records for future verification</td></tr>
</table>
</td></tr>
<tr><td>Program of Risk Management Actions to mitigate risk related to aspect (if any for aspects assessed to be harmful)</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>The damaged/defunct solar PV modules shall be stored and disposed-off</td><td>Project Owner</td><td>01</td><td>To be provided in final the version of PSF.</td><td>Quantity of damaged Solar PV modules handled safely.</td><td>To be monitored</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td></td><td colspan="3"></td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Data / Parameter:</td><td>E-waste</td></tr>
<tr><td>Purpose:</td><td>Program of Risk Management Actions for E- Waste (PRMA 02)</td></tr>
<tr><td>Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.</td><td>To mitigate/reduce an environmental impact identified as Harmful in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 02</td></tr>
<tr><td>Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG</td><td>
<table>
<tr><td colspan="2"></td></tr>
<tr><td>Parameter to be monitored</td><td>The details of damaged and refurbished electronic devices</td></tr>
<tr><td>Frequency of monitoring</td><td>As and when any electronic device is damaged beyond repair and completes its useful life.</td></tr>
<tr><td>Legal /regulatory / corporate limits (if any)</td><td>The E-waste (Management and Handling) Rules are applicable</td></tr>
<tr><td>QA/QC</td><td>The details of E-waste will be maintained in records for future verification.</td></tr>
</table>
</td></tr>
<tr><td>Program of Risk Management Actions to mitigate risk related to aspect (if any for aspects assessed to be harmful)</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 shall be stored and dispose d-off</td><td>Project Owner</td><td>01</td><td>To be provided in final the version of PSF..</td><td>Quantity of Ewaste handled safely</td><td>To be monitored</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td></td><td colspan="3"></td></tr>
<tr><td colspan="7"></td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Data / Parameter:</td><td>End of life products/ equipment</td></tr>
<tr><td>Purpose:</td><td>To mitigate/reduce an environmental impact identified as harmful in the risk assessment and to develop a Program of Risk Management Actions plan to address the risk of PRMA 03.</td></tr>
<tr><td>Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.</td><td>Improper disposal of generated End of life products/ equipment may create soil contamination</td></tr>
</table>

<table>
<tr><td>Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG</td><td>
<table>
<tr><td>Parameter to be monitored</td><td>The details of End of life products/ equipment</td></tr>
<tr><td>Frequency of monitoring</td><td>As and when any product/ equipment completes its useful life.</td></tr>
<tr><td>Legal /regulatory / corporate limits (if any)</td><td>The E-waste (Management and Handling) Rules are applicable</td></tr>
<tr><td>QA/QC</td><td>The details of End of life products/ equipment will be maintained in records for future verification.</td></tr>
</table>
</td></tr>
<tr><td>Program of Risk Management Actions to mitigate risk related to aspect (if any for aspects assessed to be harmful)</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>End of life solar PV modules shall be stored and disposed off as per the guidance of national/ local laws.</td><td>Project Owner.</td><td>01</td><td>Throughout the project lifetime</td><td>Quantity of damaged Solar PV modules handled safely</td><td>To be monitored</td></tr>
<tr><td colspan="7"></td></tr>
<tr><td colspan="3">Date of Closing the Program:</td><td></td><td colspan="3"></td></tr>
</table>
</td></tr>
</table>

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 for the project activities and is proposed for grid-connected solar power project being implemented. The monitoring plan, which will be implemented by the project participant describes about 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. The project owner proposed the following structure for data monitoring, collection, data archiving and calibration of equipment’s for this project activity.

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

Data collection and archiving
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 on a daily basis. The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of ACCs for the project activity whichever occurs later.

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 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 helpers 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 proponent 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 at-least once in five years.

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

>>

06/02/2018 (Date of commissioning of the project).

C.2. Expected operational lifetime of the Project Activity

>>

25 Years

C.3. Crediting period of the Project Activity

>>

Fixed crediting period i.e from 06/02/2018 to 05/02/2028.

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

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Start date of crediting period – 06/02/2018

End date of crediting period – 05/02/2028.

C.3.2. Duration of crediting period

>>
10 Years

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 at the building premises of different institutional customers.

A report on "Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects" was prepared by MNRE dated September 2013[33]. This report clearly mentioned that solar project activity operations do not result in direct air pollution, noise pollution. Please refer below web link for the same.

Thus, there is no any significant impact due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity. However, further analysis has been done in section E.

