

المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL



**Project
Submission
Form**

V4.0- 2022

CONTENTS

<u>SECTION A.</u>	<u>DESCRIPTION OF THE PROJECT ACTIVITY</u>	<u>12</u>
A.1.	PURPOSE AND GENERAL DESCRIPTION OF THE PROJECT ACTIVITY	12
A.2.	LOCATION OF THE PROJECT ACTIVITY	13
A.3.	TECHNOLOGIES/MEASURES	14
A.4.	PROJECT OWNER(S)	15
A.5.	DECLARATION OF INTENDED USE OF APPROVED CARBON CREDITS (ACCs) GENERATED BY THE PROJECT ACTIVITY	15
A.6.	ADDITIONAL REQUIREMENTS FOR CORSIA	16
<u>SECTION B.</u>	<u>APPLICATION OF SELECTED METHODOLOGY(IES)</u>	<u>16</u>
B.1.	REFERENCE TO METHODOLOGY(IES) AND TOOLS APPLIED IN THE PROJECT	16
B.2.	APPLICABILITY OF METHODOLOGY(IES) AND TOOLS APPLIED IN THE PROJECT	16
B.3.	PROJECT BOUNDARY, SOURCES AND GREENHOUSE GASES (GHGs)	18
B.4.	ESTABLISHMENT AND DESCRIPTION OF THE BASELINE SCENARIO	19
B.5.	DEMONSTRATION OF ADDITIONALITY	20
B.6.	ESTIMATION OF EMISSION REDUCTIONS	32
B.6.1.	EXPLANATION OF METHODOLOGICAL CHOICES	32
B.6.2.	DATA AND PARAMETERS FIXED <i>EX ANTE</i>	38
B.6.3.	EX-ANTE CALCULATION OF EMISSION REDUCTIONS	39
B.6.4.	SUMMARY OF EX ANTE ESTIMATES OF EMISSION REDUCTIONS	40
B.7.	MONITORING PLAN	41
B.7.1.	DATA AND PARAMETERS TO BE MONITORED <i>EX-POST</i>	41
B.7.2.	DATA AND PARAMETERS TO BE MONITORED FOR E+/S+ ASSESSMENTS (NEGATIVE IMPACTS)	45
B.7.3.	SAMPLING PLAN	47
B.7.4.	OTHER ELEMENTS OF THE MONITORING PLAN	47
<u>SECTION C.</u>	<u>START DATE, CREDITING PERIOD TYPE AND DURATION</u>	<u>49</u>
C.1.	START DATE OF THE PROJECT ACTIVITY	49
C.2.	EXPECTED OPERATIONAL LIFETIME OF THE PROJECT ACTIVITY	49
C.3.	CREDITING PERIOD OF THE PROJECT ACTIVITY	49
C.3.1.	START AND END DATE OF THE CREDITING PERIOD	49
C.3.2.	DURATION OF CREDITING PERIOD	49
<u>SECTION D.</u>	<u>ENVIRONMENTAL IMPACTS</u>	<u>49</u>

D.1.	ANALYSIS OF ENVIRONMENTAL IMPACTS	49
D.2.	ENVIRONMENTAL IMPACT ASSESSMENT AND MANAGEMENT ACTION PLANS	50
<u>SECTION E. ENVIRONMENTAL AND SOCIAL SAFEGUARDS</u>		50
E.1.	ENVIRONMENTAL SAFEGUARDS	51
E.2.	SOCIAL SAFEGUARDS	62
<u>SECTION F. UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (SDG)</u>		73
<u>SECTION G. LOCAL STAKEHOLDER CONSULTATION</u>		80
G.1.	MODALITIES FOR LOCAL STAKEHOLDER CONSULTATION	80
G.2.	SUMMARY OF COMMENTS RECEIVED	80
G.3.	CONSIDERATION OF COMMENTS RECEIVED	81
<u>SECTION H. APPROVAL AND AUTHORIZATION</u>		81
APPENDIX 1.	CONTACT INFORMATION OF PROJECT OWNERS	82
APPENDIX 2.	AFFIRMATION REGARDING PUBLIC FUNDING	82
APPENDIX 3.	APPLICABILITY OF METHODOLOGY(IES)	82
APPENDIX 4.	FURTHER BACKGROUND INFORMATION ON EX ANTE CALCULATION OF EMISSION REDUCTIONS	82
APPENDIX 5.	FURTHER BACKGROUND INFORMATION ON MONITORING PLAN	82
APPENDIX 6.	SUMMARY REPORT OF COMMENTS RECEIVED FROM LOCAL STAKEHOLDERS	82
APPENDIX 7.	SUMMARY OF DE-REGISTERED CDM PROJECT OR PROJECTS FROM OTHER GHG / NON-GHG PROGRAMS (TYPE B)	83
Appendix 8.	FURTHER INFORMATION ON DETERMINATION OF BUNDLE IN PROJECT ACTIVITY.	87
Appendix 9.	PUBLIC DECLARATION FOR A2 (Sub Type 2 and 3), B1 & B2 PROJECTS ON NON CONTINUATION FROM CDM/GHG/NON-GHG PROGRAMS.	89

COVER PAGE- Project Submission Form (PSF)			
<i>Complete this form in accordance with the instructions attached at the end of this form.</i>			
BASIC INFORMATION			
Title of the Project Activity as per LON/LOA	200 MW Solar Project in Tamil Nadu		
PSF version number	02		
Date of completion / Updating of this form	03/10/2022		
Project Owner(s) as per LON/LOA <small>(Shall be consistent with De-registered CDM Type B Projects)</small>	Narbheram Power & Steel Private Limited		
Country where the Project Activity is located	India		
GPS coordinates of the project site(s)	Site Address	Latitude	Longitude
	Taluk : Kaythar, District: Thoothukudi	8°55'27.26"N (8.92423889)	77°50'32.67"E (77.84240833)
		& 8°56'47.33"N (8.94648056)	& 77°49'56.99"E (77.83249722)
	Taluks: Ottapidaram & Kaythar, District: Thoothukudi	8°52'44.86"N (8.87912778)	77°51'3.99"E (77.85110833)
& 8°53'58.59"N (8.89960833)		& 77°47'43.50"E (77.79541667)	

<p>Eligible GCC Project Type as per the Project Standard (Tick applicable project type)</p>	<p><input type="checkbox"/> Type A:</p> <p><input type="checkbox"/> Type A1</p> <p><input checked="" type="checkbox"/> Type A2</p> <p><input checked="" type="checkbox"/> Sub-Type 1</p> <p><input type="checkbox"/> Sub-Type 2</p> <p><input type="checkbox"/> Sub-Type 3</p> <p><input type="checkbox"/> Sub-Type 4</p> <p><input type="checkbox"/> Type A3</p> <p><input type="checkbox"/> Type B – De-registered CDM Projects:¹</p> <p><input type="checkbox"/> Type B1</p> <p><input type="checkbox"/> Type B2</p>
<p>Minimum compliance requirements</p>	<p><input checked="" type="checkbox"/> Real and Measurable GHG Reductions</p> <p><input checked="" type="checkbox"/> National Sustainable Development Criteria (if any)</p> <p><input checked="" type="checkbox"/> Apply credible baseline and monitoring methodologies</p> <p><input checked="" type="checkbox"/> Additionality</p> <p><input checked="" type="checkbox"/> Local Stakeholder Consultation Process</p> <p><input checked="" type="checkbox"/> Global Stakeholder Consultation Process</p> <p><input checked="" type="checkbox"/> No GHG Double Counting</p> <p><input checked="" type="checkbox"/> Contributes to United Nations Sustainable Development Goal 13 (Climate Action)</p>
<p>Choose optional and additional requirements (Tick applicable label categories)</p>	<p><input checked="" type="checkbox"/> Do-no-net-harm Safeguards to address Environmental Impacts</p> <p><input checked="" type="checkbox"/> Do-no-net-harm Safeguards to address Social Impacts</p> <p><input checked="" type="checkbox"/> Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)</p>
<p>Applied methodologies including version No.</p>	<p>ACM0002: Grid-connected electricity generation from renewable sources (Version 20.0)</p>

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

(Shall be approved by the GCC or the CDM)																																						
GHG Sectoral scope(s) linked to the applied methodology(ies)	GHG-SS 1 (Energy (renewable/non-renewable sources))																																					
Applicable Rules and Requirements for Project Owners (Tick applicable Rules and Requirements)	<table border="1"> <thead> <tr> <th data-bbox="524 617 1159 663">Rules and Requirements</th> <th data-bbox="1159 617 1445 663">Version</th> </tr> </thead> <tbody> <tr> <td data-bbox="524 663 1159 716"><input checked="" type="checkbox"/> ISO 14064-2</td> <td data-bbox="1159 663 1445 716"></td> </tr> <tr> <td data-bbox="524 716 1159 800"><input checked="" type="checkbox"/> Applicable host country legal requirements /rules</td> <td data-bbox="1159 716 1445 800"></td> </tr> <tr> <td data-bbox="524 800 808 1688" rowspan="12"><input checked="" type="checkbox"/> GCC Rules and Requirements²</td> <td data-bbox="808 800 1159 852"><input checked="" type="checkbox"/> Project Standard</td> <td data-bbox="1159 800 1445 852">3.1</td> </tr> <tr> <td data-bbox="808 852 1159 936"><input type="checkbox"/> Approved GCC Methodology (XXXXX)</td> <td data-bbox="1159 852 1445 936"></td> </tr> <tr> <td data-bbox="808 936 1159 989"><input checked="" type="checkbox"/> Program Definitions</td> <td data-bbox="1159 936 1445 989">3.1</td> </tr> <tr> <td data-bbox="808 989 1159 1073"><input checked="" type="checkbox"/> Environment and Social Safeguards Standard</td> <td data-bbox="1159 989 1445 1073">3.0</td> </tr> <tr> <td data-bbox="808 1073 1159 1157"><input checked="" type="checkbox"/> Project Sustainability Standard</td> <td data-bbox="1159 1073 1445 1157">3.0</td> </tr> <tr> <td data-bbox="808 1157 1159 1272"><input type="checkbox"/> Instructions in Project Submission Form (PSF)-template</td> <td data-bbox="1159 1157 1445 1272">4.0</td> </tr> <tr> <td data-bbox="808 1272 1159 1325"><input checked="" type="checkbox"/> Clarification No. 01</td> <td data-bbox="1159 1272 1445 1325">1.3</td> </tr> <tr> <td data-bbox="808 1325 1159 1377"><input type="checkbox"/> Clarification No. 02</td> <td data-bbox="1159 1325 1445 1377">1.0</td> </tr> <tr> <td data-bbox="808 1377 1159 1430"><input type="checkbox"/> Clarification No. 03</td> <td data-bbox="1159 1377 1445 1430">1.0</td> </tr> <tr> <td data-bbox="808 1430 1159 1482"><input type="checkbox"/> Clarification No. 04</td> <td data-bbox="1159 1430 1445 1482">1.0</td> </tr> <tr> <td data-bbox="808 1482 1159 1535"><input type="checkbox"/> Clarification No. 05</td> <td data-bbox="1159 1482 1445 1535">1.0</td> </tr> <tr> <td data-bbox="808 1535 1159 1619"><input checked="" type="checkbox"/> Standard on avoidance of double counting</td> <td data-bbox="1159 1535 1445 1619">1.0</td> </tr> <tr> <td data-bbox="808 1619 1159 1688"><input type="checkbox"/> Add rows if required</td> <td data-bbox="1159 1619 1445 1688"></td> </tr> <tr> <td data-bbox="524 1688 808 1766"><input checked="" type="checkbox"/> CDM Rules³</td> <td data-bbox="808 1688 1159 1766"><input checked="" type="checkbox"/> Approved CDM Methodology (ACM0002)</td> <td data-bbox="1159 1688 1445 1766">20.0</td> </tr> </tbody> </table>		Rules and Requirements	Version	<input checked="" type="checkbox"/> ISO 14064-2		<input checked="" type="checkbox"/> Applicable host country legal requirements /rules		<input checked="" type="checkbox"/> GCC Rules and Requirements ²	<input checked="" type="checkbox"/> Project Standard	3.1	<input type="checkbox"/> Approved GCC Methodology (XXXXX)		<input checked="" type="checkbox"/> Program Definitions	3.1	<input checked="" type="checkbox"/> Environment and Social Safeguards Standard	3.0	<input checked="" type="checkbox"/> Project Sustainability Standard	3.0	<input type="checkbox"/> Instructions in Project Submission Form (PSF)-template	4.0	<input checked="" type="checkbox"/> Clarification No. 01	1.3	<input type="checkbox"/> Clarification No. 02	1.0	<input type="checkbox"/> Clarification No. 03	1.0	<input type="checkbox"/> Clarification No. 04	1.0	<input type="checkbox"/> Clarification No. 05	1.0	<input checked="" type="checkbox"/> Standard on avoidance of double counting	1.0	<input type="checkbox"/> Add rows if required		<input checked="" type="checkbox"/> CDM Rules ³	<input checked="" type="checkbox"/> Approved CDM Methodology (ACM0002)	20.0
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² GCC Program rules and requirements: <http://www.globalcarboncouncil.com/resource-centre/>

