المجلس العالمي للبصمة الكربونية
GLOBAL CARBON COUNCIL

Project Submission Form

V3.2 - 2020

Contents

COVER PAGE- Project Submission Form (PSF)	
Complete this form in accordance with the instructions attached at the end of this form.	
BASIC INFORMATION	
Title of the Project Activity	**70 MW Bundled Solar Power Projects by Atria Power**
PSF version number	Version 1.2
Date of completion of this form	14-July-2021
Project Owner(s) (Shall be consistent with De-registered CDM Type B Projects)	1. Atria Solar Power (Ryapte) Pvt. Ltd 2. Atria Solar Power (Chamarajanagar) Pvt Ltd.
Country where the Project Activity is located	India
GPS coordinates of the project site(s)	

Project	Latitude	Longitude
20 MW Project at Ryapte Village, Karnataka	14.177° N	77.439° E
20 MW Project at Tavandi Village, Karnataka	13.978° N	76.541° E
30 MW Project at Kalahalli Village, Karnataka	11.886° N	76.723° E

Eligible GCC Project Type as per the Project Standard

(Tick applicable project type)

☐ **Type A:**

- ☐ Type A1
- ☒ Type A2

☐ **Type B – De-registered CDM Projects:**[1]

- ☐ Type B1
- ☐ Type B2

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

<table>
<tr><td>Minimum compliance requirements</td><td>☒ Real and Measurable GHG Reductions
☒ National Sustainable Development Criteria (if any)
☒ Apply credible baseline and monitoring methodologies
☒ Additionality
☒ Local Stakeholder Consultation Process
☒ Global Stakeholder Consultation Process
☒ No GHG Double Counting
☒Contributes to United Nations Sustainable Development Goal 13(Climate Action)</td></tr>
<tr><td>Choose optional and additional requirements
(Tick applicable label categories)</td><td>☒ Do-no-net-harm Safeguards to address Environmental Impacts
☒ Do-no-net-harm Safeguards to address Social Impacts
☒Contributes to United Nations Sustainable Development Goals (in addition to Goal 13)</td></tr>
<tr><td>Applied methodologies
(Shall be approved by the GCC or the CDM)</td><td>ACM0002 Grid-connected electricity generation from renewable sources, ver 20.0</td></tr>
<tr><td>GHG Sectoral scope(s) linked to the applied methodology(ies)</td><td>Scope 1- Energy Industries (Renewable/Non Renewable sources)</td></tr>
<tr><td>Applicable Rules and Requirements for Project Owners
(Tick applicable Rules and Requirements)</td><td>
<table>
<tr><th colspan="2">Rules and Requirements</th><th>Reference</th><th>Version</th></tr>
<tr><td colspan="2">☒ ISO 14064-2</td><td></td><td></td></tr>
<tr><td colspan="2">☒ Applicable host country legal requirements /rules</td><td></td><td></td></tr>
<tr><td rowspan="6">☒ GCC Rules and Requirements[2]</td><td>☒ Project Standard</td><td></td><td>V3.1</td></tr>
<tr><td>☐ Approved GCC Methodology (XXXXX)</td><td></td><td></td></tr>
<tr><td>☒ Program Definitions</td><td></td><td>V3.1</td></tr>
<tr><td>☒ Environment and Social Safeguards Standard</td><td></td><td>V2.0</td></tr>
<tr><td>☒ Project Sustainability Standard</td><td></td><td>V2.1</td></tr>
<tr><td>☒Instructions in Project Submission Form (PSF)-template</td><td></td><td>V3.2</td></tr>
</table>
</td></tr>
</table>

[2]GCC Program rules and requirements: https://www.globalcarboncouncil.com/resource-centre.html

		☐ Add rows if required		
	☒ CDM Rules[3]	☒ Approved CDM Methodology (XXXXX)	ACM 0002	V20.0
		☒ Tool for the demonstration and assessment of additionality	TOOL 01	V7.0.0
		☐ Combined tool to identify the baseline scenario and demonstrate additionality	TOOL 02	
		☒ Tool to calculate the emission factor for an electricity system	TOOL 07	V7.0
		☐ Demonstration of additionality of microscale project activities	TOOL 19	
		☐ Demonstration of additionality of small-scale project activities	TOOL 21	
		☐ Additionality of first-of-its-kind project activities	TOOL 23	
		☒ Common practice	TOOL 24	V3.1
		☒ Investment analysis	TOOL 27	V10.0
		☐ Positive lists of technologies	TOOL 32	
		☐ Guidelines for objective demonstration and assessment of barriers		
		☐ Add rows if required		
Choose Third Party External Project Verification by approved GCC Verifiers[4] (Tick applicable verification categories)	☒ GHG emission reductions(i.e., Approved Carbon Credits**(ACCs)**) ☒ Environmental No-net-harm Label (**E$^+$**) ☒ Social No-net-harm Label (**S$^+$**) ☒ United Nations Sustainable Development Goals (**SDG$^+$**) ☐ Bronze SDG Label ☐ Silver SDG Label			

[3]CDM Program rules: https://cdm.unfccc.int/Reference/index.html

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

	☐ Gold SDG Label ☒ Platinum SDG Label ☐ Diamond SDG Label ☒ CORSIA requirements (**C$^+$**) ☐ Host Country Attestation on Double counting
Declaration to be made by the Project Owner(s)[5] (Tick all applicable statements)	The Project Owner(s) declares that: ☒The Project Activity complies with the eligibility of the applicable project type (A1, A2, B1 or B2) as stipulated by the Project Standard. ☒ The Project Activity shall start operations, and start generating emission reductions, on or after 1 January 2016. ☒ The Project Activity is eligible to be registered under the GCC program. ☒No carbon credits generated by the proposed Project Activity will be claimed as carbon credits in any other GHG program anywhere in the world, either for compliance or voluntary purposes, for the entire 10-year GCC crediting period. ☒The proposed Project Activity, if Type A, is NOT registered as a GHG Project Activity in any other GHG program or any other voluntary program anywhere in the world. ☒The proposed Project Activity is NOT included as a component Project Activity (CPA) in a registered GHG Programme of Activities (PoA) under any GHG program (such as the CDM or any other voluntary program) anywhere in the world. ☒The proposed Project Activity is NOT a CPA that has been excluded from a registered PoA under any GHG program (such as the CDM or any other voluntary program) anywhere in the world. Provide details (if any) below for the boxes ticked above.
	☒ If a GCC project chooses to apply to use ACCs under CORSIA, the Project Owner(s) is required to declare that they are aware that they must obtain and provide to the GCC and its Registry (operated by IHS Markit) a written attestation from the host country's national focal point (e.g., Ministry of Environment or Civil Aviation Authority) or focal point's designee, as required by CORSIA Emissions Unit Eligibility Criteria, which: ☒ Confirms the avoidance of double counting as required by CORSIA; ☒ Shall be made publicly available prior to the use of units from the host country under CORSIA; and

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

	☒ Places all responsibility on the Project Owner(s) to replace any and all doubly claimed or counted ACCs by the host country, in the GCC registry operated by IHS Markit. Provide details below for the boxes ticked above
	The Project Owner(s) declares that: ☒ 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; ☒ They understand that a failure by them to provide accurate information or data, or concealing facts and information, can be considered as negligence, fraud or willful misconduct. Therefore, they are aware that they are fully responsible for any liability that arises as a result of such actions. Provide details below for the boxes ticked above
Appendixes 1-7	Details about the Project Activity are provided in Appendixes 1 through 7 to this document.
Name, designation, date and signature of the Project Owner(s)	**For** Atria Solar Power (Ryapte) Pvt. Ltd  Puneet Goel Chief Executive Officer Date:14/07/2021
	For Atria Solar Power (Chamarajanagar) Pvt. Ltd.  Puneet Goel Chief Executive Officer Date:14/07/2021
	For Kosher Climate India Private Limited  Vamsi Krishna M Business Head Date:14/07/2021

1. PROJECT SUBMISSION FORM

Section A. Description of the Project Activity

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

The Purpose of this bundled project activity is to generate electricity by harnessing the solar energy by using of solar photovoltaic technology and there by feed the generated electricity to the Indian national grid.

Project activity involves installation of three Solar photovoltaic power generation projects in Karnataka with installed capacities of 20 MW, 20 MW and 30 MW, thus total project capacity comes to 70 MW. The projects are installed in Tumkur, Chitradurga and Chamarajanagara districts of Karnataka State of India. The project is implemented by group companies of Atria Power. All the three projects are commissioned and are currently operational. All the three projects have been connected to the National Grid through the locally available 66/11 kV KPTCL substations.

The generated power from the project activity is supplying to the third party consumers through the wheeling agreement with the DISCOM. Project Owners have signed a Power Purchase agreement with the consumer organizations to supply the generated solar power at contracted unit of price.

Project Name	Project Owner	Capacity (MW)	Purpose	Commissioning date (COD)	District
Project 1	Atria Solar Power (Ryapte) Pvt. Ltd.	20	Sale to third party	24-Jan-2017	Tumkur
Project 2	Atria Solar Power (Chamarajanagar) Pvt Ltd.	20	Sale to third party	09-June-2017	Chitradurga
Project 3	Atria Solar Power (Chamarajanagar) Pvt. Ltd.	30	Sale to third party	25-Jan-2018	Chamarajanagar

The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 110,165 tCO_2e per year, thereon displacing estimated average of 117,874 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant. Project activity will mitigate the total GHG emission reductions of 1,101,651 tCO_2e over the entire crediting period.

Baseline Scenario

The scenario existing prior to the implementation of the project activity, is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the **"Tool to calculate the emission factor for an electricity system".** This is a green field project activity. There was no activity at the site of the project participant prior to the implementation of this project activity. Hence pre-project scenario and baseline scenario is the same.

Sustainable Development Indicators

In addition to contribution to the sustainable environment by reducing the GHG emissions and reducing the dependency on fossil fuels, this project activity also contributing to the sustainable development though supporting the local community and local economy.

Social well-being: The project activity provided / provides job opportunity to local people during erection, commissioning and maintenance of the solar project. Frequency of visiting villages and nearby areas by skilled, technical and industrialist increase due to installation /site visit/operation and maintenance work related to solar plant. This directly and indirectly positively effects the economy of villages and nearby area.