D.2. Environmental impact assessment and management action plans

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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 have been done on 14/07/2018. As per the notification:

[33] ttps://smartnet.niua.org/sites/default/files/resources/report-on-developmental-impacts-of-RE.pdf

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

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 specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;
3. Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.”

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

Section E. Environmental and social safeguards

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E.1. Environmental safeguards

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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 [34] ***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*	*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*	*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.* .

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

					operating 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.*	*(may be 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)*	*Paragrap h 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 solar power project does not cause any SOx emissions in the project scenario. However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted SOx emissions, on which data is not available and can't be quantified.	The Air (Prevention & Control of Pollution) Act 1981stipulates thresholds for both ambient air quality as well as stack emissions.	Not Applicable as no emissions occur in the project scenario and therefore is not expected to or does not cause any harm.	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	NO_x emissions (EA02)	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981 .	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

	CO_2 emissions (EA03)	The project reduces CO_2 emissions since it reduces the amount of fossil fuel used. Thus, air pollution decreases.	The Air (Prevention & Control of Pollution) Act 1981stipulates thresholds for both ambient air quality as well as stack emissions.	The project reduces CO_2 emissions in the baseline hence the project will not cause any harm in this regard	-	-	Not Applicable	Not Applicable	Monitoring parameter: CO_2 emissions Monitoring frequency: As and when ACC issuance is done.	+1	There is no legal requirement in the host country to limit CO_2 emission applicable for the project and/or the project owner. As described, the project reduces equivalent quantity of CO_2 emission which is voluntary. Hence, this parameter shall be scored.	-
	CO emissions (EA04)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Suspended particulate matter (SPM) emissions (EA05)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Fly ash generation (EA06)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Non-Methane Volatile Organic Compounds (NMVOCs) (EA07)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Odor (EA08)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Noise Pollution (EA09)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Others (EA10)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

	Add more rows if required and corresponding notation with EA as prefix)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Environment - *Land*	*Solid waste Pollution from Plastics (EL-01)*	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Solid waste Pollution from Hazardous wastes (EL02)	Damaged solar PV modules at site might have negative environmental impacts if not managed well	Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016	The solar PV modules wastes if not handled properly, may cause damage to the soil and nearby water bodies.	As mentioned, the solar PV modules wastes if not handled properly, may cause damage to the soil and nearby water bodies.	This has been assessed to be harmful.	-	The damaged/ defunct solar PV modules shall be stored and disposed-off as per the national/local law.	Monitoring parameter (Section B.7.2): PV Modules Waste Frequency: Continuous (As and when any solar module is damaged beyond repair and completes its useful life.)	+1	-	-
	Solid waste Pollution from Bio-medical wastes (EL03)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Solid waste Pollution from E-wastes (EL04)	Apart from the solar panel modules, other electronic items such as inverters, cable etc. are expected to generate e-waste after their useful	E-Waste (Management) Rules, 2016	Environmental impact from on account of -e-waste	As mentioned, the e-waste to be produced	This has been assessed to be harmless.	Since this has been assessed as harmless, this is not applicable.	Since this has been assessed as harmless, this is not applicable.	Monitoring parameter: E - Waste Frequency: Continues	+1	The E-waste generated from the project is expected to be disposed as per the E-Waste	-

		life. The e-wastes generated from the project (other than solar panels which is covered above) shall be recorded and disposed as per the E-Waste (Management) Rules, 2016, India.		handling is expected. Hence, this is applicable.	from the project if not handled properly, may cause damage to the soil and nearby water bodies. However, the e-waste to be generated from the project are expected to be handled in line with the E-Waste (Management) Rules, 2016. Hence, Project Activity is unlikely to cause any harm (is safe) and therefore, indicated as harmless.						(Management) Rules, 2016.	
	Solid waste Pollution from Batteries (EL05)	The project does not deploy batteries for storage. No solid waste pollution from batteries is anticipated.	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Solid waste	The electronic and electrical waste and solar	Solid Waste	-	Harmless	-	Solid waste from the	The management	The details of damaged and	+1	The management of	-