³ CDM Program rules: <https://cdm.unfccc.int/Reference/index.html>

	<input checked="" type="checkbox"/> TOOL 1- Tool for the demonstration and assessment of additionality	7.0.0
	<input type="checkbox"/> TOOL 02- Combined tool to identify the baseline scenario and demonstrate additionality	
	<input checked="" type="checkbox"/> TOOL 07- Tool to calculate the emission factor for an electricity system	7.0
	<input type="checkbox"/> TOOL 19- Demonstration of additionality of microscale project activities	
	<input type="checkbox"/> TOOL 21- Demonstration of additionality of small-scale project activities	
	<input type="checkbox"/> TOOL 23- Additionality of first-of-its-kind project activities	
	<input checked="" type="checkbox"/> TOOL 24- Common practice	3.1
	<input checked="" type="checkbox"/> TOOL 27- Investment analysis	11.0
	<input type="checkbox"/> TOOL 32- Positive lists of technologies	
	<input type="checkbox"/> Guidelines for objective demonstration and assessment of barriers	
	<input type="checkbox"/> Add rows if required	
<p>Choose Third Party Project Verification by approved GCC Verifiers⁴</p> <p>(Tick applicable verification categories)</p>	<input checked="" type="checkbox"/> GHG emission reductions (i.e., Approved Carbon Credits (ACCs)) <input checked="" type="checkbox"/> Environmental No-net-harm Label (E⁺) <input checked="" type="checkbox"/> Social No-net-harm Label (S⁺) <input checked="" type="checkbox"/> United Nations Sustainable Development Goals (SDG⁺) <input type="checkbox"/> Bronze SDG Label	

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

	<input type="checkbox"/> Silver SDG Label <input checked="" type="checkbox"/> Gold SDG Label <input type="checkbox"/> Platinum SDG Label <input type="checkbox"/> Diamond SDG Label <input checked="" type="checkbox"/> CORSIA requirements (C+) <input type="checkbox"/> Host Country Attestation on Double counting
<p>Declaration by the 'Authorized Project Owner⁵ and focal point'</p> <p>(Tick all applicable statements⁶)</p>	<p>The Project Owner(s) declares that:</p> <p>Generic Requirements applicable to all Project Types:</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> We confirm that the Project Activity is eligible to be registered under the GCC program.</p> <p>We shall ensure the following for the Project Activity (tick at least one of the two options):</p> <p><input checked="" type="checkbox"/> 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-GHG⁷ program, either for compliance or voluntary purposes, during the entire GCC crediting period; or</p> <p><input type="checkbox"/> If the project activity has been issued with carbon credits or environmental attributes of compensating nature⁸ 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</p>

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

⁶ **Consequences in case of Non-compliance with declaration statements:**

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

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

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


	<p>compensating nature have not been issued by any other GHG/ non-GHG program.</p> <p>Specific requirements applicable to respective Project Types:</p> <p><u>For Project Type A1:</u></p> <p><input type="checkbox"/> 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.</p> <p><u>For Project Type A2 (Sub-Type 1):</u></p> <p><input checked="" type="checkbox"/> 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.</p> <p><u>For Project Type A2 (Sub-Type 2 or Sub-Type 3):</u></p> <p>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):</p> <p><input type="checkbox"/> Submit a proof for deregistration from CDM; or</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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).</p> <p><u>For Project Type A2 (Sub-Type 4):</u></p> <p>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):</p> <p><input type="checkbox"/> Submit the proof for exclusion of CPA(s) from registered CDM-POA prior to the date of initial submission to the GCC Program; or</p> <p><input type="checkbox"/> 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.</p> <p><u>For Project Type A3:</u></p>
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	<p><input type="checkbox"/> 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.</p> <p><u>For Project Type B1 or B2:</u></p> <p>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):</p> <p><input type="checkbox"/> Submit a proof for deregistration from CDM; or</p> <p><input type="checkbox"/> 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.</p> <p>Requirements to avoid double counting:</p> <p>We intend to submit or have submitted a written attestation⁹ (Host Country Letter of Authorisation - 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 stages¹⁰ (tick at least one of the three options):</p> <p><input checked="" type="checkbox"/> The initial submission for GSC; or</p> <p><input type="checkbox"/> Along with the submission for a request for registration (after Project Verification is completed); or</p> <p><input type="checkbox"/> Along with the submission for a request for the first or subsequent issuance of ACCs.</p> <p>Project specific requirements:</p> <p><u>CORSIA specific requirements:</u></p> <p><input checked="" type="checkbox"/> 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.</p> <p><input checked="" type="checkbox"/> We confirm that the Project Activity meets all the requirement of the CORSIA Eligible Emissions Units¹¹ required for GCC projects and does not fall under the excluded unit types, methodologies, programme elements, and/or procedural classes.</p>
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⁹ In case of any change of Host Country Letter of Authorisation (HCLOA) the project owner shall inform the GCC operations team immediately

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

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

	<p><input checked="" type="checkbox"/> 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).</p> <p><input checked="" type="checkbox"/> We confirm that the Project Activity will be implemented in a country which is UN member state¹². Provide details (if any) below for the boxes ticked above:</p>
	<p>The Project Owner(s) declares that:</p> <p><input checked="" type="checkbox"/> All of 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;</p> <p><input checked="" type="checkbox"/> 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 wilful misconduct. Therefore, they are aware that they are fully responsible for any liability that arises as a result of such actions.</p> <p>Provide details below for the boxes ticked above</p>
<p>Appendixes 1-9</p>	<p>Details about the Project Activity are provided in Appendixes 1 through 9 to this document.</p>
<p>Name, designation, date and signature of the Focal point (as per LON/LOA)</p>	<p>Infinite Environmental Solutions LLP Name: Mr. Jimmy Sah Designation: Chief operating Officer</p> <p style="text-align: center;">  </p> <p>Date: 03 October 2022</p>

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

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

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

>> The proposed project activity involves the installation of new grid-connected Solar Power Projects in Thoothukudi, Tamil Nadu State of India at sites where no renewable power plant was operating prior to the implementation of the project activity (green-field plant), developed under two SPV namely Narbheram Solar TN Private Limited and NVR Energy Private Limited from the same investor group. The electricity generated from Project Activity is exported to the Indian grid there by displacing the consumption of electricity from the regional grid electricity distribution system. The total installed capacity of the proposed project activity is 200 MW, which involves operation of two solar projects of 100 MW each in Tamil Nadu. The details of which are as follows:

SPV Name	Capacity (AC)	Capacity (DC)	State	ACCs (tCO ₂)
Narbheram Solar TN Private Limited.	100 MW	106 MW	Tamil Nadu	157,898
NVR Energy Private Limited	100 MW	106 MW	Tamil Nadu	143,765
Total Capacity	200 MW	212 MW		301,663

The electricity generated by the project “200 MW Solar Project in Tamil Nadu” will thus replace the equivalent amount of electricity generated by the operation of existing grid connected power plants (mostly fossil fuel-based power plants). In this scope, 200 MW Solar Project in Tamil Nadu planned to install Solar Panels in with the purpose of contributing to the national economy.

The crediting period chosen for the project activity “200 MW Solar Project in Tamil Nadu” is 10 years Crediting Period. The annual average estimated emission reductions from project activity is 301,663 tCO₂e/annum. Over the entire crediting period the project will reduce 3,016,628 tons of CO₂e.

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 GCC projects:

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

1. Social well-being

The Project Activity 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.

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.

A.2. Location of the Project Activity

>>

Address and geodetic coordinates of the physical site of the Project Activity		
Physical address	Latitude*	Longitude*
100 MW Solar project of NVR Energy Private Limited in Village: Thennampatti, Kotali & Pannirkullam, Taluk : Kaythar, District: Thoothukudi	8°55'27.26"N (8.92423889) & 8°56'47.33"N (8.94648056)	77°50'32.67"E (77.84240833) & 77°49'56.99"E (77.83249722)
100 MW Solar Project of Narbheram Solar TN Private Limited in Village: Govindapuram, Maruthanvalu Naraikinaru, Therkumailodai & Kalapaipatti, Taluks: Ottapidaram & Kaythar, District: Thoothukudi	8°52'44.86"N (8.87912778) & 8°53'58.59"N (8.89960833)	77°51'3.99"E (77.85110833) & 77°47'43.50"E (77.79541667)

Note: Geo-coordinates to presented in degree minute seconds as well in decimal place format (4 decimal places)



Figure 1. Location of Plant

A.3. Technologies/measures

>> The project activity involves the installation of Solar PV based electricity generation project by 200 MW Solar Project in Tamil Nadu. The total installed capacity of the project is 2 x 100 MW Solar PV plant located in Tamil Nadu state in India.

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.

The project shall result in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 301,663 tCO₂e per year, thereon displacing 324,194 MWh/year amount of electricity from the grid. The project activity aims to harness solar energy through installation of Solar PV project with total installed capacity of 200 MW.

Technical Specification of Components

Sr.No.	Item	Narbheram Solar TN Private Limited	NVR Energy Private Limited
1	Module	72 cell 330W Multi-Crystalline panel	72 cell 330W Multi-Crystalline panel
2	Structure	31 Module-per-string mounting structure	31 Module-per string mounting structure
3	Inverter	2091KW Central inverter	2091KW Central inverter
		Central Monitoring system	Central Monitoring system

4	Monitoring System	Irradiation/Temp Sensor/Wind sensor etc.	Irradiation/Temp Sensor/Wind sensor etc.
5	Combiner box	24 in 1 out string combiner box	24 in 1 out string combiner box
6	Cables	XLPE/PVC – Armored & Unarmored depends on site.	XLPE/PVC –Armored & Unarmored depends on site.
7	Accessories	Accessories for cable inter connection & installation kit & conduits	Accessories for cable inter connection & installation kit & conduits
8	Earthing kit	(AC&DC) earthing kits	(AC&DC) earthing kits
9	Lightning Protection	Lightning & Surge Protection Units	Lightning & Surge Protection Units
10	MV Panel	With Suitable protections	With Suitable protections
11	Transformers	33KV/660V, 8.364 MVA Inverter Transformer – 12 Nos;	33KV/660V, 8.364 MVA Inverter Transformer – 12 Nos;
12	Aux Transformers	33kv/415V, 100/125 kVA Aux. Transformer	33kv/415V, 100/125 kVA Aux. Transformer

A.4. Project Owner(s)

Location/Country	Project Owner(s)	Where applicable ¹³ , indicate if the host country has provided approval (Yes/No)
India	Narbheram Power & Steel Private Limited	Not Applicable

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

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

Period		Name of the Entities	Purpose and Quantity of ACCs to be supplied
From	To		
25/10/2019	24/10/2029	CORSIA	For offsetting Greenhouse gases 3,016,628 tCO ₂ for 10-year period

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

¹³ 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).

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

>>

Approved CDM Methodology: Grid-connected electricity generation from Renewable sources, ACM0002, Version 20.0.