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

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

Technological well-being: The project activity is step forward in harnessing the untapped solar potential and further diffusion of the solar technology in the region. The project activity leads to the promotion and demonstrates the success of solar projects in the region which further motivate more investors to invest in solar power projects. Hence, the project activity leads to technological well-being.

A.2. Location of the Project Activity

All the three projects in the Bundled are located in the state of Karnataka India.

Address and geographic coordinates of the physical site of the project activity

Project	Physical address	Latitude	Longitude
20 MW Project at Ryapte	Ryapte Village, Pavagada Taluk, Tumkur District, Karnataka - 572136	14.177° N	77.439° E
20 MW Project at Tavandi	Tavandi Village, Sooragondahalli Post, Hiriyur Taluk, Chitradurga District, Karnataka - 577599	13.978° N	76.541° E
30 MW Project at Kallahali	Kallahali Village, Gundlupet Taluk, Chamarajanagar District, Karnataka	11.886° N	76.723° E

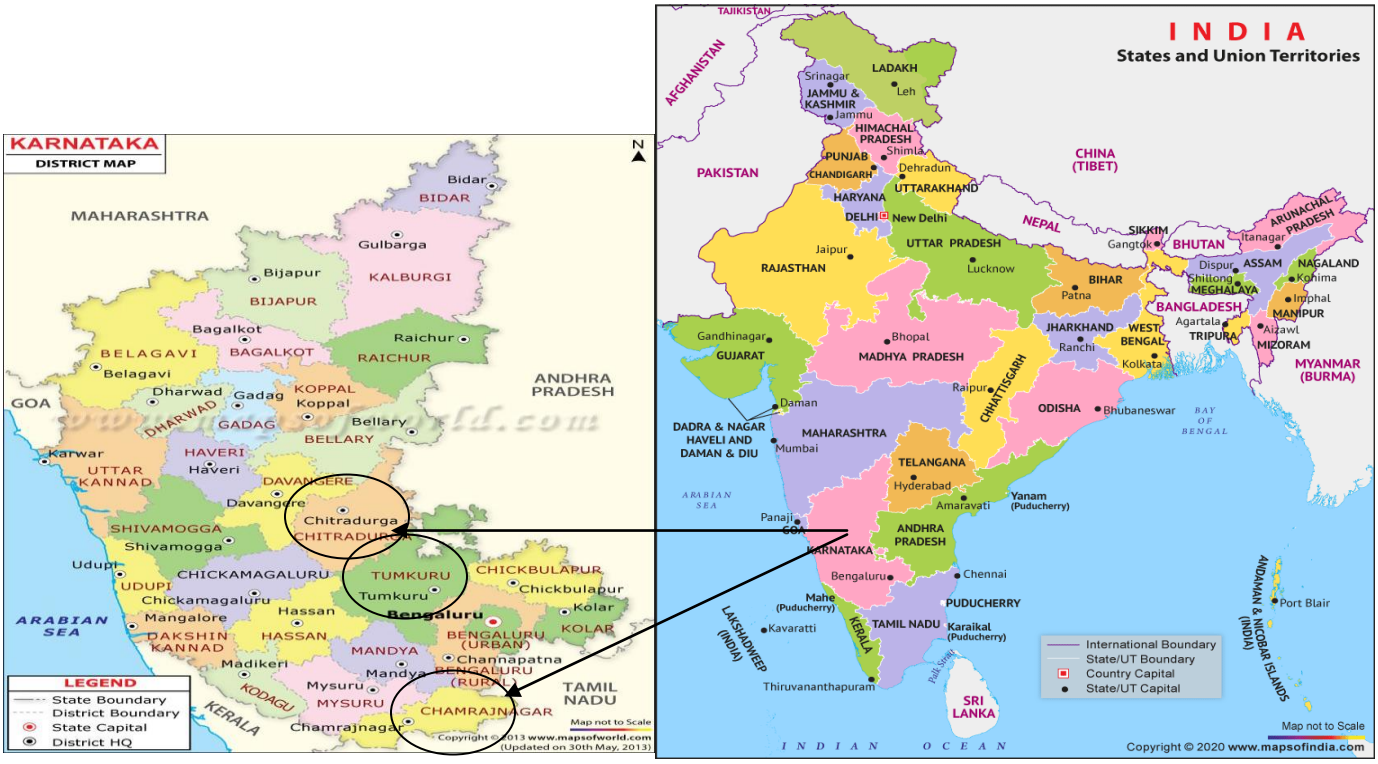


Figure 1: Project location-Administrative map

A.3. Technologies/measures

Project activity used Crystalline Photovoltaic technology to which converts the solar radiation into the electricity. The solar PV plant has the PV modules, Central Inverters, Transformers and other relay and protection system.

Technical specifications of the components used during the project commissioning are given below

Parameter	Project-1	Project-2	Project-3
Project Capacity	DC Capacity- 23 MW AC Capacity- 20 MW	DC Capacity- 24.80MW AC Capacity- 20 MW	DC Capacity- 37.5MW AC Capacity- 30 MW
Technology	Poly Crystalline	Poly Crystalline	Poly Crystalline
PV Modules	JAP6-72-310/3BB-310 Wp JAP6-72-315/3BB-315 Wp	JAP6-72-310/3BB-320 Wp	JAP6-72-310/3BB-320 Wp
	Total No-73540	Total No-77506	Total No-117194
Central Inverter	ABB/PVS800-57-1000 KW	GAMESA E-1.375 MW GAMESA E-1.25 MW	GAMESA E-1.375 MW GAMESA E-1.25 MW
	Total No-20	Total No-10 Each	Total No-20 Total No-22
Mounting Structure	Seasonal tilt	Fixed Tilt	Fixed Tilt
Life time of the project	25 Years	25 Years	25 Years

Solar PV Modules Coverts the available solar radiation into the DC power. Installed Central Inverters will convert the generated DC power into the 400 V AC Power. Total AC power from all the inverter blocks will be pooled into the common switchyard. Total Power will be stepped up to 11 KV in the switchyard by using step p transformers and transmitted to the nearest 66/11kV KPTCL substation.

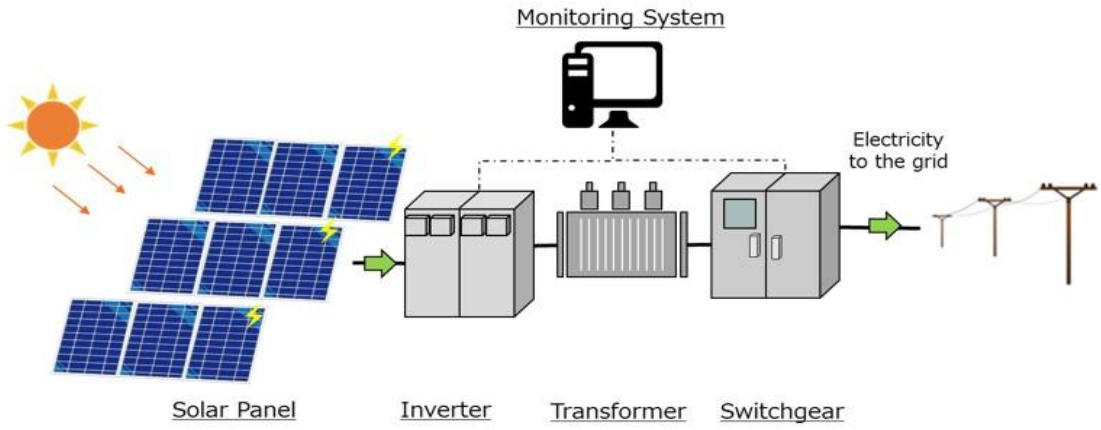


Figure 2: Solar Power plant flow diagram

An intelligent automatic monitoring and alarm system (SCADA) has been already installed in the project control room which will monitor and record the real time data from the plant and alerts the staff in case of any malfunctioning in the equipment operation. However Separate Energy meters have been installed by the DISCOM people to record the import export of electricity from the plant. Monitoring and metering system is explained in detail in the below section B.7.3

A.4. Project Owner(s)

Location/ Country	Project Owner(s)	Where applicable[6], indicate if the host country has provided approval (Yes/No)
India	Atria Solar Power (Ryapte) Pvt Ltd.	No
India	Atria Solar Power (Chamarajanagar) Pvt Ltd.	No

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		
24/01/2017	23/01/2027	CORSIA	For offsetting Green house gasses 1,101,651 tCO_2 for 10 year period

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

A.6. Additional requirements for CORSIA

Explained in Section E and F

[6]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).

Section B. Application of selected methodology(ies)

B.1. Reference to methodology(ies)

The United Nations approved consolidated baseline methodology applicable to this project is ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources", Version – 20.0[7]
Following tolls have been have been referred during the estimation of emission reduction calculations as per the methodology ACM0002.

''Tool to calculate the emission factor for an electricity system'', Version 7.0[9].
"Tool for the demonstration and assessment of additionality", Version 7.0.0[10]
"Tool for the Investment analysis" Version 10.0[11]
"Common practice", Version 3.1[12]

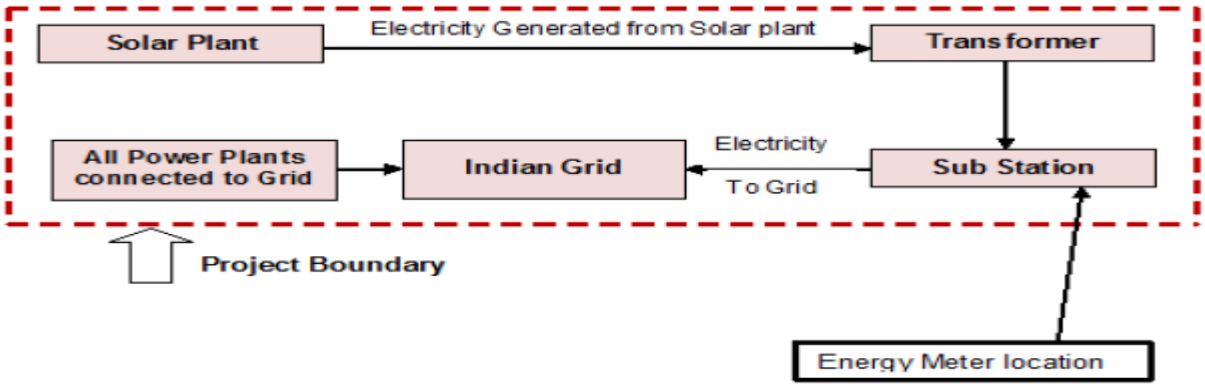
B.2. Applicability of methodology(ies)

- This 85.3 MWp/70 MWac bundled project, involves installed solar energy, green field type, grid connected renewable energy generation project.
- The project does not involve switching from fossil fuel use to renewable energy at the site of the project activity; and
- The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available.