	Pollution from end-of-life products/ equipment (EL06)	panels after being damaged or completing useful life shall be disposed as per local legal requirements, the assessment of which is already incorporated above. Hence, the assessment against this indicator is not assessed further.	Management Rules, 2016				project activity must be disposed as applicable law	of the project owner is responsible to maintain records and dispose all products after ending lifecycle as per applicable law	returned solar PV modules will be maintained in records for future verification. Refer B.7.2.		the project owner is responsible to maintain records and dispose all products after ending lifecycle as per applicable law and it will not applicable for the project activity Hence,, this parameter will not be scored.	
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury) (EL07)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	land use change (change from cropland /forest land to project land) (EL08)	There is no forest or cropland is used to implement the project, hence, this is not applicable.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Soil erosion (EL09)	N/A	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
Environment - *Water*	*Reliability/ accessibility of water supply (EW01)*	Solar power projects use a modest amount of water for cleaning solar collection and reflection surfaces like mirrors, heliostats, and photovoltaic (PV) panels. However, the quantity is water used is very insignificant, particularly	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-

		when compared with the baseline power plants. Therefore, this has been assessed to be not applicable										
	Water Consumption from ground and other sources (EW02)	Please refer the above assessment.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Generation of wastewater (EW03)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Wastewater discharge without/with insufficient treatment (EW04)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Pollution of Surface, Ground and/or Bodies of water (EW05)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Discharge of harmful chemicals like marine pollutants / toxic waste (EW06)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Environment – *Natural Resources*	*Conserving mineral resources (ENR01)*	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Protecting/ enhancing plant life (ENR02)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-

	Protecting/ enhancing species diversity (ENR03)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Protecting/ enhancing forests (ENR04)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Protecting/ enhancing other depletable natural resources (ENR05)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Conserving energy (ENR06)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Replacing fossil fuels with renewable sources of energy (ENR07)	The project activity involves generation of power using solar energy resources which would have been otherwise generated from the fossil fuel dominant grid connected power plants in the absence of the project activity.	Energy Conservation Act 2001	The project shall not cause any harm to this aspect, rather shall save equivalent quantity of fossil fuel that would have been combusted in the baseline project plants. Hence not Applicable and no Action Required.	The project shall not cause any harm to this aspect, rather shall save equivalent quantity of fossil fuel that would have been combusted in the baseline project plants. Hence not Applicable and no Action Required.	The project shall not cause any harm to this aspect, rather shall save equivalent quantity of fossil fuel that would have been combusted in the baseline project plants. Hence not Applicable and no Action	The project shall not cause any harm to this aspect, rather shall save equivalent quantity of fossil fuel that would have been combusted in the baseline project plants. Hence not Applicable and no Action Required.	The project shall not cause any harm to this aspect, rather shall save equivalent quantity of fossil fuel that would have been combusted in the baseline project plants. Hence not Applicable and no Action Required.	Parameter: Replacing fossil fuels with renewable sources of energy Frequency: Continuous measurement	+1	As described, the project reduces equivalent quantity of CO_2 emission which is voluntary. Hence, this parameter shall be scored.	-

						Required.						
	Replacing ODS with non-ODS refrigerants (ENR08)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
Net Score:		**+5**										
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 net harm to the environment.										

E.2. Social Safeguards

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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**	**Ex- Ante scoring of social impact**	**Ex- Ante description and justification/explanati**	**Verification Process**

								scoring matrix Appendix-02)	of the project	on of the scoring of social impact of the project	Will the Project Activity cause any harm?
Social Aspects on the identified categories[35] 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 (SJ01)*	The project creates long-term job opportunities for the operational period.	Employment is made according to national employment regulations.	Not Applicable	-	-	Not Applicable	Parameter (Sec B.7.1): Long-term jobs (> 1 year) created/ lost Frequency: Continuous	+1	The project has created long term jobs to operate the project successfully throughout its life. Hence, this impact has	-

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

										been scored.	
	New short-term jobs (< 1 year) created/ lost (SJ02)	The project creates short term job opportunities during construction	All employment s is done according to the national employment regulations. (Labour Laws In India)	Not Applicable	-	-	Not Applicable	The number of people employed in the project will be monitored through payroll records. Frequency: Continuous There are no impacts that have been identified as harmful.	+1	The project will create short term job with less than 1 year. No risks have been identified and hence no risk mitigation action is required.	-
	Sources of income generation increased / reduced (SJ03)	The project increases income by creating job opportunities.	All payments and right comply with the LaborLaw.	Not Applicable	-	-	Not Applicable	The revenue generate will be monitored from the annual audited books of account and employment records.	+1	There will be net income generation due to implementation of the project activity. No risks have been identified and hence no risk mitigation action is required.	-
	Avoiding discrimination when hiring people from different race, gender, ethnics, religion, marginalized groups, people	The appointment is done on the basis of nature of job and skill required for the same irrespective of race, gender, ethnic and religion etc. The employees are hired purely on basis of their skill. education and capability w.r.t the job requirement and it is irrespective of their identity.	There is no local legal compliance applicable for this.	There could be discrimination in appointment of employees for the project. However, this is ensured by the project owner that there is no discrimination done and the people are	This has been assessed harmless and hence no action required.	-	Not Applicable	Monitoring parameters (B.7.1): Employment discrimination Frequency: as and when ACC issuance is done.	0	Any discrimination done while employee hiring shall be avoided. This is expected that there will be no discrimination, therefore, this has not	-