- Tool 01: Tool for the demonstration and assessment of additionality (Version 07.0.0 Annex 8)
- Tool 02: Combined tool to identify the baseline scenario and demonstrate additionality Version,7
- Tool 07-Tool to calculate the emission factor of electricity system, Version 7.0
- Tool 24-Common Practice, Version -3.1
- Tool 27-Investment Analysis, Version-11.0

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

>>The project activity is grid-connected solar power projects. Methodology ACM0002, Version 20.0 is applicable to grid -connected renewable power project activities that:

Sr. No.	Applicability criteria	Justification
1.	This methodology is applicable to grid-connected renewable energy power generation project activities that: <ul style="list-style-type: none"> a) Install a Greenfield power plant; b) Involve a capacity addition to (an) existing plant(s); c) Involve a retrofit of (an) existing operating plants/units; d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or e) Involve a replacement of (an) existing plant(s)/unit(s). 	The project activity employs Solar Photovoltaic power generation technology and supplies generated solar power to Indian Grid.
2.	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	There is no capacity addition/Retrofit activity /rehabilitation/ replacement occurred. Hence this scenario is not applicable

	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.	
3.	In case of hydro power plants, one of the following conditions shall apply. The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m ² ; or The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m ² ; or	The project activity is not a hydropower plant. Hence scenario is not applicable
4.	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	The project activity is not an integrated hydro power plant; hence it is not applicable
5.	The methodology is not applicable to: 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 is not a switch in fossil fuel and biomass-based power plants. Hence it is not applicable
6.	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 is not a retrofit/rehabilitation/replacement. Hence it is not applicable

Tools	Applicability
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<p>Tool 01: Tool for the demonstration and assessment of additionality (Version 07.0)</p>	<p>The project activity is large scale bundled project, that follows the recent tool and requirements of Additionality tool, Version 7. The procedures are followed as per the additionality tool to establish the appropriate method of computing the financial analysis for the project. (i.e) Investment analysis method.</p>
<p>Tool 02: Combined tool to identify the baseline scenario and demonstrate additionality (Version,07.0)</p>	<p>The project activity follows the Tool 02 to establish baseline alternative for the project activity</p>
<p>Tool 07: Tool to calculate the emission factor for an electricity system (Version 07.0)</p>	<p>The baseline for the project activity is power consumption from grid, in the absence of the project activity and the combined emission factor for the National Grid is computed based on the mentioned tool.</p>
<p>Tool 24- Common Practice, (Version 03.1)</p>	<p>The project activity follows the steps from common practice tool, to prove the project scenario is not business as usual during the time of implementation</p>
<p>Tool 27- Investment Analysis, Version-11.0</p>	<p>The investment analysis recent version and its step wise procedure are followed to establish equity IRR for the project activity</p>

The project activity is solar activity based renewable energy source, zero emission power project connected to the grid, which forms part of the Indian electricity grid. The project activity will displace fossil fuel-based electricity generation that would have otherwise been provided by the operations and expansion of the fossil fuel based power plants in Indian grid.

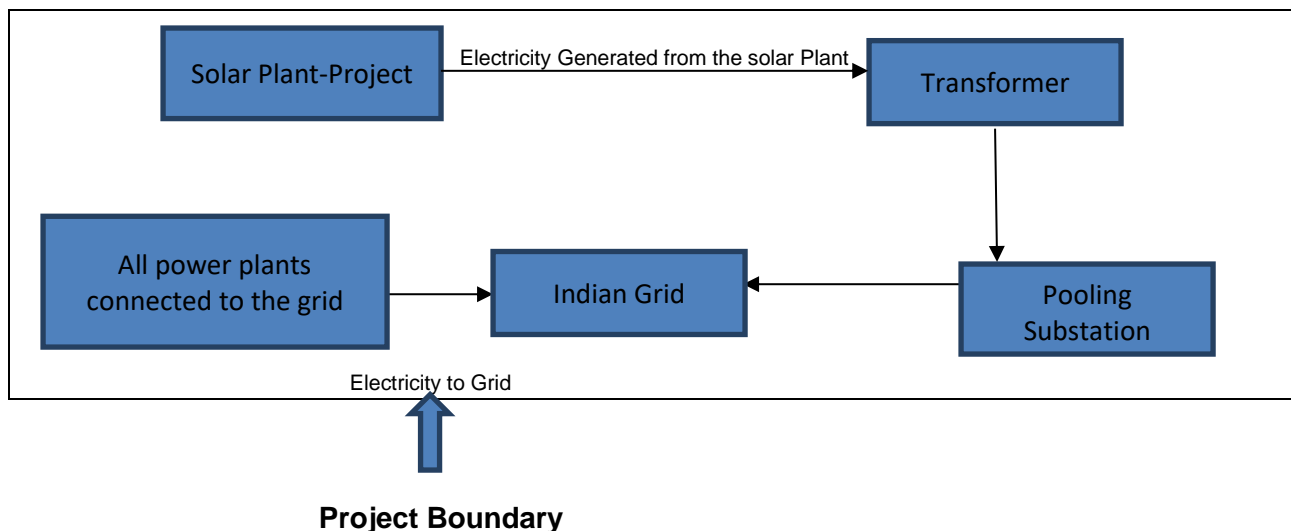
B.3. Project boundary, sources and greenhouse gases (GHGs)

>>

The project boundary includes the solar power project, pooling sub-stations, grid and all power plants related equipment's connected to grid. The proposed project activity will evacuate power to the Indian grid. Therefore, the entire Indian grid and all connected power plants have been considered in the project boundary for the proposed project activity.

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

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



Source		GHG	Included?	Justification/Explanation
Baseline	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to project activity	CO ₂	Yes	Main emission source
		CH ₄	No	Minor emission source
		N ₂ O	No	Minor emission source
Project Activity	Solar energy projects under the project activity	CO ₂	No	The project is a zero-emission grid connected solar energy power project; hence no emission will result.
		CH ₄	No	The project is a zero-emission grid connected solar energy power project; hence no emissions will result.
		N ₂ O	No	The project is a zero-emission grid connected solar energy power project; hence no emissions will result.

B.4. Establishment and description of the baseline scenario

>> As per the approved consolidated Methodology ACM002 (Version 20.0) para 22:” If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

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

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

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

Solar energy-based power plants belong to white category as per Ministry, Forest and Climate Change (MoEF & CC), Government of India and are exempted from Environmental Impact Assessment (EIA).

In the absence of the project activity, the equivalent amount would have been drawn from the Indian grid. The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two Emission factor pertaining to the electricity system: the operating margin (OM) and 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 17 is the latest available data at the time of PSF submission to GCC verifier for 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
$EF_{grid,CM,y}$	0.9305 tCO ₂ /MWh	Combined margin CO ₂ emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO ₂ Emission Database, Version 17.0, October 2021 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9522 tCO ₂ /MWh	Operating margin CO ₂ emission factor for the project electricity system in year y	Calculated as the last 3 year (2018-19, 2019-20 and 2020-21) generation-weighted average, sourced from Baseline CO ₂ Emission Database, Version 17.0, October 2021 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8653 tCO ₂ /MWh	Build margin CO ₂ emission factor for the project electricity system in year y	Baseline CO ₂ Emission Database, Version 17.0, October 2021 published by Central Electricity Authority (CEA), Government of India

B.5. Demonstration of additionality

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

- (i) A Legal Requirement Test; and
- (ii) An Additionality Test either based on a Positive List test or a projects-specific Additionality test.

The implementation of these projects is not mandatory or enforced by law. Since voluntary commitments/agreements within a sector or by an entity do not constitute the legal requirement, the project is additional as per paragraph 46.

<p>Specify the methodology, activity requirement or product requirement that establishes deemed Additionality for the proposed project (including the version number and the specific paragraph, if applicable).</p>	<p>This project follows the approved large scale UNFCCC methodology, ACM0002 “Consolidated baseline methodology for grid connected electricity generation from renewable sources”, Version 20.0. Selected methodology has been applied together with the “tool to calculate the emission factor for an electricity system, version 7” and “tool for assessment and demonstration of Additionality, version 7”. These are the latest version of the methodology and related Additionality & calculation tool.</p>
<p>Describe how the proposed project meets the criteria for deemed Additionality.</p>	<ol style="list-style-type: none"> 1. Project without carbon revenue is not financially attractive as discussed in investment analysis section below (benchmark and sensitivity analysis). 2. Continuation of the current situation supply of equal amount of electricity by the newly built grid connected power plants. Continuation of the current situation is not considered as a realistic alternative due to increasing electricity demand therefore new power plants should be constructed which includes mainly thermal power plants. Implementation of the project is additional to the baseline scenario which is an alternative 2 above and therefore reduces the emissions. 3. The project activity comes under white category as per central regulation, thus there shall be no necessity of obtaining the Consent to Operate” for White category of industries. Since project activity falls under white category and the non-polluting nature of project fulfils the compliance to the central laws and regulations <p>The Project activity conforms to all the applicable laws and regulations in India:</p> <ul style="list-style-type: none"> ✓ Power generation using renewable energy is not a legal requirement or a mandatory option. ✓ There are state and sectoral policies, framed primarily to encourage renewable power projects. ✓ These policies have also been drafted realizing the extent of risks involved in the projects and to attract private investments. ✓ The Indian Electricity Act, 2003 (May 2007Amendment) does not influence the choice of fuel used for power generation. ✓ There is no legal requirement on the choice of a particular technology for power generation ✓ The both alternatives are in compliance with laws and regulations required. There is no any mandatory requirement to implement the project activity. <ol style="list-style-type: none"> 4. In accordance with common practice analysis there is no plants similar to the proposed project and built without carbon revenue, the proposed type of project should not be considered as a common practice. Hence, project is additional in this aspect.

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

According to tool for demonstration and additionally the steps listed below are followed in detail:

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

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

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

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

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

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

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

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

Alternative 2: No proposed project activity and equivalent amount of energy would have been produced by the grid electricity system through its currently running power plants and by new capacity addition to the grid i.e., Continuation of the present situation.

The PP would have continued without investment in Project activity with usual business activities. The grid would continue with the fossil fuel-based power projects, and this would result in GHG emissions. Hence, the new capacity add-on from a fossil fuel-based power plant is appropriate, realistic & credible baseline alternative for the project activity.

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

Thus, though two alternatives are mentioned above as per step of Additionality tool, the first alternative is not possible as project activity is not viable without carbon credit benefits and second alternative is the baseline scenario for the project activity as per methodology as mentioned in section B.4 of PSF.

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

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

The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g., to mitigate local air pollution. The project activity comes under white category as per local regulation, thus there shall be no necessity of obtaining the Consent to Operate” for White category of industries. Since project activity falls under white category and the non-polluting nature of project fulfils the compliance to the local laws and regulations (This sub-step does not consider national and local policies that do not have legally-binding status.).

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

- Electricity Act 2003
- National Electricity Policy 2005
- Tariff Policy 2006
- The factories act 1948

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

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

Both alternatives are in compliance with laws and regulations required. There is no any mandatory requirement to implement the project activity.

Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. Since solar projects are categorized as white category, no consent to operate required from pollution control board.

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

Step 2: Investment analysis

The investment analysis has been done in order to make an economic and financial evaluation of the project. No public funding or ODA are available in India for finance of this type of projects. For investment analysis, loan conditions have been determined considering the average market rates/term sheets signed with the banks.

Sub-step 2a: Determine appropriate analysis method

There are three options for the determination of analysis method which are:

- Simple Cost Analysis
- Investment Comparison Analysis and

- **Benchmark Analysis**

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

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

After eliminating Option, I and Option II, the use of Benchmark analysis (Option III) is the method of analysis that has been selected as the most suitable method. This method determines the attractiveness of the project activity for the investors, as well as provides a measure of the viability of the investment to generate revenues during its operation, as compared with other avenues and investment options. Hence, the Benchmark analysis method is to be employed for analysis of the said project.

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

Choice of Benchmark:

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

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

The investment decision date for the project is 20-September-2020. Hence, PO has used Methodological Tool for Investment Analysis version 11 (EB 101, Annex 11). The default value as mentioned in version 07 is 11.06% for group 1 project in India is used which is appropriate and more conservative for benchmark calculation and PP has considered the same tool for default value of return on equity for the respective SPVs.

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

concerned project activity, the inflation rate has been considered from the inflation forecast published by the Reserve Bank of India.

As per para 17 of EB 101, Annex 11 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:

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

Where:

- Default value for Real Benchmark = 11.06% (as per Appendix of EB 101, Annex 11)
- Inflation Rate forecast for by Reserve Bank of India (RBI) (i.e., Central Bank of India) for India which is mentioned in 2017 as 4.50% for medium term.

Benchmark estimation:

Putting the respective values in above formula for benchmark estimation provides equity IRR of 16.06% as benchmark.

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

For the proposed project, in order to reach this equity IRR values, average electricity tariff must be above ₹ 3.47 /kWh in the absence of carbon revenue and assuming that initial investment figures are realized so that the investment will become reasonable. The Post tax Equity IRR is evaluated for the entire lifetime of the project activity, i.e., 25 years. It is calculated based on the cash outflows from and cash inflows into the project activity.