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

The project boundary includes the solar project, sub-stations, grid and all power plants connected to grid. 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.

[7] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG
[9] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[10] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf
[11] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf
[12] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf



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	Grid Connected Electricity Generation	CO_2	Yes	Main Emission Source
		CH_4	No	Minor Emission source
		N_2O	No	Minor Emission source
Project Activity	Greenfield Solar PV Power Project activity	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH4
		N_2O	No	Project activity does not emit N_2O

B.4. Establishment and description of the baseline scenario

An Approved large scale baseline CDM methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, Version 20.0.has been followed along with the “tool to calculate the emission factor for an electricity system, version 7” is used to establish the baseline scenario.

According to the methodology baseline scenario has been identified as “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 involved setting up of Solar Power generation Plant to harness the power of wind to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied to the electricity grid by the operation of

grid-connected power plants (mainly by fossil fuel fired plants) and by the addition of new generation sources, as reflected in the combined margin (CM) calculations.

Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publically available

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

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9346 tCO_2/MWh	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO_2 Emission Database, Version 16.0 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9568 tCO_2/MWh	Operating margin CO_2emission factor for the project electricity system in year y	Calculated as the last 3 year (2017-18, 2018-19 & 2019-20) generation-weighted average, sourced from Baseline CO_2Emission Database, Version 16.0, published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8682 tCO_2/MWh	Build margin CO_2emission factor for the project electricity system in year y	Baseline CO_2 Emission Database, Version 16.0, published by Central Electricity Authority (CEA), Government of India

The baseline case is in compliance with all applicable legal and regulatory requirements references.

B.5. Demonstration of additionality

The additionality of the proposed project activity is demonstrated by following the guidance provided in the GCC project Standard V 3.1.

As per the GCC Project Standard additionality can be demonstrated using the following two components

a) A legal requirement test
b) An Additionality Test either based on a Positive List test or a projects-specific additionality test.

a) Legal requirement test

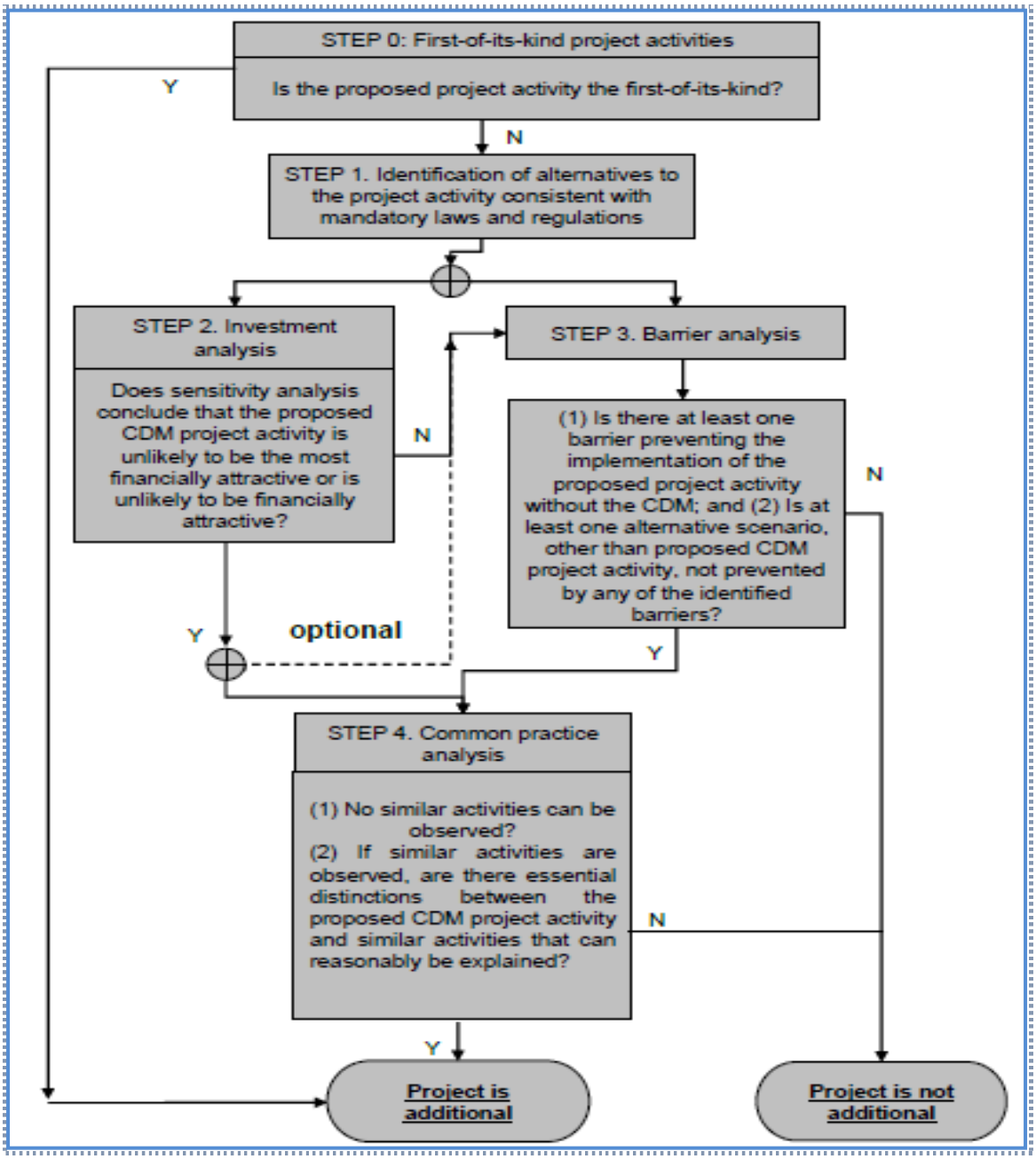
As per the paragraph no 46 of the project standard V3.1 the project is not implemented by the force of law. This is a voluntary activity undertaken by the project owner without enforcing by any legal requirement in the host country. Hence project complies with the legal requirement test.

b) Additionality Test

As per the GCC Project standard V3.1 this project needs to be demonstrating the additionality test based on the Project specific additionality test.

Additionality has been demonstrated as per the applied methodology ACM0002 (Version 20.0). Methodology requires the project participant to determine the additionality based on “Tool for the demonstration and assessment of additionality”, Version 7.0.0.

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



As per the applied methodology requirement, Additionality of the project activity is demonstrated using the Methodological tool “Tool for the demonstration and assessment of additionality” Version 7.0.0. The tool defines the following steps:

Sub 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 as implementation of solar power project in the State is not first of its kind.

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

As per the applied ACM 0002 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 plant and by the addition of new generation sources.*

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

Step 2: Investment Analysis

As per para 29 of "Tool for the demonstration and assessment of additionality" it is determined that the proposed project activity is not an economically attractive or financially feasible option.

To conduct the investment analysis, Methodological tool: Investment analysis, version 10.0, EB 105 Annex 6 has been referred.

Sub-step 2a: Determine appropriate analysis method

As per "Tool for the demonstration and assessment of additionality" (version 7.0.0), for financial analysis of the project, the following three options are available:

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

The project will generate revenues from sale of electricity, therefore Option I is not applicable in line with para 32 of the Methodological tool: "Tool for the demonstration and assessment of additionality", version 7.0.0. Same applies to the Option II which is applied in case there are alternatives to the project activity as per para 42 of the "Tool for the demonstration and assessment of additionality", version 7.0.0.

Since, identified baseline for the proposed project activity is continuation of current practice (i.e. equivalent amount of energy would have been generated by grid electricity system through its currently operating power plants and by new capacity addition) and which is outside the direct control of the project participant, hence benchmark analysis (option III), where the returns on investment in the project activity are compared to benchmark returns that are available to any investors in the country is selected as the most appropriate method.

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

As per para 15 of EB 105 Annex 6 states that Required/expected returns on equity are appropriate benchmarks for equity IRR. The project participant has chosen benchmark analysis to demonstrate the additionality of the project. The project is promoted by private limited company and hence the return on equity and the risks associated with the investments for their shareholder is of primary

concern. Hence, in order to analyse the financial viability of the project activity, the prime financial indicator that has been used is the post-tax equity IRR of the project activity.

Selection of Appropriate Benchmark

The benchmark has been considered in accordance with Guidance 19 of EB 105 Annex 6, "The values in the table in the Appendix may also be used, as a simple default option".

Methodology deployed for arriving at a suitable value of Benchmark using Default Value has been described below:

- As the proposed project activity generates power utilizing wind energy, Group 1 as per para 5a of Appendix of EB 105 Annex 6 has been identified as a suitable category.

- The investment analysis has been carried out in Nominal terms. Accordingly, Default value as given in table under the Appendix, EB 105 Annex 6 has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India).

- In case of inflation data from RBI, Benchmark has been calculated based on WPI median inflation rate. As per Para 16 of EB105, Annex 6, the inflation forecast should be for the duration of the crediting period. However, since RBI provides forecast inflation only for 5 & 10 years, the project investor has calculated benchmark using 5 year & 10 Years forecast and the most conservative value is considered as Benchmark for the project activity.

The decision-making year for all the 3 independent projects in the bundle is in the same financial year 2015-16 and hence applicable inflation rate is same along with resultant benchmark.

The benchmark has been computed in the following manner:

Default Value Benchmark:

The cost of equity is determined by selecting the values provided in the table of the Appendix, i.e. Default values for cost of equity (expected return on equity) in the 'Methodological tool: Investment analysis'.