	with disabilities (SJ04) *(Human rights)*			hired on basis of their still and qualification. Hence, this has been assessed harmless.						been scored.	
-Social - *Health & Safety*	*Disease prevention (SHS01)*	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Occupational health hazards (SHS02)	There is no occupation health hazard is involved in the project activity. Therefore, this is not applicable. The risks related to accident is included below.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Reducing / increasing accidents /Incidents/fatality (SHS03)	Occupational accidents at the site may be occurred.	All trainings and precautions are completed according to the Law. The safety training is expected to be provided to the site personnel as per normal industry practice and local law. Hence, this has been assessed to be harmless.	The safety training is expected to be provided to the site personnel as per normal industry practice and local law. Hence, this has been assessed to be harmless. Hence, no action required.	This has been assessed to be harmless, hence no action required.	Not Applicable	Not Applicable	Monitoring Parameter (B.7.1): Safety Training Frequency: Annually	0	The safety trainings are expected to be provided as per normal industry practice, hence, this shall not be scored.	-
	Reducing / increasing crime (SHS04)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Reducing / increasing food	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-

	wastage (SHS05)										
	Reducing / increasing indoor air pollution (SHS06)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Efficiency of health services (SHS07)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Sanitation and waste management (SHS08)	There is no waste generation from the hydro power project, hence, this is not applicable.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
	Other health and safety issues (SHS09)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	-
Social - *Education*	*specialized training / education to local personnel (SE01)*	The project owner imparted the trainings to develop the technical skills to operate the plant safely	There is no mandatory requirement prevailed in the host country in this regard.	Not Applicable	-	-	Not Applicable	Training records/ evidence by the project owner.	+1	Project owner will take Initiative towards provisioning of training to employees. Hence, this parameter shall be scored.	
	Educational services improved or not (SE02)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	

	Project-related knowledge dissemination effective or not (SE03)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Other educational issues (SE03)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Social - *Welfare*	*Improving/ deteriorating working conditions (SW01)*	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Community and rural welfare (indigenous people and communities) (SW02)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Poverty alleviation (more people above poverty level) (SW03)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Improving / deteriorating wealth distributi	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	

	on/ generation of income and assets (SW04)										
	Increased or / deteriorating municipal revenues (SW05)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Women's empowerment (SW06) *(Human rights)*	The project shall contribute to achieve equal rights for men & women. The project owner has an internal policy to protect women's right and safeguard women from harassment at workplace. The project owner ensures there is equal opportunity provided to women in employment. The project owner shall ensure at least 1 woman is employed in its payment for this project activity.	The employment and benefit provided to the employees shall be ensured to be as per all the applicable Indian rules and regulations. As per the Protection of women from Sexual Harassment Act (POSH), of India, every company having more than ten employees to constitute an Internal Complaints Committee (ICC) in the prescribed manner to receive and address the complaints of any sort of sexual harassment from women in a time-bound and extremely confidential manner. The project owner has a policy to implement the provision of POSH act at its work place.	Not Applicable	-	-	Not Applicable	This can be monitored continuously by the payroll records.	+1	No risks have been identified and hence no risk mitigation action is required. The women employment it the project owner's payroll shall be monitored from its employment register or any other authentic sources.	