All input parameter considered for investment analysis along with their source are provided below-

Details of the project		Source
State where the project is situated	Tamilnadu	
Capacity in AC (MW)	200.0	As per DPR
Expected Date of Commissioning	30-Sep-19	As per DPR
Life of the plant (Yrs.)	25	As per DPR
Generation and sale of electricity		
PLF (%) Phase-1	19.90%	As per Third Party Report in accordance to EB 48 Annex 11
PLF (%) Phase-2	18.20%	As per Third Party Report in accordance to EB 48 Annex 11
Annual Degradation Factor	0.70%	As per DPR
Total Annual generation (kWh)	33,37,56,000	Calculated Value

Tariff rate at the decision making (INR/kWh)	3.47	As per DPR
Operation and maintenance cost and Insurance		
O & M Expenses (INR Mn.)	100.00	As per DPR
Escalation in the operational expenses (%)	5.0%	As per DPR
O & M free for (Yr.)	-	As per DPR
Insurance (INR Mn.)	12.36	As per DPR
Financial parameters		
TOTAL COST (INR Mn.)	8,240.00	As per DPR
Equity Investment (INR Mn.)	2,060.00	As per DPR
Loan Amount (INR Mn.)	6,180.00	As per DPR
Term loan		
Margin (%)	25.00%	As per DPR
Loan Amount (INR Mn.)	6,180.00	As per DPR
Interest rate (%)	10.95%	As per DPR
Loan Tenure (Qtr.)	64	As per DPR
Moratorium Period (Qtr.)	4	As per DPR
Repayment Period (Qtr.)	60	Calculated Value
Repayment instalments value (INR Mn.)	103.00	Calculated Value
1st instalment from (Qtr. end)	30-Sep-20	Considered from the next Quarter End
Working Capital		
No. of Days Receivables	60	As per CERC Order
O&M Expenses (Days)	30	As per CERC Order
Interest on Working Capital Debt	11.25%	As per DPR
Book Depreciation (SLM Method)		
Land Cost (INR Mn.)	-	Calculated Value
Gross Depreciable Value (INR Mn.)	8,240.00	Calculated Value
Salvage Value (%)	10.00%	As per CERC Order
Salvage value (INR Mn.)	824.00	Calculated Value

Net Depreciable Value (INR Mn.)	7,416.00	Calculated Value
Residual Value (INR Mn.)	824.00	Calculated Value
IT Depreciation (SLM Method)		
IT Depreciation Rate (%)	7.69%	As Per Income Tax Depreciation rates for power generating units
Income Tax		
Financial Year	FY 2016-2017	
Income tax rate (%)	30.00%	Tax rates applicable to a domestic company
MAT (%)	18.50%	
Surcharge (%)	12.00%	
Health and Education Cess (%)	4.00%	
Final Tax rates		
Income tax rate (%)	34.94%	Calculated Value
MAT (%)	21.55%	Calculated Value

Key Assumptions supporting financial projections are provided in excel spreadsheet to the DOE. Based on result of IRR excel spreadsheets, equity IRR is less than Benchmark.

Internal Rate of Return (IRR) of project is mentioned in below table based on the parameters given above without considering the carbon revenue. Project does not use any ODA or government incentive; however, bank loan is used. Electricity tariff has been used as ₹3.47/kWh. Annual generation for Phase 1 & Phase 2 has been taken as 159,432 MWh & 174,324 MWh respectively.

The input assumption and the IRR outcome can be referred in below:

Particulars	UOM	200 MW Tamil Nadu
Project Capacity	MW	200 (AC)
PLF Phase-1	%	19.90%
PLF Phase-2	%	18.20%
Project Life	Years	25
Interest on Loan	%	10.95%
Equity Debt	%	25%
Loan Debt	%	75%
Tariff rate	₹/kWh	3.47
O&M Cost	₹ in Million / year	106
Annual Escalation on O&M charges	%	5%
Equity IRR	%	8.67%

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

Sub-step 2d: Sensitivity Analysis

Addressing Guidance 28 & 29 of EB 92, Annex 5, following factors has been subjected to sensitivity analysis:

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

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

Sensitivity Analysis Variation %	Equity IRR			Variation required to reach benchmark
	-10%	Normal	10%	
PLF	6.42%	8.67%	11.15%	24.16%
O&M	8.95%	8.67%	8.39%	-288.27%
Project Cost	11.14%	8.67%	6.99%	-20.70%
Tariff Rate	6.42%	8.67%	11.15%	24.16%

Outcome of Step 2:

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

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

Step 3: Barrier analysis

Barrier analysis has not been used.

Step 4: Common practice analysis

For the concerned project activity, Common Practice Analysis has been carried out.

200 MW Solar Project in Tamil Nadu are developed under name of SPVs (Special Purpose Vehicles). Thus, common practice analysis has been carried out for the large scale bundled project activity. The project activity involves generation of electricity from solar energy.

The project activity is located in the state of Tamil Nadu in India and the policy applicable for the solar power projects is regulated by SERC of the respective state. The policies/tariff for each state is

regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states. The project implemented in different states is claimed as different since the policies and regulations differ in each state. Hence, Tamil Nadu state is considered as Geographical area for the project activity. Stepwise approach for common practice analysis has been carried out as per Methodological tool “Common Practice”, version 03.1 EB 84, Annex 7:

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

Range	Capacity	Unit
+50%	300	MW
Capacity of the proposed project activity	200	MW
-50%	100	MW

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

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

- As the projects are located in Tamil Nadu state of India, therefore, projects in the geographical area Tamil Nadu have been chosen for analysis. The project activity involves generation of electricity from solar energy. The project activity is located in the state of Tamil Nadu in India and the policy applicable for the solar projects is regulated by respective state policy. The policies/tariff for each state is regulated by State Electricity Regulatory Commissions of respective states and they differ for respective states.

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

- The energy source used by the project activity is solar. Hence, only solar energy projects have been considered for analysis.
- The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.
- The capacity range of the projects is within the applicable capacity range from 100 MW to 300 MW.

- The start date of the concerned project activity will be 01/03/2019. Therefore, projects, which have started commercial operation before 24/10/2019, have been considered for analysis.

Numbers of Similar projects identified which fulfill above-mentioned conditioned are

Nsolar= 8

N_{all}	Differentiating factor	REFERENCE
M/s. Adani Green Energy	Registered project	https://cdm.unfccc.int/Projects/DB/Applus1595926960.08/view
M/s. Kamuthi Solar Power Ltd	Part of Registered project	https://cdm.unfccc.int/Projects/DB/Applus1595357498.47/view
M/s.NLC Tirunelveli	Public entity	
M/s.NLC Virudunagar	Public entity	
M/s.NLC Virudunagar	Public entity	
Green Infra		
Mytrah	ISGS Solar Projects in Tamil Nadu	https://cea.nic.in/old/reports/others/planning/rpm/Plantwise%20details%20of%20RE%20Installed%20Capacity-merged.pdf

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

N_{all} = 5

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

As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis of point (d) Investment climate on the date of the investment decision, (iv) Legal regulations.

From the projects identified above, those projects which employ “different technologies” have been excluded and the number of such projects has been identified as N_{diff}.

Since the project activity that has been allocated through Bidding process under solar power projects scheme from public private partnership model and have Power Purchase Agreement (PPA) with state utility Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO). The policies and tariff are regulated / governed by the respective PP investment analysis.

So, projects in Tamil Nadu that have not bid under solar power Projects Scheme from public private partnership model and signed Power Purchase Agreement (PPA) other than state utility Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) can be assumed that such projects are governed by different investment climate. Therefore, these projects come under different investment climate and have been considered under N_{diff} .

From the projects identified above, those projects which employ “different technologies” have been excluded and the number of such projects has been identified as N_{diff} .

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

$N_{diff} = 4$

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

Calculate $F = 1 - N_{diff}/N_{all}$
 $F = 1 - (4/5) = 0.2$

As per methodological tool “common practice” version 03.1, the proposed project activity is a “common practice” within a sector in the applicable geographical area if the factor F is not greater than 0.2 and $N_{all} - N_{diff}$ is not greater than 3. Thus, if both conditions are fulfilled, then project activity will be a common practice. Otherwise, the project activity is treated as not a common practice.

Outcome of Step 5:

As,

- i. $F = 0.2$; which is equal to 0.2
- ii. $N_{all} - N_{diff} = 1$; which is not greater than 3

The project activity does not satisfy both the conditions. Hence, project activity is not a common practice.

Thus, the proposed project activity is not a “common practice” within a sector in the applicable geographical area.

Conclusion:

As described above, the project fulfils all necessary requirements of Additionality specified in the ‘Tool for the demonstration and assessment of Additionality’ v7.0.0. Hence, the project is additional.

B.6. Estimation of emission reductions

>> As per the Para of ACM0002, version 20.0, the formula to calculate the emission reductions is

$$ER_y = BE_y - PE_y$$

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

Hence, $LE_y = 0$

where,

ER_y = Emission reductions in year y (t CO₂e/yr)

BE_y = Baseline emissions in year y (t CO₂e/yr)

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

B.6.1. Explanation of methodological choices

> As per the approved consolidated Methodology ACM0002, version 20.0

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

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

Where

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

$EG_{pj,y}$ = 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/yr)

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

As per para 1 of ACM0002, version 20.0, when the project activity is installation of Greenfield power plant, then:

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

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/yr)

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

The $EG_{facility, y}$ is estimated from the PLF provided as per the third party engineering company report as below:

$EG_{facility, y}$ (MWh/yr)	324,194
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As per the “Tool to calculate the emission factor for an electricity system” version 07, combined margin is calculated as below:

CO₂ Baseline Database for The Indian Power Sector, Version 17, October 2021 published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

- (a) **Step 1:** Identify the relevant electricity systems:
- (b) **Step 2:** Choose whether to include off-grid power plants in the project electricity system (optional):
- (c) **Step 3:** Select a method to determine the operating margin (OM):
- (d) **Step 4:** Calculate the operating margin emission factor according to the selected method:
- (e) **Step 5:** Calculate the build margin (BM) emission factor:
- (f) **Step 6:** Calculate the combined margin (CM) emission factor.

Step1: Identify the relevant electricity systems

As described in 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 CO₂ 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	Andhra
Delhi	Jharkhand	Gujarat	Assam	Karnataka
Haryana	West Bengal	Daman & Diu	Manipur	Kerala
Himachal Pradesh	Sikkim	Dadar & Nagar Haveli	Meghalaya	Tamil Nadu
Jammu & Kashmir	Andaman &	Madhya Pradesh	Mizoram	Telangana
Punjab	Odisha	Maharashtra	Nagaland	Puducherry
Tamilnadu		Goa	Tripura	Lakshadweep
Uttar Pradesh				
Uttarakhand				

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

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

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

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

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

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

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

- (a) Simple OM: or
- (b) Simple adjusted OM: or
- (c) Dispatch data analysis OM: or
- (d) Average OM.

The data required to calculate 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)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
India	1103174	1151479	1201877	1247574.713	1244853	1227904

Data Source: Central Electricity Authority (CEA) database Version 17.0, October 2021¹⁴

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 CO₂ emissions per unit net electricity generation (tCO₂/MWh) of all generating power plants serving this 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 following data vintages.

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

OR

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

PP has chosen 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 PSF 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

[eference/index.html](#)

¹⁴**Note:** GCC Verifiers under the Individual Track are not eligible to conduct verifications for GCC Project Activities whose owners intend to supply carbon credits (A

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

Net Generation in operating Margin (GWh) (Incl. Imports)			
	2018-19	2019-20	2020-21
Indian Grid	9,95,957	9,65,009	9,58,218

Simple Operating Margin (t CO₂/MWh) (incl. imports)			
	2018-19	2019-20	2020-21
Indian Grid	0.9603	0.9555	0.9405

Weighted Generation Operating Margin	
Indian Grid	0.9522

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

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

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

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

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

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

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

Build Margin (tCO₂/MWh) (not adjusted for imports)	
	2020-21
Indian Grid	0.8653

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

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

PP 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 CO₂ emission factor in year y (t CO₂/ MWh)
- EF_{grid,OM,y} = Operating margin CO₂ emission factor in year y (t CO₂/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} =0.75 and W_{BM} = 0.25 (owing to their intermittent and non-dispatchable nature) for the second crediting period and for subsequent crediting periods. Since

project activity is of power generation by using solar, the above weightage has been considered for OM and BM.

$$\begin{aligned} \text{Therefore, } EF_{\text{grid,CM,y}} &= 0.9522 \cdot 0.75 + 0.8653 \cdot 0.25 \\ &= 0.9305 \text{ CO}_2/\text{MWh} \end{aligned}$$

Baseline emission factor (EF_y):

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

$$\text{Therefore, } EF_y = EF_{\text{grid,CM,y}} = 0.9305 \text{ tCO}_2/\text{MWh}$$

B.6.2 Data and parameters fixed ex ante

>>

Data / Parameter Table 1.

Data / Parameter:	EF _{grid,CM,y}
Methodology reference	ACM0002
Data unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in the year y
Measured/calculated /default	Calculated
Data source	CO ₂ Emission Database, Version 16.0, March 2021 published by Central Electricity Authority (CEA), Government of India.
Value(s) of monitored parameter	0.9305
Measurement/ Monitoring equipment (if applicable)	NA

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	NA
Purpose of data	To calculate baseline emissions
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

B.6.3. Ex-ante calculation of emission reductions

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

$ER_y = BE_y - PE_y$ (as per para 53 of the applied methodology ACM0002 version 20.0, no other leakage emissions are considered. In this project activity)

Where,

ER_y = Emission Reduction in year y (t CO₂)

BE_y = Baseline emission year y (t CO₂)

PE_y = Project emissions year y (t CO₂)

Baseline Emission (BE_y)

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

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

Where,

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

As per para 41 of methodology, project activity is the installation of a Greenfield power plant, hence $EG_{pj,y} = EG_{facility,y}$

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

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

As per para 31 of the applied methodology ACM 0002 (version 20.0), no project emissions considered in the project activity.