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

Nominal Benchmark[13] = {(1+Real Benchmark)*(1+Inflation rate)}-1

Where:
Default value for Real Benchmark = 10.24% (as per Appendix of EB 105, Annex 86)

[13] As per Pg. 320 of Corporate Finance, Second Edition of Aswath Damodaran

Inflation Rate forecast for by Reserve Bank of India (RBI) (i.e. Central Bank of India) for India.

Benchmark estimation:

The Cost of Equity has been considered using the "Methodological tool: Investment analysis" available at the time of decision making as well as the latest available value. As a conservative approach, the minimum value of benchmark has been considered as calculated using these 2 approaches.

Table under Appendix in EB105, Annex 6 specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = **10.24%**[14]

Thus, minimum cost of equity considered for calculation of Benchmark = 10.24%

Inflation Forecast for India as per RBI website[15] and corresponding benchmark values applicable at the time of investment decision time:

Project	Inflation Forecast		Benchmark	
	5 Years	10 Years	5 Years	10 Years
Project 1, 2 and 3	5%	4.7%	15.75%	15.42%

As a conservative approach, benchmark of **15.42%** has been selected for all the three projects.

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

The period considered for Post Tax Equity IRR calculations is 25 years, which corresponds to the operational lifetime of the project activity.

Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, is added back to net profits for the purpose of calculating the financial indicator.

Input values considered for the IRR calculation are provided below.

Project 1 (20 MW Ryapte):

Particulars	Value	Unit	Source/Remarks
DC Capacity of the project	23.02	MWp	PIM Dated December 2016
Capacity of the project	20	MW	PIM Dated December 2016
Plant Load Factor	20.00%	%	PIM Dated December 2016
Annual Net generation	35.0400	GWh	Calculated

[14] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v10.0.pdf

[15] https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=16828

https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=17398

Annual Degradation	0.7%	%	
Project cost	1123.85	INR Million	PIM Dated December 2016
Debt	75%	%	PIM Dated December 2016
Equity	25%	%	
Debt	842.89	INR Million	Calculated
Equity	280.96	INR Million	Calculated
Interest rate	11.50%	%	PIM Dated December 2016
Debt Repayment tenure	15	years	PIM Dated December 2016
Moratorium	1	year	
Operation and Maintenance (First Two years)	0.0	INR Million	PIM Dated December 2016
Operation and Maintenance (3rd year) per MW	0.60	INR Million/MWp	PIM Dated December 2016
Operation and Maintenance (3rd year)	13.8	INR Million	Calculated
Escalation in O & M	5%	%	PIM Dated December 2016
Service tax on O & M fees	18.00%	%	As per prevailing tax rates
Insurance & overhead	7.91	INR Million / Yr	As per quotation received from Insurance companies for this project activity
Tariff	5.6	Rs/kWh	PIM Dated December 2016
Depreciation Rate (Book)	13.00%	%	PIM Dated December 2016
IT Depreciation Rate	15.00%	%	PIM Dated December 2016
Income tax rate	34.61%	%	Calculated
MAT rate	21.34%	%	Calculated
Salvage Value	10%	%	

Tax Rates

Financial Year	FY 2016-17		
Income tax rate (%)	30.00%	Indian IT Act for FY 2016-17	
MAT (%)	18.50%	Indian IT Act for FY 2016-17	
Surcharge (%)	12.00%	Indian IT Act for FY 2016-17	
Education cess (%)	3.00%	Indian IT Act for FY 2016-17	

Final Tax rates

Income tax rate (%)	34.61%	%	Calculated
MAT (%)	21.34%	%	Calculated

Project 2 (20 MW Hiriyur):

Particulars	Value	Unit	Source/Remarks
DC Capacity of the project	25	MWp	PIM Dated December 2016
Capacity of the project	20	MW	PIM Dated December 2016
Plant Load Factor	21.10%	%	PIM Dated December 2016
Annual Net generation	36.9672	GWh	Calculated
Annual Degradation	0.7%	%	
Project cost	1320.40	INR Million	PIM Dated December 2016
Debt	75%	%	PIM Dated December 2016
Equity	25%	%	
Debt	990.30	INR Million	Calculated
Equity	330.10	INR Million	Calculated
Interest rate	11.00%	%	PIM Dated December 2016
Debt Repayment tenure	16	years	PIM Dated December 2016
Moratorium	1	year	
Operation and Maintenance (First Two years)	0.0	INR Million	PIM Dated December 2016
Operation and Maintenance (3rd year) per MW	0.60	INR Million/MWp	PIM Dated December 2016
Operation and Maintenance (3rd year)	15.0	INR Million	Calculated
Escalation in O & M	5%	%	PIM Dated December 2016
Service tax on O & M fees	18.00%	%	As per prevailing tax rates
Insurance & overhead	7.91	INR Million / Yr	As per quotation received from Insurance companies for this project activity
Tariff	5.3	Rs/kWh	PIM Dated December 2016
Escalation in tariff	0.00%	%	PIM Dated December 2016
Depreciation Rate (Book)	13.00%	%	PIM Dated December 2016
IT Depreciation Rate	15.00%	%	PIM Dated December 2016
Income tax rate	34.61%	%	Calculated
MAT rate	21.34%	%	Calculated
Salvage Value	10%	%	

Tax Rates

Financial Year	FY 2016-17		
Income tax rate (%)	30.00%	Indian IT Act for FY 2016-17	
MAT (%)	18.50%	Indian IT Act for FY 2016-17	
Surcharge (%)	12.00%	Indian IT Act for FY 2016-17	

Education cess (%)	3.00%	Indian IT Act for FY 2016-17	

Final Tax rates

Income tax rate (%)	34.61%	%	Calculated
MAT (%)	21.34%	%	Calculated

Project 3 (30 MW Kallaahalli):

Particulars	Value	Unit	Source/Remarks
DC Capacity of the project	37.5	MWp	PIM Dated December 2016
Capacity of the project	30	MW	PIM Dated December 2016
Plant Load Factor	21.50%	%	PIM Dated December 2016
Annual Net generation	56.5020	GWh	Calculated
Annual Degradation	0.7%	%	
Project cost	1835.40	INR Million	PIM Dated December 2016
Debt	75%	%	PIM Dated December 2016
Equity	25%	%	
Debt	1376.55	INR Million	Calculated
Equity	458.85	INR Million	Calculated
Interest rate	11.50%	%	PIM Dated December 2016
Debt Repayment tenure	16	years	PIM Dated December 2016
Moratorium	1	year	
Operation and Maintenance (First Two years)	0.0	INR Million	PIM Dated December 2016
Operation and Maintenance (3rd year) per MW	0.60	INR Million/MWp	PIM Dated December 2016
Operation and Maintenance (3rd year)	22.5	INR Million	Calculated
Escalation in O & M	5%	%	PIM Dated December 2016
Service tax on O & M fees	18.00%	%	As per prevailing tax rates
Insurance & overhead	11.86	INR Million / Yr	As per quotation received from Insurance companies for this project activity
Tariff	4.93	Rs/kWh	PIM Dated December 2016
Escalation in tariff	0.00%	%	PIM Dated December 2016
Depreciation Rate (Book)	13.00%	%	PIM Dated December 2016
IT Depreciation Rate	15.00%	%	PIM Dated December 2016
Income tax rate	34.61%	%	Calculated
MAT rate	21.34%	%	Calculated
Salvage Value	10%	%	

Tax Rates

Financial Year	FY 2016-		

	17		
Income tax rate (%)	30.00%	Indian IT Act for FY 2016-17	
MAT (%)	18.50%	Indian IT Act for FY 2016-17	
Surcharge (%)	12.00%	Indian IT Act for FY 2016-17	
Education cess (%)	3.00%	Indian IT Act for FY 2016-17	

Final Tax rates

Income tax rate (%)	34.61%	%	Calculated
MAT (%)	21.34%	%	Calculated

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

Project 1 Post tax Equity IRR	8.16%
Project 2 Post tax Equity IRR	8.66%
Project 3 Post tax Equity IRR	8.41%
Benchmark Value	15.42%

Integrated IRR for total project capacity

Project proponent also calculated the Post tax Equity IRR by integrating the total cash flows of all three projects to check the viability of the project against the benchmark value. Still it is evident that the combined project is also not financially viable as the equity IRR is still less below the benchmark

Total project bundle Post tax Equity IRR	8.40%
Benchmark Value	15.42%

Sensitivity Analysis

The robustness of the conclusion drawn above, namely that the project is not financially attractive, has been tested by subjecting critical assumptions to reasonable variation. As required by Annex 08 of EB 97, only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation. PP has identified the total revenue from the project activity is dependent on the Tariff, Plant Load Factor, Project Cost and O&M Costs constitute more than 20% of the project costs. These factors have been subjected to a 10% variation on either side and the results of the sensitivity analysis

indicate that even after applying such variation the EIRR does not cross the benchmark.

Project 1 (20 MW Ryapte):

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Value required to reach benchmark
Tariff (INR/KWh)	5.04%	8.16%	12.62%	16.30%	6.510
PLF (%)	5.04%	8.16%	12.62%	16.30%	23.26%
Project Cost (Mn INR)	12.48%	8.16%	4.96%	-16.00%	1123.85
O&M Cost (Mn INR)	8.92%	8.16%	7.17%	NA	NA

An analysis has been done to identify the percentage variation at which the financial indicators will equal/breach the benchmark and the probability of its occurrence. Based on sensitivity analysis it can be concluded that the proposed project activity is additional with reasonable variation in values and is not likely to reach the benchmark value. The occurrence of these events is unlikely for the following reasons:

a) **Tariff:** The Tariff rate of electricity used for investment analysis i.e. 5.6 INR/kWh is sourced from the TEV estimate applicable at the time of investment decision. Furthermore, the project will breach the benchmark value at a tariff variation of 16.30%. However, the actual tariff based on the PPAs signed is close to the estimated tariff and much below the tariff value required benchmarking value. Hence, 16.30% increase in tariff is unlikely.

b) **PLF:** The PLF value considered is based on TEV which is the Third Party PLF report i.e. 20% and the IRR breach the benchmark value at a PLF variation of more than 16.3%. The increase in PLF value to breach the benchmark is highly unlikely as the PLF is estimated with the estimated annual radiation assessment and equity IRR at normative PLF values are less than the benchmark value and given the analysis above it's highly unlikely that PLF will increase above breaching value.

c) **Project Cost:** The project cost considered for investment analysis i.e. 1330 million INR. The cost is sourced from TEV which is based on the negotiations with Supplier. A variation of -15.5% is required for IRR to breach benchmark which is not possible as the project is already commissioned. The actual cost incurred in commissioning of the project is also same and which is within the sensitivity applied.

d) **O&M Costs:** The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. The O&M contract has been executed at INR 0.36 Mn/MW from the 3rd year at which also the equity IRR is much below the benchmark value.