	Reduced / increased traffic congestion (SW07)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Exploitation of Child labour *(Human rights)* *(SW08)*	No child will be provided employment in the project, below the legal age of employment. This shall be checked from the records of the parameter, " Long-term jobs(>1 year) created/lost. Hence, additional monitoring parameter is now included for this.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Minimum wage protection *(Human rights) (SW09)*	There could be possibility that the workers/employee appointed are provided with less remuneration/wage than the benchmark set by the host country. Hence, this shall be monitored.	The minimum wage as per the local legal requirement shall be ensured to be provided to the employees hired by the project owner in the project.	The project owner shall ensure that minimum wage/remuneration per the standard set of the host country is provided to the employees. Hence, this has been assessed to be harmless.	This is assessed not to be harmful, hence not applicable	-	Not Applicable	Monitoring parameter (B.7.1): Minimum Wage Frequency: Continuous	0	The minimum wage paid to the employees working in the project is expected to be within the local legal requirement. Therefore, this is not scored.	
	Abuse at workplace. (With specific reference to women and people with special disabilities / challenges)	There could be possibility that any of the employee show dissent to the conduct of workplace and concern in regard to abuse.	The necessary legal regulation in this regard shall be followed to avoid this at the workplace.	The monitoring of the grievance received and their resolution procedure with sufficient action plan to avoid any such future incident shall be maintained.	This is expected to be followed as per the local legal requirement; hence this has been assessed to be harmless.	This has been assessed to be harmless, not applicable	Not Applicable	Monitoring parameter (B.7.1): Grievance Register Frequency: Continuous	0	The grievance of any of the employee is expected to be received and resolved adequately; therefore, this parameters	

	(Human rights) (SW10)									is not scored.	
	Other social welfare issues (SW11)	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Avoidance of human traffickin g and forced labour *(Human rights)* *(SW12)*	Not Applicable	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Avoidance of forced eviction and/or partial physical or economic displacement of IPLCs *(Human rights)* *(CW13)*	The hydro power project is run -of river small hydro project and no eviction or economic displacement was done for the project construction; therefore, this is not applicable.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	
	Provisions of resettlement and human settlement displacement *(Human rights)*	The hydro power project is run -of river small hydro project and there is no resettlement involved in the project; therefore, this is not applicable.	Not Applicable	Not Applicable	-	-	Not Applicable	Not Applicable	Not Applicable	Not Applicable	

	(CW14)										
	Add more rows if required										
Net Score:	**+5**										
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 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 SDGs	**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/*	*Describe the UN-level target(s) and correspo nding*	*Has the host country declared the SDG to be a national*	*Define project-level SDGs by suitably modifying and customizing UN/ Country-level SDGs to the project scope or creating a new indicator(s).*	*Define project-level targets/actions in line with nee project level indicators 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*	*Describe the monitoring approach and the monitoring parameters to be applied*	*Describe how the GCC Verifier has verified the claims that the project is*	*Describe whether the project-level SDG target(s) is likely to be achieved by*

sdgs/indicators/indicators-list/	*indicator no(s)*	*priority? Indicate Yes or No*	*Refer to previous column for guidance.*		*direct positive effect that contributes to achieving the defined project-level SDG targets*	*for each project-level SDG indicator and its corresponding target, frequency of monitoring and data source*	*likely to achieve the identified Project level SDGs target(s).*	*the target date (Yes or no)*
Goal 1: End poverty in all its forms everywhere	End poverty in all its forms everywhere	Yes See also: Voluntary national review of the republic of India on the implementation of the 2030 agenda for sustainable development https://sustainabledevelopment.un.org/content/documents/26279VNR_2020_India_Report.pdf	Unskilled employment for below poverty line (BPL) category people	At least 5 including both site and corporate office.	Providing employment to BPL person helps to reduce poverty	Employee logbook or register at site	-	-
Goal 2: End hunger, achieve food security and improved nutrition and promote								

sustainable agriculture									
Goal 3. Ensure healthy lives and promote well-being for all at all ages									
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all									
Goal 5. Achieve gender equality and empower all women and girls	Achieve gender equality and empower all women and girls by 2030	Yes See also: Voluntary national review of the republic of India on the implementation of the 2030 agenda for sustainable development https://sustainabledevelopment.un.org/content/documents/26279VNR_2020_Ind	Equal pay for work of equal value" for both men and women as per CSR policy and shall hired at least 1 women employee at site	No discrimination against women.		Contribute to achieve equal rights for men & women	Employment register, complain register & pay slip	-	-