Hence, project emissions $PE_y = 0 \text{ t CO}_2\text{e}$

Therefore, $ER_y = BE_y$

Annual Baseline emission for first year of crediting period

Capacity (MW)	PLF (%)	Net Generation	Baseline Emission factor	Baseline emissions	Emission reductions
		(MWh/year)	(tCO ₂ /MWh)	(tCO ₂ e/year)	(tCO ₂ e/year)
100	18.20	159,432	0.9305	148,351	148,351
100	19.90	174,324	0.9305	162,208	162,208

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

>>

Year	Baseline emissions (t CO ₂ e)	Project emissions (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions (t CO ₂ e)
Year 1	3,10,560	0	0	3,10,560
Year 2	3,08,548	0	0	3,08,548
Year 3	3,06,550	0	0	3,06,550
Year 4	3,04,564	0	0	3,04,564
Year 5	3,02,591	0	0	3,02,591
Year 6	3,00,632	0	0	3,00,632
Year 7	2,98,685	0	0	2,98,685
Year 8	2,96,750	0	0	2,96,750
Year 9	2,94,829	0	0	2,94,829
Year 10	2,92,919	0	0	2,92,919
Total	30,16,628			30,16,628
Total number of crediting years	10			

Annual average over the crediting period	301,663			301,663
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B.7. Monitoring plan

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

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Data / Parameter Table 2.

Data / Parameter:	EG_{PJ,y}	
Methodology reference	ACM0002	
Data unit	MWh/year	
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y	
Measured/calculated/default	Measured and calculated	
Data source	Credit note/ JMR/Form B reports/ monthly generation report from state electricity board/DISCOM	
Value(s) of monitored parameter applied with basis	3,24,194	
Measurement/ Monitoring equipment		
	Type of meter(s)	
	Location of meter(s)	
	Accuracy of meter(s)	
	Serial number of meter(s)	
	Calibration frequency	
	Date of Calibration/ validity	
	Reference No. of Calibration Certificates	
	Calibration Status	
Frequency of Measuring/reading	Monthly	
Recording frequency		

Calculation method (if applicable)	Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. $EG_{facility,y} = EG_{Export} - EG_{import}$
QA/QC procedures	The calibration of all the meters will be undertaken at required intervals (at least once in five years) and faulty meters will be duly replaced immediately. The meters will be of accuracy class 0.2s or 0.5s The meter(s) shall be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Owner. Calibration of electricity meters is carried out in-line with the Nation standard 20 which recommends at least once in 5 year calibration or whenever abnormal difference/inconsistency is observed between main meter and check meter.
Purpose of data	To calculate baseline emissions
Additional comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

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

Data / Parameter:	Employment	
Purpose:	To demonstrate positive impacts of aspects wrt baseline scenario / BAU / pre-existing scenario and to demonstrate that they 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.	Project activity supports creation of short term and long term job opportunities during the construction and operation of the project activity. Supports economic productivity through technology up gradation and innovation through training of labour in high intensive sector. Project protects labour rights and promotes safe and secure working environments. Supports a transition to a low-carbon society through employment training for former fossil fuel industry employees	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG		
	Parameter to be monitored	Number of people working for the operation of the project
	Frequency of monitoring	Yearly
	Legal /regulatory / corporate limits (if any)	NA
	QA/QC	The records for the number of employees will be provided during each monitoring period
Remarks	NA	

Data / Parameter:	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 society.	
Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	The project owner provides job related training according to the positions	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG		
	Parameter to be monitored	Number of trainings given to employees in year
	Frequency of monitoring	Yearly
	Legal /regulatory / corporate limits (if any)	NA
	QA/QC	The records for the number of employees will be provided during each monitoring period
Remarks	NA	

Data / Parameter:	Climate Change	
Purpose:	To demonstrate positive impacts of aspects wrt baseline scenario / BAU / pre-existing scenario and to demonstrate that they 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.	To justify SDG Goal 13 – Take urgent action to combat climate change and its impacts	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG		
	Parameter to be monitored	Emission reductions achieved per year
	Frequency of monitoring	Yearly
	Legal /regulatory / corporate limits (if any)	NA
	QA/QC	-
Remarks	NA	

Data / Parameter:	Affordable and Clean Energy	
Purpose:	To demonstrate positive impacts of aspects wrt baseline scenario / BAU / pre-existing scenario and to demonstrate that they 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 project activity is replacing the electricity of fossil fuel-based power plants which could have been generated in the absence of Project Activity.	
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG		
	Parameter to be monitored	Net generation of electricity from Renewable (Solar)
	Frequency of monitoring	Yearly
	Legal /regulatory / corporate limits (if any)	NA
	QA/QC	-

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

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Data / Parameter:	PV Modules Waste (Solid Hazardous Waste)											
Purpose:	To demonstrate compliance of Hazardous waste management aspects to legal/regulatory/corporate requirements or to demonstrate that they do not cause any net harm to environment.											
Describe the related environment /social/ SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	The damaged PV modules may be generated, and storage/ disposal can lead to contamination of soil.											
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate “harmless” condition or demonstrate Impact on SDG	<table border="1" style="width: 100%;"> <tr> <td colspan="2" style="background-color: #e1eef6;"></td> </tr> <tr> <td style="background-color: #e1eef6;">Parameter to be monitored</td> <td>PV Modules Waste (Solid Hazardous Waste)</td> </tr> <tr> <td style="background-color: #e1eef6;">Frequency of monitoring</td> <td>Yearly</td> </tr> <tr> <td style="background-color: #e1eef6;">Legal /regulatory / corporate limits (if any)</td> <td>E-waste (Management and Handling) Rules</td> </tr> <tr> <td style="background-color: #e1eef6;">QA/QC</td> <td>The details of damaged and returned solar PV modules will be maintained in records for future verification.</td> </tr> </table>				Parameter to be monitored	PV Modules Waste (Solid Hazardous Waste)	Frequency of monitoring	Yearly	Legal /regulatory / corporate limits (if any)	E-waste (Management and Handling) Rules	QA/QC	The details of damaged and returned solar PV modules will be maintained in records for future verification.
Parameter to be monitored	PV Modules Waste (Solid Hazardous Waste)											
Frequency of monitoring	Yearly											
Legal /regulatory / corporate limits (if any)	E-waste (Management and Handling) Rules											
QA/QC	The details of damaged and returned solar PV modules will be maintained in records for future verification.											
Describe the actions and targets that will be implemented to ensure that the Project Activity will avoid negative impacts that cause harm.	The damaged/defunct solar PV modules shall be stored and disposed off as per the guidance of national/local laws. For this FPEL has ESMS system.											

Program of Risk Management Actions to mitigate risk related to aspect (if any for aspects assessed to be harmful)	S.No.	Action and targets	Responsibility	Resource Requirement	Target to be Achieved by (insert date)	Key Performance Indicators (KPI)	Targets achieved on (insert date)
	1	The damaged solar PV modules shall be stored and dispose d-off	Fourth Partner Energy Private Limited	01	As per National law/regulations.	Quantity of damaged Solar PV modules handled safely.	To be monitored
	Date of Closing the Program:						

Data / Parameter:	E - Waste								
Purpose:	To demonstrate compliance of E-waste management aspects to legal/regulatory/corporate requirements or to demonstrate that they do not cause any net harm to environment.								
Describe the related environment /social/SDG risk or SDG impact as a function of likelihood of occurrence and severity of impact.	E waste may be generated, and storage/ disposal can lead to contamination of soil.								
Describe the parameters to be monitored to demonstrate compliance with requirements to demonstrate "harmless" condition or demonstrate Impact on SDG	<table border="1"> <tr> <td>Parameter to be monitored</td> <td>E - Waste</td> </tr> <tr> <td>Frequency of monitoring</td> <td>Yearly</td> </tr> <tr> <td>Legal /regulatory / corporate limits (if any)</td> <td>E-waste (Management and Handling) Rules</td> </tr> <tr> <td>QA/QC</td> <td>The details of E-waste will be maintained in records for future verification.</td> </tr> </table>	Parameter to be monitored	E - Waste	Frequency of monitoring	Yearly	Legal /regulatory / corporate limits (if any)	E-waste (Management and Handling) Rules	QA/QC	The details of E-waste will be maintained in records for future verification.
Parameter to be monitored	E - Waste								
Frequency of monitoring	Yearly								
Legal /regulatory / corporate limits (if any)	E-waste (Management and Handling) Rules								
QA/QC	The details of E-waste will be maintained in records for future verification.								

Program of Risk Management Actions to mitigate risk related to aspect (if any for aspects assessed to be harmful)	S.No.	Action and targets	Responsibility	Resource Requirement	Target to be Achieved by (insert date)	Key Performance Indicators (KPI)	Targets achieved on (insert date)
	1	E-waste shall be stored and disposed-off	Fourth Partner Energy Private Limited	01	As per National law/regulations.	Quantity of E - waste handled safely.	To be monitored
	Date of Closing the Program:						

B.7.3. Sampling plan

B.7.4. Other elements of the monitoring plan

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

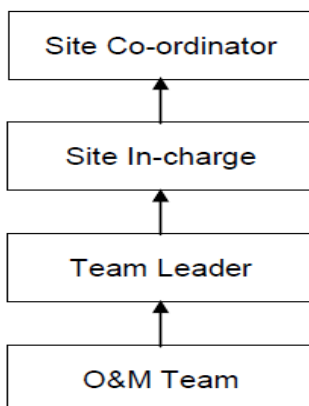
The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participants. The following structure is proposed for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises of the following members:

Organizational Structure for Monitoring

Responsibilities of Head- Projects: Tracking and reviewing the overall functioning and maintenance of the project activity from Head (Operations). Head (Operations) will be reporting Head (Projects).

Responsibilities of Head- Operations: Overall functioning of the project activity and Coordinating with the O & M Team for the proper functioning of Project activity. He will be reporting to Head (Projects).

Responsibilities of O & M Team: O & M team is responsible for Operations and Maintenance related issues, they are also responsible for day-to-day data collection and monitoring, ensures completeness and reliability of data (calibration of equipment).



The Site In-charge will be responsible for carrying out internal auditing and QA/QC. All the values from generation record will be checked with JMR and invoices for consistency. In case there are any non-conformances identified. The Site In-charge will values have slightest of variation investigate the error and revise the record to correct it. In any case where in different records the most conservative value will be taken in the project monitoring report.

Data collection and archiving

Export & Import readings from main & check meter are collected under the supervision authorized representative of PP. The net electricity supplied to grid are calculated based on export & import readings. Export and Import data would be recorded and stored in electronic &/or paper. The records are checked periodically by the Head (Operations) and discussed thoroughly with the O & M Team. 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.

Both the main and check meter of the project are found within the acceptable limits of accuracy functioning properly.

Mismatch in Monitoring Period and the Billing Period

In case the dates of a particular monitoring period do not match with the dates of the billing period, the net electricity exported to the grid would be calculated from:

A= Difference of number of days which are not matching of billing period and monitoring period.

B=Number of days of the billing period/month which was not matched with the monitoring period.

C= Net electricity supplied to the grid for that given billing period/month

The calculated value after apportioning would be used for calculation of emission reductions during that period.

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 unlikely event of failure of both Main meter & Check meter installed at sub-station, where both the faulty meters are required to repair or replaced simultaneously, the export & import readings from

Main & Check Meter installed at the inter-connection point at the project site will be used for monitoring of net electricity exported to the grid.

Personnel Training

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

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

>> Start date of the project activity is the earliest date of interconnection with the grid.

The project is commissioned on 24/10/2019, and the start date is 24/10/2019

C.2. Expected operational lifetime of the Project Activity

>> 25 Years

C.3. Crediting period of the Project Activity

>>

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

>> Crediting Period Start date: 25/10/2019

Crediting Period End date: 24/10/2029

C.3.2. Duration of crediting period

>> The crediting period is fixed crediting period for 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, interfacing the generators with the State Electricity Board by setting up HT transmission lines and installation of other accessories.

The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013. This report clearly mentioned that Solar project activity operations do not result in direct air pollution, noise pollution.