Project 2 (20 MW Hiriyur):

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Value required to reach benchmark
Tariff (INR/KWh)	4.06%	8.66%	13.58%	14.00%	6.042
PLF (%)	4.06%	8.66%	13.58%	14.00%	24.05%
Project Cost (Mn INR)	13.39%	8.66%	5.05%	-14.00%	1135.54
O&M Cost (Mn INR)	9.55%	8.66%	7.50%	NA	NA

An analysis has been done to identify the percentage variation at which the financial indicators will equal/breach the benchmark and the probability of its occurrence. Based on sensitivity analysis it can be concluded that the proposed project activity is additional with reasonable variation in values and is not likely to reach the benchmark value. The occurrence of these events is unlikely for the following reasons:

a) **Tariff:** The Tariff rate of electricity used for investment analysis i.e. 5.3 INR/kWh is sourced from the TEV estimate applicable at the time of investment decision. Furthermore, the project will breach the benchmark value at a tariff variation of 14.0%. However, the actual tariff based on the PPAs signed is close to the estimated tariff and much below the tariff value required benchmarking value. Hence, 14.0% increase in tariff is unlikely.

b) **PLF:** The PLF value considered is based on TEV which is the Third Party PLF report i.e. 21.10% and the IRR breach the benchmark value at a PLF variation of more than 14.0%. The increase in PLF value to breach the benchmark is highly unlikely as the PLF is estimated with the estimated annual radiation assessment and equity IRR at normative PLF values are less than the benchmark value and given the analysis above it's highly unlikely that PLF will increase above breaching value.

c) **Project Cost:** The project cost considered for investment analysis i.e. 1320.4 million INR. The cost is sourced from TEV which is based on the negotiations with Supplier. A variation of -14% is required for IRR to breach benchmark which is not possible as the project is already commissioned. The actual cost incurred in commissioning of the project is also same and which is within the sensitivity applied.

e) **O&M Costs:** The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. The O&M contract has been executed at INR 0.35 Mn/MW from the 3rd year at which also the equity IRR is much below the benchmark value.

Project 3 (30 MW Kallaahalli):

Variation %	-10%	Normal	10%	Variation required to reach benchmark	Value required to reach benchmark
Tariff (INR/KWh)	3.77%	8.41%	13.39%	14.00%	5.620
PLF (%)	3.77%	8.41%	13.39%	14.00%	24.28%
Project Cost (Mn INR)	13.16%	8.41%	4.81%	-14.00%	1578.44
O&M Cost (Mn INR)	8.93%	8.41%	7.77%	NA	NA

An analysis has been done to identify the percentage variation at which the financial indicators will equal/breach the benchmark and the probability of its occurrence. Based on sensitivity analysis it can be concluded that the proposed project activity is additional with reasonable variation in values and is not likely to reach the benchmark value. The occurrence of these events is unlikely for the following reasons:

a) **Tariff:** The Tariff rate of electricity used for investment analysis i.e. 4.93 INR/kWh is sourced from the TEV estimate applicable at the time of investment decision. Furthermore, the project will breach the benchmark value at a tariff variation of 14.0%. However, the actual tariff based on the PPAs signed is same as the estimated tariff and much below the tariff value required benchmarking value. Hence, 14.0% increase in tariff is unlikely.

b) **PLF:** The PLF value considered is based on TEV which is the Third Party PLF report i.e. 21.30% and the IRR breach the benchmark value at a PLF variation of more than 14.0%. The increase in PLF value to breach the benchmark is highly unlikely as the PLF is estimated with the estimated annual radiation assessment and equity IRR at normative PLF values are less than the benchmark value and given the analysis above it's highly unlikely that PLF will increase above breaching value.

c) **Project Cost:** The project cost considered for investment analysis i.e. 1835.4 million INR. The cost is sourced from TEV which is based on the negotiations with Supplier. A variation of -14% is required for IRR to breach benchmark which is not possible as the project is already commissioned. The actual cost incurred in commissioning of the project is also same and which is within the sensitivity applied.

f) **O&M Costs:** The sensitivity analysis reveals that O&M will breach the benchmark at negative values and is hypothetical case. Since the O&M cost is subject to escalation (as evidence by the O&M agreement) and also subject to inflationary pressure, any reduction in the O&M costs is highly unlikely. The O&M contract has been executed at INR 0.35 Mn/MW from the 3rd year at which also the equity IRR is much below the benchmark value.

Total Project (Integrated cash flows)

Variation %	-10%	Normal	10%	Variation required to reach benchmark
Tariff (INR/KWh)	3.92%	8.40%	13.20%	14.50%
PLF (%)	3.92%	8.40%	13.20%	14.50%
Project Cost (Mn INR)	13.01%	8.40%	4.93%	-14.00%
O&M Cost (Mn INR)	8.87%	8.40%	7.81%	NA

It is evident that even with the variation of +/- 10% of the major parameters the equity IRR is below the benchmark. Probability of the breaching the benchmark analysis has been provide for each individual project and none of the project case the occurrence of its happening is not possible. Hence in case of total project case also it is deemed applicable.

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

Step 4: Common practice analysis
Atria Power Corporation private limited as a parent company formed different SPV (Special purpose vehicles) for solar projects and projects are developed by name of SPVs. Thus common practice analysis has been carried out for the large scale bundled project activity.

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

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

Project 1, 2 & 3:

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

The capacity of the project activity is 70 MW and hence the output range as per the guideline is selected to be 35 MW to 105 MW.

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

a) The projects are located in Karnataka state of India. However, each state have different tariff order, thus each state have different investment climate. Therefore, projects located in Karnataka state have been chosen for analysis.
b) The projects applying same measure (i.e, only renewable energy through Solar) are selected as the proposed project activity is wind power project.
Therefore, all projects applying same measure (b) as the proposed project activity are candidates for similar projects.
c) The energy source used by the project activity is Solar. Hence, only solar energy projects have been considered for analysis.
d) The project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects.
e) The capacity range of the projects is within the applicable capacity range for the chosen projects (Project 1, 2 & 3 : 35 MW to 105 MW)
f) The start date for the three projects is 02nd May 2016, 31st Jan 2017 and 27th Feb 2017. As Kyoto Protocol was ratified by India on 26/08/2002[16], therefore projects which had started commercial operation between 26/08/2002 to Project 1 start date i.e 02nd May 2016.

Numbers of Similar projects identified, which fulfill above-mentioned conditions are
N_{solar} = 0

The projects considered for analysis are sourced from list of commissioned solar projects commissioned till date published in the Karnataka Renewable Energy Development (KREDEL) website[17]. Document will be submitted to DOE for verification.

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}.*

[16] http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php

[17] https://kredlinfo.in/solargrid/sglist/Solar_alot_com_list.pdf

CDM/VCS/GS/GCC and EU-ETS project activities, which have got registered, submitted for registration 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, submitted for registration and under validation projects the total number of projects,

$\mathbf{N_{all}}$ = 0

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

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 sells the electricity to third parties, the wind projects which are installed with other category power supply (ie, sale to electricity board & captive) are considered as different technology. This is appropriate as per para 12 (d) of common practice tool which defines the different technology based on Investment climate. Since, the third party sale does not have benefits of other mode of power sale such as long term PPA and single point delivery etc.

Therefore, it can be assumed that the investment risk is different for the third party power sale compared to other mode of power sale and hence projects installed with mode of power sale other than third party sale have been considered in N_{diff}. Therefore, these projects come under different investment climate and have been considered under N_{diff}. For proposed project activity, there are no any different technology project considered out of similar identified projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating Ndiff projects.

$\mathbf{N_{diff}}$ = 0

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 $\mathbf{F = 1-N_{diff}/N_{all}}$

$\mathbf{F}$ = 1-(0/0) = **1**

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 greater than 0.2 and Nall - Ndiff is greater than 3. Thus if both conditions are fulfilled, then project activity will be a common practise. Otherwise, the project activity is treated as not a common practise.

Outcome of Step 5:
As,

i. F = 1; which is greater than 0.2
ii. Nall - Ndiff = 0; which is not greater than 3

The project activity does not satisfy second condition. 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

B.6.1. Explanation of methodological choices

As per the paragraph 54 of the methodology ACM0002 Version 20.0 emission reductions are calculated as follows

Emission Reductions

$ERy=BEy-PEy$

Where

ERy = Emission reductions in year *y* (t CO_2e/yr)
BEy =Baseline emissions in year *y* (t CO_2/yr)
PEy =Project emissionsin year y (t CO_2/yr)

Baseline Emissions

As per the approved consolidated Methodology ACM0002 version 20.0 that Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid- connected power plants. The baseline emissions are to be calculated as follows:

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

Where,

BE_y = Baseline emissions in year y (t CO_2/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 CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO_2/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:

Project	**$EG_{facility, y}$ (MWh)**
Project 1	35,040
Project 2	36,967
Project 3	56,502
Total	128,509

As per the methodology combined margin grid emission factor has been calculated as per the **"Tool to calculate the grid emission factor for an Electricity System"** version 7.0

CO_2 Baseline Database for the Indian Power Sector, Version 16, Mar 2021[18] published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

As per the "Tool to calculate the emission factor for an electricity system" Version 7.0, the following steps have been followed.

(a) **Step 1:** Identify the relevant electricity systems;
(b) **Step 2:** Choose whether to include off-grid power plants in the project electricity system (optional);

[18] https://cea.nic.in/wp-content/uploads/baseline/2021/06/2019_20_CO2_database.zip

(c) **Step 3:** Select a method to determine the operating margin (OM);
(d) **Step 4:** Calculate the operating margin emission factor according to the selected method;
(e) **Step 5:** Calculate the build margin (BM) emission factor;
(f) **Step 6:** Calculate the combined margin (CM) emission factor.