		ia_Report.pdf						
Goal 6. Ensure availability and sustainable management of water and sanitation for all								
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 See also: Voluntary national review of the republic of India on the implementation of the 2030 agenda for sustainable development https://sustainabledevelopment.un.org/content/documents/26279VNR_2020_India_Report.pdf	The project activity provides 30 MW installed capacity of renewable energy and will deliver up to 60,882 MWh (estimation) zero emission electricity annually. Quantity of net electricity supplied to the grid by project activity in year y.	From the start of operation onwards the project activity will deliver renewable energy to the grid to increase the share of renewable energy in the national grid.	The net generated renewable electricity, which will be delivered to the grid over a period y will be used as project level indicator. 7.2.1 Renewable energy share in the total final energy consumption	The net electricity supplied to the grid by the project activity is continuously monitored through energy meter (main and check meter) installed at the sub-station. The meters remain under the custody of state utility.	-	-
Goal 8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all	SDG Target 8.5 "By 2030, achieve full and productive	Yes See also: Voluntary national review of the republic of India on the	The number of permanent created jobs, will be used as project-level indicator 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	The project activity will create at least 05 permanent jobs in the renewable power sector.	The solar power plants contributes directly to achieve the SDG target, because the project activity The project	The total number of persons working in the plant would be monitored from payroll records	-	-

	employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value". Related indicator: 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	implementation of the 2030 agenda for sustainable development https://sustainabledevelopment.un.org/content/documents/26279VNR_2020_India_Report.pdf			activity creates jobs in the renewable energy sector, which diversify and upgrades the commonly used technology in the energy sector of India. Creating employment from project activity	maintained by the project owner.		
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	9.1: Develop quality, reliable, sustainable and resilient infrastructure, including	Yes	The solar power project is implemented on a land which receives very little rainfall. The land selected for the project has been declared barren and of no agricultural use. By selecting the land where the project is implemented the project owners contributed to inclusive and sustainable industrialisation by	The project provides one clean and resilient energy generation facility and provides employment opportunity to local residents in the region which is highly backward.	The solar power project makes power generation with efficient use of land which is infertile for agriculture as	Continuous operation of the project shall be monitored and the number of local residents belonging to		

	regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.		efficient use of land and providing employment to the local people in the region.		well as for other activities.	the Mahbubnagar (where the project is located) region shall be recorded.		
Goal 10. Reduce inequality within and among countries								
Goal 11. Make cities and human settlements inclusive, safe, resilient, and sustainable								
Goal 12. Ensure sustainable consumption and production patterns								
Goal 13. Take urgent action to combat climate change and its impacts	SDG Target: 13.3 "Improve education, awareness raising and	Yes	The project will generate around 60,882 MWh electricity without greenhouse gas emissions. The project activity will avoid around 56,680 tCO_2e/year greenhouse gas emissions compared to the current used grid connected power plant technology and used power sources (mainly fossil fuels).	From the operation onwards the project activity will deliver electricity without greenhouse gas emissions, i.e. 0t CO_2/net generated MWh 56,680 tCO_2e/year	The solar power plants contributes directly to achieve the SDG target, because the project activity delivers renewable energy, which would	Electricity produced by the renewable generating unit multiplied by an emission factorThe net generated electricity	-	-

	human and institutional capacity on the change mitigation, adaptation, impact reduction and early warning". Related indicator: 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology				otherwise generated by fossil fuel dominated grid power plants. Emission reductions achieved per year	supplied to the grid (measured with electricity meters) multiplied with the CO_2 emission factor of the grid (as described by the UNFCCC CDM methodology CDM Methodological tool 07 "Tool to calculate the emission factor for an electricity system"– Version 07.0.) will give the reduced greenhouse gas emissions		

	transfer, and develop ment actions.								
Goal 14. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development									
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									
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									
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development									

SUMMARY	Targeted	Likely to be Achieved
Total Number of SDGs	**6**	**6**
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF	**Diamond**	**Diamond**

Section G. Local stakeholder consultation

G.1. MODALITIES FOR LOCAL STAKEHOLDER CONSULTATION

>>
A local stakeholder consultation for the project activity has been carried out at the project site on 11/03/2022.

Means of information:

The invitations (Pamphlets) with details related to meeting date, meeting time and meeting venue distributed in local village and stick at conspicuous places. The invitations to stakeholders meeting were distributed well in advance on 21/02/2022. The pamphlets were distributed to local village residents, farmers & small business vendors.

AMP's representative explained the project benefits and how project would help to fight against climate change and plant operational mechanism including the source of energy. Also the explanation given on the employment opportunities that will be available to the local people due to this project activity and other direct & indirect benefits associated with the proposed project activity.