Thus, there is no significant impact due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

D.2. Environmental impact assessment and management action plans

>> The guidelines on Environmental Impact Assessment have been published by Ministry of Environment, Forests and Climate Change (MoEF & CC), Government of India (GOI) under Environmental Impact Assessment notification 14/09/2006. Further amendments to the notification have been done on 14/07/2018. As per notification:

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

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

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

Section E. Environmental and social safeguards

>>The main purpose of the environment and social safeguard assessment is to identify, evaluate and manage environmental and social impacts that may arise due to implementation and operation of the project. The document has been made to comply with the requirements of Environmental and Social commitment, Environment & social safeguard standard (version.02) of GCC, Health and Safety (EHS) Guidelines, as well as applicable local and national regulations.

Further, with reference to the CPCB modified direction No. B29012/ESS(CPA)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate” for White category of industries.

Hence, as per below assessment, the solar power project is not likely to have significant adverse environmental and social impacts during the construction & operation period of the project activity.

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		
		Description of Impact (both positive and negative)	Legal/voluntary corporate requirement /regulatory/voluntary corporate threshold Limits	Do-No-Harm Risk Assessment (Choose whichever 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	3 rd Party Audit
				Not Applicable (No actions required)	Harmless (No actions required)	Harmful (Actions required)	Operational Controls	Program of Risk Management Actions	Monitoring parameter and frequency of monitoring	Ex-Ante scoring of environmental impact (as per scoring matrix Appendix-02)	Ex- Ante description and justification/explanation of the scoring of the environmental impact	Verification Process
<p>Environmental impacts on the identified categories¹⁵ indicate below.</p>	<p>Indicators for environmental impacts</p>	<p>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. .</p>	<p>Describe the applicable national regulatory requirements /legal limits related to the identified risks of environmental impacts.</p>	<p>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</p>	<p>If environmental impacts exist, but are expected to be in compliance with applicable national regulatory /stricter voluntary corporate requirements and will be within legal/voluntary corporate limits by way of plant design and operating principles, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as Harmless /If the project has an positive impact on the environment</p>	<p>If negative environmental impacts exist that will not be in compliance with the applicable national legal/ regulatory requirements or are likely to exceed legal limits, then the Project Activity is likely to cause harm (may be un-safe) and shall be indicated as Harmful</p>	<p>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/regulator requirements or industry best practice or stricter voluntary corporate requirements</p>	<p>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 the risk of impacts that have been identified as Harmful.</p>	<p>Describe the monitoring approach and the parameters (KPI) to be monitored for each impact irrespective of whether it is harmless or harmful. The frequency of monitoring to be specified as well including the data source.</p>	<p>-1 0 +1</p>	<p>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.</p>	<p>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.</p>

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					mark it as "harmless" as well.							
Environment - Air	SO _x emissions (EA01)	The solar power project does not cause any SO _x emissions in the project scenario. However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted SO _x emissions, on which data is not available and can't be quantified.	The Air (Prevention & Control of Pollution) Act 1981 stipulates thresholds for both ambient air quality as well as stack emissions.	Not Applicable expected to or does not cause any harm.	Not Applicable. No Action Required	Not Applicable. No Action Required	Not Applicable.	Not Applicable.	No Action Required	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries. 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 and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	NO _x emissions (EA02)	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	With reference to the CPCB modified B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries. However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted NOx emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	CO ₂ emissions(EA03)	The solar power project does not cause any CO ₂ emissions in the project scenario.	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable as no emissions occur in the	Not Applicable. No Action Required	Not Applicable. No Action Required	Not Applicable	Not Applicable	The generated electricity by the project activity will be continuously measured and	+1	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in	

¹⁵ sourced from the CDM SD Tool and the sample reports are available (<https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx>)

Project Submission Form

		However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted CO2 emissions, which has been calculated by the combined margin emission factor as mentioned in the PSF	stipulates thresholds for both ambient air quality as well as stack emissions.	project scenario and therefore is not expected to or does not cause any harm.					the related CO2 emission reduction will be calculated according to the underlying CDM methodology ACM0002, version 20.0		White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries. However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted CO2 emissions, which has been calculated by the combined margin emission factor as mentioned in the PSF. Therefore, emission reductions are expected to be reduced which will be regularly monitored and verified ex-post and therefore is eligible to be scored.	
<i>CO emissions (EA04)</i>	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries. However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted CO emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.		
<i>Suspended particulate matter (SPM) emissions (EA05)</i>	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted SPM emissions, on which data is not available and can't be quantified and therefore		

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											the emission reductions cannot be quantified and therefore this parameter will not be scored.	
<i>Fly ash generation (EA06)</i>	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted fly ash emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
<i>Non-Methane Volatile Organic Compounds (NMVOCs) (EA07)</i>	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of industries However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted NM/VOCs emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
<i>Odor (EA08)</i>	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CP A)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate" for White category of	

Project Submission Form

												industries However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted Odor emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored
	Noise Pollution (EA09)	Not Applicable	Noise (Regulation and Control) Rules 2000 amended in 2010)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	No significant noise emission is expected from project activity during operational phase as there is no major equipment in solar project who generate noise
Environment - Land	Solid waste Pollution from Plastics (EL-01)	Not Applicable	Plastic Waste (Management and Handling) Rules, 2016	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	No significant plastic waste is expected from the project activity during operational phase Hence, this parameter will not be scored.
	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	-	Harmless	No Action Required	Not Applicable	The damaged solar PV modules shall be stored and disposed-off as per the national/local law	The details of damaged and returned solar PV modules will be maintained in records for future verification. Refer section B.7.2 PRMA 01.	+1		As per MoEFCC notification dated 01.03.2019 (G.S.R. 178(E)) the Occupier (developer) is not required to obtain authorization under Hazardous and Other Wastes (Management and Transboundary Movement) Amendment, Rules, 2019 if they are exempted from obtaining consent under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. However, Narbheram Power & Steel Private Limited should ensure (through ESMS) proper disposal of Hazardous Waste (DG oil, if DG is installed) through actual user, waste collector or operator of the disposal facility, in accordance with the Central Pollution Control Board guidelines. Moreover, though not covered under the rule, the broken part of the solar plant are recommended to be sent back to the manufacture or an authorized recycler.

Project Submission Form

<i>Solid waste Pollution from Bio-medical wastes (EL03)</i>	Not Applicable	Bio-medical Waste Management Rules, 2016	Not Applicable	No Action Required	No Action Required	Not Applicable	No Action Required	No Action Required	Not Applicable	No significant bio-medical waste will be generated from the project activity. Hence, this parameter will not be scored.	
<i>Solid waste Pollution from E-wastes (EL04)</i>	e-waste pollution is anticipated through the operation of the project.	E-waste (Management and Handling) Rules	-	Harmless	-	Records all electrical & electronics waste of projects sites and filling of return.	Narbheram Power & Steel Private Limited management is responsible to maintain records and filling of returns as per applicable law and Their ESMS system	The details of damaged and returned solar PV modules will be maintained in records for future verification. Refer section B.7.2 PRMA 01	+1	Narbheram Power & Steel Private Limited management is responsible to maintain records and filling of returns as per applicable law and have no significant impact.	
<i>Solid waste Pollution from Batteries (EL05)</i>	The project does not deploy batteries for storage as this project is grid connected. No solid waste pollution from batteries is anticipated	Batteries (Management and Handling) Rules	Not Applicable	Not Applicable	-	-	-	Not Applicable	Not Applicable	NA	
<i>Solid waste Pollution from end of life products/ equipment (EL06)</i>	Solar PV modules at site might have negative environmental impacts if not managed well after their end-of-life	Solid Waste Management Rules, 2016	-	Harmless	-	Solid waste from the project activity must be disposed as applicable law	Narbheram Power & Steel Private Limited management is responsible to maintain records and dispose all products after ending lifecycle as per applicable law	Since the Crediting Period is lesser than the project life, however the record will be maintained for future verification. Refer section B.7.2 PRMA 01.	+1	Narbheram Power & Steel Private Limited management is responsible to maintain records and dispose all products after ending lifecycle as per applicable law. A self-attested declaration mentioning that the equipment waste from the end of project life will be disposed as per Solid Waste Management Rules, 2016 will be submitted	

Project Submission Form

								Solid Waste Management Rules, 2016				
	<i>Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury) (EL07)</i>	Not Applicable	In India, there are no comprehensive soil quality regulations and standards to ascertain the seriousness of contamination	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	No significant soil pollution from chemicals during operation phase of the project activity. However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted soil emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	<i>land use change (change from cropland /forest land to project land) (EL08)</i>	Land use change of the project site may have negative impact if the land was a forestry or agricultural land previously.	IFC Performance Standard 5 Land Acquisition and Involuntary Resettlement	-	Harmless	No Action Required	Not Applicable	Not applicable	The details of the land use change of the project site will be maintained in records for future verification. Refer B.7.2	+1	The project does not involve diversion of any forest land. Therefore, ensuring minimal impact on ecology during the construction and operation phase of the project.	
Environment - Water	<i>Reliability/ accessibility of water supply (EW01)</i>	Not Applicable	The Water (Prevention & Control of Pollution) Act 1974	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Supply water from local body will be used and necessary approval to be obtained. However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted accessibility of water emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	<i>Water Consumption from ground and other sources (EW02)</i>	Not Applicable	Permission for abstraction of Ground water under Environmental (Protection) Act 1986	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	No ground water will be consumed in all sites of the project activity & necessary permission to be obtained from concerned local authority in case use ground water in future. However, in the baseline scenario (grid) some of the fossil fuel power plants may have	

Project Submission Form

											emitted water consumption emissions, on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
<i>Generation of wastewater (EW 03)</i>	Not Applicable	The Water (Prevention & Control of Pollution) Act 1974	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	There is no significant effect as provisions of septic tank and soak pits will be provided onsite for treatment and disposal of sewage, thereby minimizing the impacts of wastewater discharge. Planning of toilets, soak pits and septic tanks, waste collection areas should be away from natural drainage channels. However, in the baseline scenario (grid) some of the fossil fuel power plants may have generation of waste water on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
<i>Wastewater discharge without/with insufficient treatment (EW04)</i>	Not Applicable	The Water (Prevention & Control of Pollution) Act 1974	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	There is no significant effect as provisions of septic tank and soak pits will be provided onsite for treatment and disposal of sewage, thereby minimizing the impacts of wastewater discharge. Planning of toilets, soak pits and septic tanks, waste collection areas should be away from natural drainage channels. However, the in the baseline scenario (grid) some of the fossil fuel power plants may have generation of wastewater or its treatment on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	

Project Submission Form

	<i>Pollution of Surface, Ground and/or Bodies of water (EW05)</i>	Not Applicable	The Water (Prevention & Control of Pollution) Act 1974	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	<p>There is no significant effect as provisions of septic tank and soak pits will be provided onsite for treatment and disposal of sewage, thereby minimizing the impacts of wastewater discharge. Planning of toilets, soak pits and septic tanks, waste collection areas should be away from natural drainage channels</p> <p>However, in the baseline scenario (grid) some of the fossil fuel power plants may have from surface water on which data is not available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.</p>	
	<i>Discharge of harmful chemicals like marine pollutants / toxic waste (EW06)</i>	Not Applicable	Costal Regulation Zone (CRZ) 2019	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	<p>The project is not located in the CRZ boundary defined in the CRZ Notification 2019. So, there is no marine environment nearby the project site, hence data is not available and can't be quantified and therefore this parameter will not be scored</p>	
Environment – Natural Resources	<i>Conserving mineral resources (ENR01)</i>	Not Applicable	In India, there are no conserving mineral resources regulations and standards to ascertain	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	<p>This is solar project activity and it is not using any natural minerals. Therefore, this parameter will not be scored.</p>	
	<i>Protecting/enhancing plant life (ENR02)</i>	Not Applicable	In India, there are no comprehensive regulations and standards to ascertain for protecting plant life	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No action required	Not Applicable	<p>The project activity has been implemented in barren land and very low impact is being observed on flora loss. Therefore this parameter will not be scored.</p>	
	<i>Protecting/enhancing</i>	Not Applicable	In India, there are no	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	<p>The project activity has been implemented in barren land and</p>	

Project Submission Form

<i>species diversity (ENR03)</i>		comprehensive regulations and standards to ascertain for protecting plant life									very low impact is being observed on flora loss. therefore, this parameter will not be scored.
<i>Protecting/enhancing forests (ENR04)</i>	Not Applicable	The Forest (Conservation) Act 1980 & 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	No Action Required	Not Applicable	Not Applicable	Not Applicable	No forest land has been used for the project activity.
<i>Protecting/enhancing other depletable natural resources (ENR05)</i>	Not Applicable	National Forest Policy (Revised) 1988	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No action required	Not Applicable	Not Applicable	The project activity has been implemented in barren land and very low impact is being observed on flora loss or no other natural resource has been used to operate project activity therefore this parameter will not be scored.
<i>Conserving energy (ENR06)</i>	Not Applicable	Energy Conservation Act 2001	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	Not Applicable	Not Applicable	All efficient products & instruments has been used in the project activity, hence no significant impact due to this. therefore this parameter will not be scored
<i>Replacing fossil fuels with renewable sources of energy (ENR07)</i>	The project utilizes renewable solar resource to generate electricity which will replace the electricity generated by fossil fuel plants.	Energy Conservation Act 2001	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	Continuous measuring for electricity generation will be done	+1		The project is expected to supply an average of 3,24,194 MWh per year renewable electricity to grid.
<i>Replacing ODS with non-ODS refrigerants (ENR08)</i>	Not Applicable	In India, there are no comprehensive regulations and standards to ODS & non ODS	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	No Action Required	NA		No impact Therefore this parameter will not be scored.