Step 1: Identify the relevant electricity systems

As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems". It also states that "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used". Keeping this into consideration, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into five regional grids viz. Northern, Eastern, Western, North-eastern and Southern.

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.

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 Participant 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, wind, low cost biomass, nuclear and solar generation.

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)						
	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**
India	16.8%	15.1%	14.6%	14.3%	14.5%	17.0%

Data Source: Central Electricity Authority (CEA) database Version 16, Mar'2021[19]

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 the system, not including low-cost/must-run power plants/units.

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

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

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

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

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

[19] https://cea.nic.in/wp-content/uploads/baseline/2021/06/2019_20_CO2_database.zip

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2017-18	2018-19	2019-20
INDIAN Grid	960,693	995,957	965,009

Simple Operating Margin (tCO_2/MWh) (incl. Imports)			
	2017-18	2018-19	2019-20
INDIAN Grid	0.9543	0.9603	0.9555

Weighted Generation Operating Margin	
INDIAN Grid	**0.9568**

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

Option 1 as described above is chosen 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 PDD and is fixed for the entire crediting period.

Build Margin (tCO_2/MWh) (not adjusted for imports)	
	2019-20
INDIAN Grid	**0.8682**

STEP 6: Calculate the combined margin (CM) emissions factor

Combined Margin – The combined margin is the weighted average of the simple operating Margin and the build margin. In particular, for intermittent and non-dispatch able generation types such as wind and solar photovoltaic, the Tool to calculate the emission factor for an electricity system, Version 7.0.0, EB 100, Annex 4, allows to weigh the operating margin and Build margin at 75% and 25%, respectively for wind and solar projects and 50% and 50%, respectively for hydro and biomass projects.

The baseline emission factor is calculated using the combined margin approach as described in the following steps:

Calculation of Baseline Emission Factor EF_y

The baseline emission factor **EF_y** is calculated as the weighted average of the Operating Margin emission factor **($EF_{OM,y}$)** and the Build Margin emission factor **($EF_{BM,y}$)**:

$EF_y = w_{OM} * EF_{OM,y} + w_{BM} * EF_{BM,y}$

Where,

W_{OM} 75% weight for solar energy projects
W_{BM} 25% weight for solar energy projects
$EF_{OM,y}$ calculated as described in Steps 3&4 above (tCO_2/MWh)
$EF_{BM,y}$ calculated as described in Steps 5 above (tCO_2/MWh)

Baseline Emission factor (INDIAN Grid) = 0.75*0.9568 + 0.25*0.8682
= 0.9346 tCO_2/MWh

The baseline emission factor is ex-ante parameter and will remain constant throughout the crediting period.

$EF_{grid,,}$ =	Combined Margin Grid Emission Factor = 0.9346 **tCO_2/MWh**

Project Emissions:
As per the approved consolidated Methodology ACM0002 (Version 20.0) para 31: "For most renewable energy power generation project activities, PEy = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$PEy = PE_{FF},y + PE_{GP},y + PE_{HP},y$

PEy = Project emissions in year y (t CO2e/yr)
$PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO2/yr)
PE_{GP},y = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO2e/yr)
PE_{HP},y = Project emissions from water reservoirs of hydro power plants in year y (tCO2e/yr)

As the project activity is the installation of a new grid-connected solar Power plant and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ are equal to zero and thus, PEy = 0.

Leakage Emissions:
No other leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.

Hence Emission reductions will calculated as per the below equation

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

B.6.2. Data and parameters fixed ex ante

Data / Parameter Table 1.

Data / Parameter:	$EF_{grid,OM,y}$
Methodology reference	ACM0002
Data unit	tCO2/MWh
Description	Operating Margin CO2 emission factor in year y of Indian Grid.
Measured/calculated /default	Calculated
Data source	Calculated from CEA database, Version 16, March2021
Value(s) of monitored parameter	0.9568
Measurement/ Monitoring equipment (if applicable)	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" using data from Central Electricity Authority of India's (CEA) "*Baseline Carbon Dioxide Emission Database Version 16*". The value used is calculated ex-ante as generation based weighted average of last three years of the operating margin provided in the CEA database. Weighted average = $\sum_{i=1 \text{ to } n}$ (Net generation in operating margin in year i * Simple operating margin in year i)/$\sum_{i=\ 1 \text{ to } n}$ (Net generation in operating margin of year i)
Measuring/reading/ recording frequency (if applicable)	Not Applicable as the value is fixed ex-ante for entire crediting period.
Calculation method (if applicable)	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" version 7
QA/QC procedures	NA
Purpose of data	Baseline Emission calculation
Additional comments	The operating margin emission factor is a 3-year generation-weighted average (2017-20). The operating Margin is calculated ex ante and fixed during the crediting period

Data / Parameter:	$EF_{grid,BM,y}$
Methodology reference	ACM0002
Data unit	tCO_2/MWh
Description	Build Margin CO2 emission factor in year y of Indian Grid
Measured/calculated /default	Calculated
Data source	Calculated from CEA database, Version 16, March 2021

Value(s) of monitored parameter	0.8682
Measurement/ Monitoring equipment (if applicable)	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" using data from Central Electricity Authority of India's (CEA) "*Baseline Carbon Dioxide Emission Database Version 16*". The value is calculated ex-ante as most recent build margin provided by the CEA
Measuring/reading/ recording frequency (if applicable)	Not Applicable as the value is fixed ex-ante for entire crediting period.
Calculation method (if applicable)	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" version 7
QA/QC procedures	NA
Purpose of data	Baseline Emission calculation
Additional comments	The Build Margin would be calculated ex ante and fixed during the crediting period. For ex ante calculation the most recent data (2019-20) available has been used and the build margin is thus calculated.

Data / Parameter:	$EF_{grid,CM,y}$
Methodology reference	ACM0002
Data unit	tCO2/MWh
Description	Combined Margin CO_2 emission factor in year y of Indian Grid
Measured/calculated /default	Calculated
Data source	Calculated from CEA database, Version 16, March 2021
Value(s) of monitored parameter	0.9346
Measurement/ Monitoring equipment (if applicable)	The date has been considered in accordance to the Tool to calculate emission factor of an electricity system. The tool guides to take 75% weightage of EF_{grid}, OM_{simple}, & 25% weightage of $EF_{grid,BM,y}$.
Measuring/reading/ recording frequency (if applicable)	Not Applicable as the value is fixed ex-ante for entire crediting period.
Calculation method (if applicable)	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" version 7
QA/QC procedures	NA
Purpose of data	Baseline Emission calculation
Additional comments	The combined margin would be calculated ex-ante and fixed for the entire crediting period and the combined margin thus calculated is 0.9346.

B.6.3. Ex-ante calculation of emission reductions

The ex-ante emission reductions (ERy) for the project activity are calculated as follows

$$ERy = BEy – PEy – LEy$$

Where,
ERy = Emission Reduction in tCO2/year
BEy = Baseline emission in tCO2/year
PEy = Project emissions in tCO2/year
LEy = Leakage Emissions in tCO2/year

Baseline Emissions (BEy):

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.

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

AS per para 4 of ACM0002, version 20.0, when the project activity is installation of Greenfield power plant, then:

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

Where,

$EG_{facility,y}$ = Total quantity of net electricity delivered to the INDIAN grid in year y (MWh/yr)

$EF_{grid,CM,y}$ = Baseline grid emission factor (t CO_2/MWh)

= 0.9346 t CO_2/MWh

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

Project	**$EG_{facility, y}$ (MWh)**
Project 1	35,040
Project 2	36,967
Project 3	56,502
Total	128,509

As per section B.6.1 above, the combined margin grid emission factor ($EF_{grid,CM,y}$) is 0.9346 tCO_2/MWh
Hence the annual baseline emission is calculated as below:

Project	$EG_{facility,\ y}$ (MWh)	Emission factor (tCO2/MWh	Baseline emission (tCO2)
Project 1	35,040	0.9346	32,748
Project 2	36,967	0.9346	34,550
Project 3	56,502	0.9346	52,807
Total	128,509	0.9346	120,105

$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ = 128,509 MWh **x** 0.9346 tCO_2/MWh = **120,105 tCO_2**

Project Emissions (PEy):

As explained in the above section B.6.2 Project emissions from the project activity is considered Zero.

PEy = 0

Leakage Emissions (LEy):

As explained in the above section B.6.2 Project emissions from the project activity is considered Zero.

LEy =0

Emission Reductions (ERy):

ERy = BEy-PEy-LEy

Since the project and leakage emissions are estimated as zero

ERy = BEy

Project	Emission Reductions (tCO2)
Project 1	32,748
Project 2	34,550
Project 3	52,807
Total	120,105

Considering the different commissioning date of each project and annual degradation, the emission reduction estimation for the entire crediting period is provided in the below section.

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

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
24-Jan-2017 to 23-Jan-2018	54,609	0	0	54,609
24-Jan-2018 to 23-Jan-2019	119,634	0	0	119,634
24-Jan-2019 to 23-Jan-2020	118,796	0	0	118,796
24-Jan-2020 to 23-Jan-2021	117,965	0	0	117,965
24-Jan-2021 to 23-Jan-2022	117,139	0	0	117,139
24-Jan-2022 to 23-Jan-2023	116,319	0	0	116,319
24-Jan-2023 to 23-Jan-2024	115,505	0	0	115,505
24-Jan-2024 to 23-Jan-2025	114,696	0	0	114,696
24-Jan-2025 to 23-Jan-2026	113,893	0	0	113,893
24-Jan-2026 to 23-Jan-2027	113,096	0	0	113,096
Total	1,101,651	0	0	1,101,651
Total number of crediting years	10			
Annual average over the crediting period	**110,165**	**0**	**0**	**110,165**

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data / Parameter Table 02.