G.2. SUMMARY OF COMMENTS RECEIVED

>>
The Meeting started with opening speech by representative of GCC project owner. The representative of GCC project owner explained the technical aspects of project to stakeholders. He also explained about social, environmental & economic benefits of the project. He also elaborated about carbon mechanism & its requirement for the current project. After the detailed discussions, the session was open for questions from stakeholders.

Most of the questions were related to employment opportunities, economic development, benefits from project to villagers and other development activities.

Q&A and Discussion:
1. What is life of this solar panel?
Life of solar panel is 25 years if maintained timely and utmost care provided.

2. Will there be free power supply to the local people and the land sellers?
The power generated will be fed to grid and will be provided to the client with whom a PPA has been signed. As such, no free electricity will be provided to the local village.

3. Employment opportunities to the youths from the adjoining areas?
This being a solar ground mounted plant employment opportunities will be limited. Major work force will be required during the construction phase and the requirement for operational phase will be limited to security guards and other plant maintenance activities – grass cutting and module cutting.

4. Will the development of Solar PV impact the local ground water and is there any possibility of

contamination of ground water?
No. Ground water levels in the adjoining villages will not be impacted and limited amount of water will be required during the module cleaning.

5. Will there be any planned programs under the CSR activity?
There is planned activity under the CSR activity. However, CSR activities will be planned during the project lifetime and at desired intervals.

6. What will happen after these modules expired and become waste for the earth?
During the decommissioning phase, all waste produced from the plant shall be categorized and disposed as per guidelines stipulated under e-waste/hazardous waste by MoEFCC/CPCB and will be disposed with the authorized agency approved by the state pollution control board.

7. How this will help in fighting against climate change?
Since electricity generation through renewable resources like sunlight and wind does not emit any pollutants such as CO2, which is responsible for global warming, thus switching to clean energy will definitely help in fight against climate change.

G.3. CONSIDERATION OF COMMENTS RECEIVED

>>

There were no negative comments raised by the stakeholders and they were totally in support for setting up of these kinds of projects in the region.

Also, a site level Grievance Redressal Committee (GRC) consisting of representatives from the contractors and AMP Solar officials has been formed to address all the concerns of the local community. The GRC is designed at three levels – Levels I to III as mentioned below:

Receive and Register a Complaint

• Any labour / stakeholder with any concerns pertaining to onsite work, issues with community or among co-workers, management etc. can register their complaint in writing to the nominated persons at site (Level-I);

• If the complainant wishes to remain anonymous, he/she can write down the grievances and drop in the available complaint boxes;

• Once a complaint has been received, it is recorded in the complaints log register or data system;

Assessment and Addressal of Complaint:

• The Site HR Officer/Liaison Officer of contractor will open the complaint boxes every fifteen (15) days and forward the grievances to the Site Supervisor for further action

• The grievance will be assessed & during the assessment of complaints; the team will gather information about the key issues and concerns

Action

• Prepare a communication record;

• Display of GRM at notice board of project site offices

Record Keeping/ Outcome

• Register for grievances received & the related communications

Section H. Approval and authorization

>>

It is to declare that the project owner will submit host country attestation as and when required for meeting the requirements of CORSIA.

APPENDIX 1. CONTACT INFORMATION OF PROJECT OWNERS

Project Owner name (as per LON/LOA)	Amp Energy Markets India Pvt Ltd
Country	India
Address	309, 3rd Floor, Rectangle One, Behind Sheraton Hotel, Saket, New Delhi, 110017 India
Telephone	8860712636
Fax	-
E-mail	amalpani@ampenergyindia.com
Website	-
Contact person	Aditya Malpani

APPENDIX 2. AFFIRMATION REGARDING PUBLIC FUNDING

>>
Project owner declares that there would be no divergence of Official Development Assistance (ODA) in any of the project activity. This would be confirmed through undertaking / declaration from the project owner.

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

>>
Refer to section G.2.

APPENDIX 7. SUMMARY OF DE-REGISTERED CDM PROJECT OR 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>
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<tr><td>Total</td><td></td><td></td><td></td><td></td></tr>
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</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</td><td></td></tr>
</table>

corresponding URLs.	

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

>>

This is a single project and no bundling involved. Hence, not applicable.

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

>>

This is a type A2, sub type 1 project. Hence, this is not applicable.

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[36];
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

[36]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

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