Project Submission Form

Net Score:	+6
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to Environment.
GCC Project Verifier's Opinion:	The GCC Verifier certifies that the Project Activity [is not likely to cause any] or [is likely to cause] net harm to 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 <i>(positive or negative)</i>	Legal requirement /Limit, Corporate policies / Industry best practice	Do-No-Harm Risk Assessment			Risk Mitigation Action Plans	Performance indicator for monitoring of impact.	Ex-ante scoring of environmental impact	Explanation of the Conclusion	3rd Party Audit
			Not Applicable	Harmless	Harmful	Operational / Management Controls	Monitoring parameter and frequency of monitoring (as per scoring matrix Appendix-02)	Ex- Ante scoring of social impact of the project	Ex- Ante description and justification/explanation of the scoring of social impact of the project	Verification Process Will the Project Activity cause any harm?

Project Submission Form

Social impacts on the identified categories¹⁶ indicated below.	<i>Indicators for social impacts</i>	<i>Describe and identify actual and anticipated impacts on society and stakeholders, both positive or negative, from all source 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 .</i>	<i>Describe the applicable national regulatory requirements / legal limits related to the identified risks of social impacts.</i>	<i>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</i>	<i>If social impacts are anticipated but are expected to be in compliance with applicable national regulatory requirements/ legal limits, then it the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as Harmless.</i>	<i>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</i>	<i>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.</i>	<i>Describe the monitoring approach and the parameters (KPI) to be monitored for each impact irrespective of whether it is harmless or harmful. The frequency of monitoring to be specified as well. Monitoring parameters can be quantitative or qualitative in nature along with the data source.</i>	+1 0 -1	<i>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</i>	<i>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.</i> <i>Also describe the positive impacts of the project on the society as compared to the baseline alternative or BAU scenario.</i>
Social - Jobs	<i>Long-term jobs (> 1 year) created/ lost (SJ01)</i>	The project creates long term job opportunities during operation.	There is no legal requirement from local authority to create permanent employment from the project activity	Not Applicable	-	-	Not Applicable	Number of people employed by the project will be monitored through checking payroll records or the social insurance	+1	There is no mandatory law to generate permanent employment from the project activity, however, project Owner has planned to provide training to the local people & generate employment for local people.	
	<i>New short-term jobs (< 1 year) created/ lost (SJ02)</i>	The project creates short term job opportunities during construction.	There is no legal requirement from local authority to create permanent employment from the project activity	Not Applicable	-	-	Not Applicable	Local labor force will be employed during construction period	+1	There is no mandatory law to generate permanent employment from the project activity, however, project Owner has been planned to provide training to the local people & generate employment for local people.	

¹⁶ sourced from the CDM SD Tool and the sample reports are available (<https://www4.unfccc.int/sites/sdcmicrosite/Pages/SD-Reports.aspx>)

Project Submission Form

	<i>Sources of income generation increased / reduced (SJ03)</i>	Not Applicable	There is no legal requirement from local authority to create permanent employment from the project activity	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	NA	
	<i>Avoiding discrimination when hiring people from different race, gender, ethnics, religion, marginalized groups, people with disabilities (SJ04) (human rights)</i>	Not Applicable	IFC Performance Standard-2: Labor and Working conditions	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	The project will not make employment decisions based on personal characteristics unrelated to inherent job requirements. The project will base the employment relationship on the principle of equal opportunity and fair treatment and will not discriminate with respect to any aspects of the employment relationship. The project will take measures to prevent and address harassment, intimidation, and/or exploitation, especially regarding women. Therefore, this parameter will not be scored.	
Social - Health & Safety	<i>Disease prevention (SHS01)</i>	Not Applicable	The Factories Act, 1948	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	It should be ensured that proper and adequate number of toilets is constructed for the Labor's so that hygienic conditions prevail in the site area. Therefore this parameter will not be scored.	
	<i>Occupational health hazards (SHS02)</i>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	The project owner will provide regular safety training to their workers about the accident hazards and risk related to specific	

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										works and preventive measures for avoiding accidents at site Therefore this parameter will not be scored.	
<i>Reducing / increasing accidents/Incidents/fatality (SHS03)</i>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		The project owner will provide regular safety training to their workers about the accident hazards and risk related to specific works and preventive measures for avoiding accidents at site Therefore this parameter will not be scored.	
<i>Reducing / increasing crime (SAS04)</i>	Not Applicable	Crime comes under law & order of local government authority and there is no legal requirement from local authority to project owner to liable to reduce crime.	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		Project activity will increase local employment so there is no chance to increase crime in the local area due to the solar power projects. Therefore, this parameter will not be scored.	
<i>Reducing / increasing food wastage (SHS05)</i>	Not Applicable	THE COMPULSORY FOOD WASTE REDUCTION BILL, 2018	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		Use a 2-bin system so that food waste and recyclables viz. paper, plastic, glass, scrap metal waste etc. are segregated and stored in designated waste bins/ containers. Therefore this parameter will not be scored.	
<i>Reducing / increasing indoor air pollution (SHS06)</i>	Not Applicable	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		With reference to the CPCB modified direction No. B29012/ESS(CPA)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it	

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										is mentioned in the notification that there shall be no necessity of obtaining the Consent to Operate” for White category of industries, hence it can be assumed that no chance of increasing air pollution from project activity. Therefore this parameter will not be scored.	
<i>Efficiency of health services (SHS07)</i>	Not Applicable	No local regulation available	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		Health services are limited to villages falls under project activity. Narbheram Power & Steel Private Limited support local health infrastructure and medical facility as per the CSR. Therefore, this parameter will not be scored.	
<i>Sanitation and waste management (SHS08)</i>	Not Applicable	Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		As per MoEFCC notification dated 01.03.2019 (G.S.R. 178(E)) the Occupier (developer) is not required to obtain authorization under Hazardous and Other Wastes (Management and Transboundary Movement) Amendment, Rules, 2019 if they are exempted from obtaining consent under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981. However, Narbheram Power & Steel Private Limited management should ensure proper disposal of	

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											<p>Hazardous Waste (DG oil, if DG is installed) through actual user, waste collector or operator of the disposal facility, in accordance with the Central Pollution Control Board guidelines. Septic tank and soak pits will be provided onsite for treatment and disposal of sewage, thereby minimizing the impacts of wastewater discharge. Planning of toilets, soak pits and septic tanks, waste collection areas should be away from natural drainage channels. Therefore this parameter will not be scored.</p>
	<p>Other health and safety issues (SHS09)</p>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	<p>All health & safety issue at project sites to be mitigate as per EHS policy of Narbheram Power & Steel Private Limited and local regulation. Therefore this parameter will not be scored.</p>	
<p>Social - Education</p>	<p>specialized training / education to local personnel (SE01)</p>	The project owner provides job related training according to the positions	There is no legal requirement from local authority to provide training to local people	Not Applicable	-	-	Not Applicable	Training records/evidence by the project owner	+1	<p>The project Owner will provide regular safety training to their workers about the accident hazards and risk related to specific works and preventive measures for avoiding accidents at site.</p>	
	<p>Educational services improved or not (SE02)</p>	Not Applicable	CSR policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	<p>Narbheram Power & Steel Private Limited should take initiative for Promotion of education, including</p>	

Project Submission Form

										special education and employment enhancing vocation skills especially among children, women, elderly and the differently abled and livelihood enhancement projects. Therefore this parameter will not be scored.	
	<i>Project-related knowledge dissemination effective or not (SE03)</i>	Not Applicable	CSR policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	Stakeholder consultation meeting was done before starting of project work where project owner was informed about the project and taken their comments. Further meeting can be planned in future as per stakeholder request. Therefore this parameter will not be scored.	
	<i>Other educational issues (SE04)</i>	Not Applicable	CSR policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	Narbheram Power & Steel Private Limited should take initiative Promotion of education, including special education and employment enhancing vocation skills especially among children, women, elderly and the differently abled and livelihood enhancement projects Therefore this parameter will not be scored.	
Social - Welfare	<i>Improving/deteriorating working conditions (SW01)</i>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	There is no chance of deteriorating working conditions as Narbheram Power & Steel Private Limited will maintain high working culture for their employee with complying EHS	

Project Submission Form

										guideline & local regulation Therefore this parameter will not be scored.	
	<i>Community and rural welfare (indigenous people and communities) (SW02)</i>	Not Applicable	CSR policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	In the stakeholder meeting, the local communities were of the opinion that apart from the economic opportunities, the local community should also benefit from the project in terms of community development activities. Some of the key areas for development activities identified included medical infrastructure, access to middle and higher schools, separate schools for girls and trainings for youth and women within the village. This can be done by collaborating with local NGOs working on these areas Therefore this parameter will not be scored.	
	<i>Poverty alleviation (more people above poverty level) (SW03)</i>	Not Applicable	No local regulation	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	The objective of the company policy of Narbheram Power & Steel Private Limited is to assist project sites to reduce poverty and enhance economic growth, human well-being, and development effectiveness by addressing the gender disparities and inequalities that are barriers to development, and by assisting member countries in formulating and	

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										implementing their gender and development goals. Therefore this parameter will not be scored.	
<i>Improving / deteriorating wealth distribution/generation of income and assets (SW04)</i>	Not Applicable	No local regulation	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	Local community might choose to work during the construction of access roads and other project components and as security guards for the plant. There is also a likelihood of reduced dependence on agriculture for income. Therefore this parameter will not be scored.		
<i>Increased or / deteriorating municipal revenues (SW05)</i>	Not Applicable	No local regulation	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	Projects is not falling under municipal areas, hence same will not be applicable. Therefore this parameter will not be scored.		
<i>Women's empowerment (SW06) (human rights)</i>	Not Applicable	No local regulation	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	Narbheram Power & Steel Private Limited will take initiative for Promoting gender equality, empowering women, and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups etc. The women's participation in the consultation needs to be ensured. Therefore this parameter will not be scored.		
<i>Reduced / increased traffic congestion (SW07)</i>	Not Applicable	No local regulation	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	The project activity created buffer zones on both side of government road. Adequate training on		

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											<p>traffic and road safety operations will be imparted to the drivers of project vehicles. Road safety awareness programs will be organized in coordination with local authorities to sensitize target groups viz. school children, commuters on traffic safety rules and signage during construction & operation phase of the project. Therefore, this parameter will not be scored.</p>	
	<p><i>Exploitation of Child labour (human rights) (SW08)</i></p>	Not Applicable	<p>IFC Performance Standard-2: Labour and Working conditions</p>	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	<p>The project will not employ children in any manner that is economically exploitative or is likely to be hazardous or to interfere with the child's education, or to be harmful to the child in any way. National laws related to employment of minors are to be followed. No person under the age of 14 is to be allowed to work on the site according to Indian Child Labour Law. Therefore this parameter will not be scored.</p>		
	<p><i>Minimum wage protection (human rights) (SW09)</i></p>	Not Applicable	<p>Centralized HR policy of Narbheram Power & Steel Private Limited</p>	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	<p>Narbheram Power & Steel Private Limited should ensure that all the contracted workers are provided with condition of services, rate of wages, holidays, hours of work as stipulated in the rules as per applicability</p>		

Project Submission Form

										and tenure of service, by the deputed contractor. Therefore this parameter will not be scored.	
<i>Abuse at work place.(with specific reference to women and people with special disabilities / challenges) (human rights) (SW10)</i>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		Narbheram Power & Steel Private Limited should ensure that all the contracted workers are provided with condition of services, rate of wages, holidays, hours of work as stipulated in the rules as per applicability and tenure of service, by the deputed contractor. Therefore this parameter will not be scored.	
<i>Other social welfare issues (SW11)</i>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		Narbheram Power & Steel Private Limited should ensure that all the contracted workers are provided with condition of services, rate of wages, holidays, hours of work as stipulated in the rules as per applicability and tenure of service, by the deputed contractor. Therefore this parameter will not be scored.	
<i>Avoidance of human trafficking and forced labour (human rights) (SW12)</i>	Not Applicable	EHS policy of Narbheram Power & Steel Private Limited	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA		Narbheram Power & Steel Private Limited should ensure that all the contracted workers are provided with condition of services, rate of wages, holidays, hours of work as stipulated in the rules as per applicability and tenure of service, by the deputed contractor. Therefore this parameter will not be scored.	