Data / Parameter:	$EG_{facility,y}$
Methodology reference	ACM0002
Data unit	MWh/Year
Description	Quantity of net electricity generation supplied by the project (Solar) plant/unit to the grid in year y
Measured/calculated/default	Measured & Calculated
Data source	Credit note/ JMR/Form B reports/ monthly generation report from state

<table>
<tr><td></td><td>electricity board/DISCOM</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>
<table>
<tr><th>Project</th><th>Value Monitored (MWh)</th></tr>
<tr><td>Project 1</td><td>35,040</td></tr>
<tr><td>Project 2</td><td>36,967</td></tr>
<tr><td>Project 3</td><td>56,502</td></tr>
<tr><td>Total</td><td>128,509</td></tr>
</table>
</td></tr>
<tr><td>Measurement/ Monitoring equipment</td><td>Energy meters of accuracy class 0.2s.
Main and Check meters are installed at the KPTCL substation by the electricity utility to measure the net exported electricity from the plant.
<table>
<tr><th>Project 1</th><th>Main Mater</th><th>Check Meter</th></tr>
<tr><td>Type of meter</td><td colspan="2">Trivector Bidirectional meters</td></tr>
<tr><td>Location of meter</td><td colspan="2">KPTCL Substation</td></tr>
<tr><td>Accuracy of meter</td><td colspan="2">0.2s</td></tr>
<tr><td>Serial number of meter</td><td>15626495</td><td>16102061</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">Once in 5 years</td></tr>
<tr><td>Date of Calibration/ validity</td><td colspan="2">Date of Calibration: 06-11-2020
Validity: 05-11-2025</td></tr>
<tr><td>Reference No. of Calibration Certificate</td><td colspan="2">AEE (Ele)/NCE/CTA/20-21/11182</td></tr>
<tr><td>Calibration Status</td><td>Calibrated</td><td>Calibrated</td></tr>
<tr><th>Project 2</th><th>Main Mater</th><th>Check Meter</th></tr>
<tr><td>Type of meter</td><td colspan="2">Trivector Bidirectional meters</td></tr>
<tr><td>Location of meter</td><td colspan="2">KPTCL Substation</td></tr>
<tr><td>Accuracy of meter</td><td colspan="2">0.2s</td></tr>
<tr><td>Serial number of meter</td><td>16113431</td><td>17002941</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">Once in 5 years</td></tr>
<tr><td>Date of Calibration/ validity</td><td colspan="2">Date of Calibration: 15-11-2020
Validity: 14-11-2025</td></tr>
<tr><td>Reference No. of Calibration Certificate</td><td colspan="2">AEE (Ele)/NCE/CTA/20-21/</td></tr>
<tr><td>Calibration Status</td><td>Calibrated</td><td>Calibrated</td></tr>
<tr><th>Project 3</th><th>Main Mater</th><th>Check Meter</th></tr>
<tr><td>Type of meter</td><td colspan="2">Trivector Bidirectional meters</td></tr>
<tr><td>Location of meter</td><td colspan="2">KPTCL Substation</td></tr>
<tr><td>Accuracy of meter</td><td colspan="2">0.2s</td></tr>
<tr><td>Serial number of meter</td><td>16113431</td><td>16113431</td></tr>
<tr><td>Calibration frequency</td><td colspan="2">Once in 5 years</td></tr>
<tr><td>Date of Calibration/ validity</td><td colspan="2">Date of Calibration: 28-02-2020
Validity: 27-02-2025</td></tr>
</table>
</td></tr>
</table>

	Reference No. of Calibration Certificate	AEE (Ele)/LT&HT rating/KGL/19-20/2212-2216	
	Calibration Status	Calibrated	Calibrated
Measuring/reading/ recording frequency	Measurement: Continuous Recording: Monthly		
Calculation method (if applicable)	The value of net electricity generation supplied to the grid as per Monthly Joint Meter Reading Report forms (B-Forms) the basis for calculation of the emission reductions; which can be cross-checked from the invoice raised to Consumer. The Net electricity is calculated based on Export- import- Transmission loss. Monthly meter readings are taken from the main and check meter installed at metering point and certified by the representatives of SEB Officials and the representatives of the project participant. The export and import values of the form-B/Credit note or Joint Meter Reports is cross checked with the export and import values mentioned at the electricity sales invoice.		
QA/QC procedures	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 Proponent. 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	Baseline Emission Calculations.		
Additional comments	-		

B.7.2. Monitoring-program of risk management actions

There were no harm identified form the project and hence no mitigations measures are applicable.

B.7.3. Sampling plan

No Sampling plan is required.

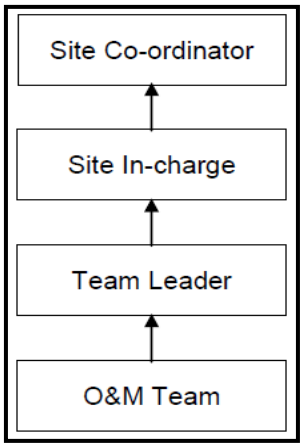
B.7.4. Other elements of the monitoring plan

[20] (Page number 12 of) http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

The monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for grid-connected solar power project being implemented in Karnataka, India. The monitoring plan, which will be implemented by the project participant describes about the monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The project proponent will enter into agreement with the O&M Contractor for the operation and maintenance of Solar Plant. O&M contractor will provide a monthly report, which includes generation data, major breakdown events and machine availability. Project manager is responsible for recording of monthly meter readings of export and import. Monthly power export and import data will be sent regularly to site in charge of each project separately

Monitoring roles and responsibilities:
The data for the project is compiled by the O&M Contractor and subsequently stored by the PP, the reporting and data flows as per the below mentioned flow chart starting from Site O&M team which monitors day to day operational data and monthly recording. The reporting responsibilities for the project are described as below;



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 investigate the error and revise the record to correct it. In any case where values have slightest of variation in different records the most conservative value will be taken in the project monitoring report.

Personal Training:
The project employs qualified and experienced persons for plant operation. The training period shall be for three months, as this would be adequate and necessary to ensure proper imparting of the objective. The training course will be thoroughly and meticulously designed, highlighting the objectives, salient features, operational aspects and trouble shooting.

Emergency preparedness:
In case Main meter or Check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible. In the event that the Main meter is not in service as a result of maintenance, repairs or testing, the Check meter will be used for readings

Data recording & archiving: The project proponent shall maintain data both in electronic form and hard copies. The monitored data shall be archived till 2 years after the completion of crediting period.

Section C. Start date, crediting period type and duration

C.1. Start date of the Project Activity

As per the paragraph 38 of the project standard V3.1, start of commercial operations has been considered as the start date. Hence project commissioning date(COD), on which project is connected to grid and started generating power and exporting to the grid there by started generating GHG emission reductions is considered as start date.

Start date for all the three projects of the bundle is given in the below table.

Project	Start Date
Project 1	24/01/2017
Project 2	09/06/2017
Project 3	25/01/2018

All the three individual projects of the bundle start date is after 1st January 2016. Hence complies with the GCC project standard guidelines.

The start date for this project is the earliest date of the commercial operation of the first project of the bundle. i.e 24/01/2017

C.2. Expected operational lifetime of the Project Activity

25 Years 00 Months.

C.3. Crediting period of the Project Activity

C.3.1. Fixed crediting period

The crediting period is fixed crediting period for 10 Years.

C.3.2. Start date of the crediting period

Start date of the crediting period is 24/01/2017

C.3.3. Duration of the crediting period

10 years i.e from 24/01/2017 to 23/01/2027

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 PV panels, interfacing the generators with the State Electricity Board by setting up HT transmission lines and installation of other accessories. Solar PV project activity operations do not result in direct air pollution, noise pollution. Thus, there is no any significant impact due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

D.2. Environmental impact assessment

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

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

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

As the solar power generation projects are not listed in any of the categories of the schedule, So, the project is considered environmentally safe and EIA is not 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 solar power project is not likely to have significant adverse environmental and social impacts during the construction & operation period of the project activity.

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.

E.1. Environmental safeguards

>>

Impact of Project Activity on		Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards									Project Owner's Conclusion	
		Description of Impact *(both positive and negative)*	**Legal requirement / Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**
Environmental impacts on the identified categories[21] indicated below.	*Indicators for environmental impacts*	*Describe anticipated environmental impacts, both positive and negative from all sources (stationary and mobile), that may result from the Project Activity, within and outside the project boundary, over which the Project Owner(s) has control, and beyond what would reasonably be expected to occur in the absence of the Project Activity.*	*Describe the applicable national regulatory requirements /legal limits related to the identified risks of environmental impacts.*	*If no environmental impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Not Applicable** (No actions required)*	*If environmental impacts are anticipated, but are expected to be in compliance with applicable national regulatory requirements/ below the legal limits, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Harmless** (No actions required)*	*If environmental impacts are anticipated that will not be in compliance with the applicable national 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** (Actions required).*	*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**.*	*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**.*	*Re-evaluate risks after Risk Mitigation Action Plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as **Harmless** (No actions required)*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and described in the PSF (refer to Table 3).*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*Confirm that the Project Activity risks of negative environmental impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for **Yes** or and -1 for **No**)*
Environmental Safeguards												
Environment - *Air*	*SO_x emissions*	The solar PV power project does not cause any SOx emissions in the project scenario. However, in the baseline	The Air (Prevention & Control of Pollution) Act 1981stipulates thresholds for both ambient air quality as well as stack	Not applicable as no emissions occurs in the project scenario. Hence it is not	No action required.	Not applicable No action required	Not applicable	Not Applicable	Not Applicable	Not Applicable	With reference to the CPCB modified direction No. B29012/ESS(CPA)/2015-16; dated March 07,	NA

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

		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.	emissions.	harmful.							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	The solar PV power project neither cause any NO_x emissions in the project. Scenario nor	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	With reference to the CPCB modified direction No. B29012/ES	Not Applicable

		avoids the occurrence of the same in the absence of the project activity. Hence not applicable.									S(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 NA Project Submission Form 78 of 119 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	The project reduces the CO2 emissions from entering into atmosphere by generating power from solar energy which would have been otherwise generated from the Fossil fuel based power plants in the absence of project activity which has been calculated by the combined margin emission factor as mentioned in the PSF	The Air (Prevention & Control of Pollution) Act 1981 1stipulates thresholds for both ambient air quality as well as stack emissions.	Not Applicable as no emissions occur in the project scenario and therefore is harmless.	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	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 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	+1

											reductions are expected to be reduced which will be regularly monitored and verified ex-post and therefore is eligible to be scored.	
	CO emissions	The solar PV power project neither cause any CO emissions in the project. Scenario nor avoids the occurrence of the same in the absence of the project activity. Hence not applicable.	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	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 However, the in the baseline scenario (grid) some of the fossil fuel power plants may have emitted CO emissions, on which data is not	Not Applicable

											available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	Suspended particulate matter (SPM) emissions	The solar PV power project does not contain any suspected particulate matter (SPM) emissions	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Fly ash emissions	The solar PV power project does not cause any flyash emissions in the project. scenario. However, in the baseline scenario (grid) some of the fossil fuel power plants may have emitted flyash emissions in the absence of the project activity.	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	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 However, the in the	NA