Project Submission Form

	<i>Avoidance of forced eviction and/or partial physical or economic displacement of IPLCs (human rights) (CW13)</i>	Not Applicable	Land Acquisition Act 1894 (Amended in 1984) and The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	Not Applicable	No Action Required	No Action Required	Not Applicable	Not Applicable	NA	Land for the project is being procured on willing seller willing buyer basis. Land is primarily a barren land and no habitat is present on the site.. Hence, project does not involve any involuntary displacement. Therefore this parameter will not be scored	
Net Score:					+3						
Project Owner's Conclusion in PSF:					The Project Owner confirms that the Project Activity will not cause any net harm to society.						
GCC Project Verifier's Opinion:					The GCC Verifier certifies that the Project Activity [is not likely to cause any] or [is likely to cause] net harm to society.						

Section F. United Nations Sustainable Development Goals (SDG)

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Project Submission Form

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?
<p>Describe UN SDG targets and indicators</p> <p>See: https://unstats.un.org/sdgs/indicators/indicators-list/</p>	Describe the UN-level target(s) and corresponding indicator no(s)	Has the host country declared the SDG to be a national priority? Indicate Yes or No	Define project-level SDGs by suitably modifying and customizing UN/ Country-level SDGs to the project scope or creating a new indicator(s). Refer to previous column for guidance.	Define project-level targets/actions in line with the 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 direct positive effect that contributes to achieving the defined project-level SDG targets	Describe the monitoring approach and the monitoring parameters to be applied for each project-level SDG indicator and its corresponding target, frequency of monitoring and data source	Describe how the GCC Verifier has verified the claims that the project is likely to achieve the identified Project level SDGs target(s).	Describe whether the project-level SDG target(s) is likely to be achieved by the target date (Yes or No)
Goal 1: End poverty in all its forms everywhere	NA	NA	NA	NA	NA	NA		
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	NA	NA	NA	NA	NA	NA		
Goal 3. Ensure healthy lives and promote well-being for all at all ages	NA	NA	NA	NA	NA	NA		
Goal 4. Ensure inclusive and	NA	NA	NA	NA	NA	NA		

Project Submission Form

equitable quality education and promote lifelong learning opportunities for all								
Goal 5. Achieve gender equality and empower all women and girls	NA	NA	NA	NA	NA	NA		
Goal 6. Ensure availability and sustainable management of water and sanitation for all	NA	NA	NA	NA	NA	NA		
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	<p>7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.</p> <p>7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.</p> <p>7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing</p>	Yes	Quantity of net electricity supplied to the grid by project activity in year y	324,194 MWh/yr (Average)	Contribute renewable energy share in total grid 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		

Project Submission Form

	countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support							
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	<p>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</p> <p>8.8 Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in</p>	Yes	<p>Project activity supports creation of short term and long-term job opportunities during the construction and operation of the project activity.</p> <p>Supports economic productivity through technology up gradation and innovation through training of labour in high intensive sector.</p> <p>Project protects labour rights and promotes safe and secure working environments.</p> <p>Supports a transition to a low-carbon society through employment training for</p>	<p>Project creates new employment and generates income for minimum 15 people during Under Construction Phase and 12 people During Operational of the project.</p> <p>Through Project activity economic development has been achieved in the project location by creating opportunities to the other allied services and indirect employment.</p> <p>Refer section B.7.1</p>	<ol style="list-style-type: none"> 1. Employment per the national labour and company law. 2. Maintains company HR policy to create standard operating procedures (SOPs) to follow and maintain safe and secure work environment 3. Paying the wages as per the minimum wages act of the country. 	<p>Project owner monitors the implantation of the policies and employee grievances if any through the separate HR manager and site in charge.</p> <p>Quantity of employment will be monitored through employment records.</p>		

Project Submission Form

			former fossil fuel industry employees					
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	NA	9.4.1 CO2 emission per unit of value added	113535 tCO ₂ (Average) per year	Emission reduction achieved per year	Electricity produced by the renewable generating unit multiplied by an emission factor		
Goal 10. Reduce inequality within and among countries	NA	NA	NA	NA	NA	NA		
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	NA	NA	NA	NA	NA	NA		
Goal 12. Ensure sustainable consumption and production patterns	NA	NA	NA	NA	NA	NA		
Goal 13. Take urgent action to combat climate change and its impacts	13.2 Integrate climate change measures into national policies, strategies and planning 13.2.2 Total greenhouse gas emissions per year	Yes	Emission reductions achieved per year	301,663 tCO ₂ (Average) per year	Emission reduction achieved per year	Electricity produced by the renewable generating unit multiplied by an emission factor		

Project Submission Form

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	NA	NA	NA	NA	NA	NA		
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	NA	NA	NA	NA	NA	NA		
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	NA	NA	NA	NA	NA	NA		
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	NA	NA	NA	NA	NA	NA		
SUMMARY					Targeted		Likely to be Achieved	
Total Number of SDGs					4			

Project Submission Form

Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF	Gold	
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Section G. Local stakeholder consultation

G.1. MODALITIES FOR LOCAL STAKEHOLDER CONSULTATION

>>A stakeholder is any group or individual which may affect or be affected by a specific project activity. They could have a direct as well as indirect influence due to the project activities. Stakeholders may comprise of local persons/community, government and non-government officials, project proponent etc. considering internal and external matter related to the project. Therefore, local stakeholder consultation is done on 10/08/2018

The identification of the stakeholders has been done on the following basis:

- Representatives of indigenous communities and vulnerable groups
- Local stakeholders (including farmers, villagers, local contractors etc.)
- Technology providers/suppliers
- Participants from government agencies providing approval for the project
- Participants from local NGOs

All stakeholders were invited via public invitation which were available at local schools, panchayats and other public places. Announcements were also made in loudspeakers in local language for the purpose inviting local stakeholders

G.2. SUMMARY OF COMMENTS RECEIVED

>> All stakeholders interviewed are supportive to the implementation of the project, believing that the Project will help mitigate the air pollutions by landfill site, improve the community environment and promote local economic development.

Local stakeholders also have raised their concerns about environmental and social impacts of the project during construction and operation period. Comments are summarized below.

Stakeholder concerns	Response
The project shall use open space as project site to avoid forest occupation and vegetation destruction	The project site selected by the project owner locates inside the private land which has been purchased through a sale deed. The area of cultivation in this region is considerably low owing to the lack of adequate water and any irrigation facilities. Highly unpredictable pattern of rain coupled with frequent droughts often leads to poor farm yield/productivity.

Local area has adequate workforce in unskilled category as mostly working population of the local area are cultivators/agriculture laborer	The employment of local laborer will positively influence the project operations, in strengthening project relations with the local community and building a positive rapport.
Construction waste shall be properly collected and disposed	Part of the construction waste will be recycled by the project, the rest will be collected and disposed in the landfill site
Some key areas of intervention for CSR activities have been highlighted earlier under 'Local Gram Panchayat' heading of this table.	The CSR activities focused on education and health, among others will also be targeted at the neighboring villages and the immediate local community which will lead to improvement in livelihood.

G.3. CONSIDERATION OF COMMENTS RECEIVED

>> All comments raised during local stakeholder consultation have been considered and corresponding precaution measures and corrective actions (if any) have been proposed to ensure all issues during construction and operation of the project are properly addressed.

Section H. Approval and authorization

>> As per the guideline available in this regard, submission of Host Country Attestation (HCA) on Double Counting as and when required by CORSIA

APPENDIX 1. CONTACT INFORMATION OF PROJECT OWNERS

Project Owner name (as per LON/LOA)	Narbheram Power & Steel Private Limited
Country	India
Address	Avani Signature, 6th Floor, 91A/1 Park Street, Kolkata- 700016, West Bengal, India
Telephone	+91-9748703495 / +91-33-40118400
Fax	+91-33-40118401
E-mail	binay.goenka@athagroup.in
Website	www.athagroup.in
Contact person	Mr. Binay Goenka

APPENDIX 2. AFFIRMATION REGARDING PUBLIC FUNDING

>> Narbheram Power & Steel Private Limited 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)

>> Not Applicable as project category is A2

<i>Complete this form in accordance with the instructions attached at the end of this form.</i>	
Program Name	
Project registration number	
Date of registration in the program	
Title of the Project Activity	
Project-registration reference number	
Date of de-registration of the Project	
Project Participants <small>(authorized by the host / annex 1 country letter of approval)</small>	
Country where the project is located	
Applied methodology(ies) <small>(provide reference and version number(s))</small>	

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		<input type="checkbox"/>	
	Deviations from applied Tool & Guidance		<input type="checkbox"/>	
	Deviations from the rules		<input type="checkbox"/>	
	Other.....		<input type="checkbox"/>	
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		<input type="checkbox"/>	
	Request for revision of monitoring plan		<input type="checkbox"/>	
	Request for change in start date of crediting period		<input type="checkbox"/>	
	Renewal of crediting period		<input type="checkbox"/>	
	Temporary deviations		<input type="checkbox"/>	
	Other.....		<input type="checkbox"/>	

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)	1 st			
			2 nd			
			3 rd			
	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					-	

Details of Previous Issuance Requests	Issuance Request	Period (start & end dates)	ERs as per registered PDD	Quantity of Credits requested to be issued	Quantity of Credits issued
	1 st				
	2 nd				
	3 rd				
	4 th				
	5 th				
	Add rows				
	Total				
List any open issues in the Validation and last Verification Report (e.g., FARs, if any) and how they have been addressed					
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					
Provide the list of all the registered documents related to this project, as available on the programs website and the corresponding URLs.					

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

>> Applicability of Clarification No.1 for Bundling: As per Para 9 of Clarification Project Owner has clubbed activities in to one bundled project as mentioned below:

As per Para 11 of clarification 1, Level 1 analysis has been done for determination of homogeneous activities in the project.

Level-1 analysis - Consideration of key aspects for developing Homogeneous Bundles:				
Requirements of paragraphs 10-11 of Clarification No.1		Reference	Narbheram Solar TN Private Limited	NVR Energy Private Limited
Similarity in Technological Considerations	Technology	Paragraph 11 (i)	Solar power	Solar power
	Methodology		ACM0002: Grid-connected electricity generation from renewable sources (Version 20.0)	ACM0002: Grid-connected electricity generation from renewable sources (Version 20.0)
	Cross-effects exist or not		No cross effects exist	No cross effects exist
	Same output of each activity (e.g., heat or power or cogeneration);	Paragraph 12 (b)	Electricity	Electricity
Similarity in Economic and Policy Considerations	Additionality approach (investment or barrier analysis as stipulated by the applicable methodology)	Paragraph 11 (ii)	Investment analysis	Investment analysis
	All the activities within the bundle should have same barrier(s).	Paragraph 12 (d) (iii)	Does not apply barrier analysis. Not applicable.	Does not apply barrier analysis. Not applicable.
	Investment analysis method and financial indicator (e.g., post tax project or equity IRR, or pre-tax project or equity IRR, NPV, etc.)	Paragraph 11 (ii)	Equity IRR	Equity IRR

Project Submission Form

	Comparable key input values (which constitute more than 20% of total project investment costs and total project revenues, which is applicable as per the specific project situation) (Key differentiating parameter between bundles)		NA	NA
	Same investment decision year		The investment decisions for activities is within one month of each other. 20-September 2017	The investment decisions for activities is within one month of each other. 20-September 2017
	Same investment benchmark applicable for additionality analysis (e.g., Cost of Equity, weighed average cost of capital).		Cost of Equity	Cost of Equity
	Different land costs at two different locations (Key differentiating parameter between bundles)		NA	NA
	Supplying electricity to the different grids/ captive Purposes		PPA with Tamil Nadu Generation and Distribution Corporation Limited	PPA with Tamil Nadu Generation and Distribution Corporation Limited
	Project capacity		100MW	10MW
	Legal ownership of bundles		Narbheram Solar TN Private Limited. With majority stake holding of Narbheram Power & Steel Private Limited	NVR Energy Private Limited. With majority stake holding of Narbheram Power & Steel Private Limited

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

>> Not Applicable as project is a A2 type project with Sub Type 1.

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