											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.	
	Non-Methane Volatile Organic Compounds (NMVOCs)	Negative	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	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 Con sent to Operate'' for White category of	Not Applicable

											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	
	Odor emissions	Negative	The Air (Prevention & Control of Pollution) Act 1981	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	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	Not Applicable

											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 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	Negative.	(Regulation and Control) Rules 2000 amended in 2010)	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 equipments in solar project who generate noise	Not Applicable
	Others	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Add more rows if											

	required											
Environment - *Land*	*Solid waste Pollution from Plastics*	Negative	Plastic Waste (Management and Handling) Rules, 2016	Not Applicable	No Action required	No Action required	Not Applicable	Not Applicable	No Action required	Not Applicable	No significant plastic waste is expected from the project activity during operational phase Hence,, this parameter will not be scored.	Not Applicable
	Solid waste Pollution from Hazardous wastes	Negative	Hazardous and Other Wastes (Management and Transboundary Movement) Amendment Rules, 2016	Not Applicable	No Action required	No Action required	Not Applicable	Not Applicable	No Action required	No Action required	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	Not Applicable

											and Control of Pollution) Act, 1981. However, project management should ensure 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 solar panels are recommended to be sent back to the manufacture or an authorized recycler Hence,, this parameter will not be scored.	
	Solid waste Pollution from Bio-medical wastes	Negative	Bio-medical Waste Management Rules, 2016	Not Applicable	No Action required	No Action required	Not Applicable	Not Applicable	No Action required	Not Applicable	No significant bio-medical waste will be generated from the project activity. Hence,, this	Not Applicable

											parameter will not be scored.	
	Solid waste Pollution from E-wastes	Negative	E-waste (Management and Handling) Rules		Harmless		Records all electrical & electronics waste of projects sites and filling of return	Project Management is responsible to maintain records and filling of returns as per applicable law			Project management is responsible to maintain records and filling of returns as per applicable law and have no significant impact. Hence,, this parameter will not be scored.	Not Applicable
	Solid waste Pollution from Batteries	Negative	Batteries (Management and Handling) Rules		Harmless			Records all electrical & electronics waste of projects sites and filling of return	Project management is responsible to maintain records and filling of returns as per applicable law		Project management is responsible to maintain records and filling of returns as per applicable law and have no significant impact. Hence,, this parameter will not be scored.	Not Applicable
	Solid waste Pollution from end of life products/ equipment	Negative	Solid Waste Management Rules, 2016		Harmless		Sold waste from the project activity must be disposed as applicable law	Project Management management is responsible to maintain records and dispose all products after ending lifecycle as per applicable law			Project management is responsible to maintain records and dispose all products after ending lifecycle as per applicable law and it will not applicable for the project activity Hence,, this	Not Applicable

											parameter will not be scored	
	Soil Pollution from Chemicals (including Pesticides, heavy metals, lead, mercury)	Negative	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, the 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.	Not Applicable
	Soil erosion	Negative	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	Not Applicable	No action required	There is no chance of soil erosion during operation phase of the project activity However, the in the baseline scenario (grid) some of the fossil fuel power plants may have	Not Applicable

											emitted soil erosion 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.	
	Others	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Add more rows if required											
Environment - *Water*	*Reliability/ accessibility of water supply*	Negative	The Water (Prevention & Control of Pollution) Act 1974	Not Applicable	No Action required	No Action required	Not Applicable	Not Applicable	Not Applicable	No Action required	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	Not Applicable

											and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	Water Consumption from ground and other sources	Negative	Permission for abstraction of Ground water under Environmental (Protection) Act 1986	Not Applicable	No Action required	No Action required	Not Applicable	Not Applicable	Not Applicable	No Action required	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, the in the baseline scenario (grid) some of the fossil fuel power plants may have 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	Not Applicable

											this parameter will not be scored.	
	Generation of wastewater	Negative	The Water (Prevention & Control of Pollution) Act 1974	Not Applicable	No action required	Not Applicable	Not Applicable	Not Applicable	No action required	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 waste water on which data is not available and can't be quantified and therefore the	Not Applicable

											emission reductions cannot be quantified and therefore this parameter will not be scored.	
	Wastewater discharge without/with insufficient treatment	Negative	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	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 waste water or its treatment on which data is not	Not Applicable

											available and can't be quantified and therefore the emission reductions cannot be quantified and therefore this parameter will not be scored.	
	Pollution of Surface, Ground and/or Bodies of water	Negative	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	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	Not Applicable

											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.	
	Others	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Add more rows if required											Not Applicable
												Not Applicable
Environment – *Natural Resources*	*Conserving mineral resources*	Negative	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	This is solar project activity and it is not using any natural minerals. therefore this parameter will not be scored	Not Applicable
	Protecting/ enhancing plant life	Negative	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	The project activity has been implemented in barrel land and no trees have been removed from the site due to project activity. therefore this	Not Applicable

											parameter will not be scored.	
	Protecting/ enhancing species diversity	Negative	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	The project activity has been implemented in barrel land and no trees have been removed from the site due to project activity. therefore this parameter will not be scored.	Not Applicable
	Protecting/ enhancing forests	Negative	The Forest (Conservation) Act 1980 & 1981	Not Applicable	No action required	No action required	Not Applicable	Not Applicable	No action required	Not Applicable	No forest land has been used for the project activity. therefore this parameter will not be scored.	Not Applicable
	Protecting/ enhancing other depletable natural resources	Negative	National Forest Policy (Revised) 1988	Not Applicable	No action required	No action required	Not Applicable	Not Applicable	No action required	Not Applicable	The project activity has been implemented in barrel land and no trees have been removed from the site due to project activity or no other natural resource has been used to operate project activity therefore this parameter will not be scored.	Not Applicable

	Conserving energy	Negative	Energy Conservation Act 2001	Not Applicable	No action required	No action required	Not Applicable	Not Applicable	No action required	Not Applicable	All efficient products & instruments has been used in the project activity, hence no significant impact due to this. There fore this parameter will not be scored.	Not Applicable
	Replacing fossil fuels with renewable sources of energy	The solar power project replaces fossil fuel with the renewable solar energy for the power generation by installing the solar power plant which would have been otherwise generated from the fossil fuel dominant grid connected power plants in the absence of the project activity.	Energy Conservation Act 2001	Project activity causes positive impact on the environment by replacing the fossil fuels with the renewable energy sources of energy (Solar panels). Hence harmless	No action required	No action required	No action required	No action required	Not Applicable	Project proponent monitors the value of net electricity generation supplied to the grid as per Monthly Joint Meter Reading Report forms (B-Forms) Monthly meter readings are taken from the main and check meter installed at metering point and certified by the representatives of SEB Officials and the representatives of the project participant. Exante it is estimated that project activity generates 117,874 MWh per annum.	Project proponent monitors the value of net electricity generation supplied to the grid as per Monthly Joint Meter Reading Report forms (B-Forms) Monthly meter readings are taken from the main and check meter installed at metering point and certified by the representatives of SEB Officials and the representatives of the project participant. Exante it is estimated that project activity generates 117,874 MWh per annum. Hence this	+1

											parameter will e scored.	
	Replacing ODS with non-ODS refrigerants	Negative	In India, there are no comprehensive regulations and standards to ODS and non ODS	Not Applicable	No action required	No action required	Not Applicable	Not Applicable	No action required	Not Applicable	No impact Therefore this parameter will not be scored.	Not Applicable
	Others											
	Add more rows if required											
Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to Environment.Score is obtained after adding the individual scores in each of the rows in the last column of the above table.												
Net Score:		**+2**										
Project Owner's Conclusion in PSF:		The Project Owner confirms that the Project Activity will not cause any net harm to the environment.										

E.2. Social Safeguard

Impact of Project Activity on		**Information on Impacts, Do-No-Harm Risk Assessment and Establishing Safeguards**									**Project Owner's Conclusion**	
		Description of Impact (*both positive and negative*)	**Legal requirement /Limit**	**Do-No-Harm Risk Assessment**			**Risk Mitigation Action Plans**		**Do-No-Harm Residual Risk Assessment**		**Self-Declaration**	
				Not Applicable *(No actions required)*	**Harmless** *(No actions required)*	**Harmful** *(Actions required)*	**Operational Controls**	**Program of Risk Management Actions**	**Re-evaluate Risks**	**Monitoring**	**Explanation of Conclusion**	**The Project Activity will not cause any harm**
Social impacts on the identified categories[22] indicated below.	*Indicators for social impacts*	*Describe the impacts on society and stakeholders, both positive and negative, that may result from constructing and operating of the Project Activity.*	*Describe the applicable national regulatory requirements / legal limits related to the identified risks of social impacts.*	*If no social impacts are anticipated, then the Project Activity is unlikely to cause any harm (is safe) and shall be indicated as **Not Applicable** (No actions required)*	*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** (No actions required)*	*If social impacts are anticipated that will not be in compliance with the applicable national regulatory requirements/ legal limits, then the Project Activity is likely to cause harm (may be unsafe) and shall be indicated as **Harmful** (Actions required).*	*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**.*	*Describe the Program of Risk Management Actions (refer to Table 3), focusing on additional actions (e.g., construction of crèche for workers) that will be adopted to reduce the risk of impacts that have been identified as **Harmful**.*	*Re-evaluate risks after Risk Mitigation Actions plans have been developed (refer to previous two columns) for impacts that have been identified as Harmful. Indicate whether the risks have been eliminated or reduced and, where appropriate, indicate them as **Harmless** (No actions required)*	*Describe the monitoring approach and the parameters to be monitored for each impact that has been identified as Harmful and to be described in the PSF (refer to Table 3).*	*Describe how the Project Owner has concluded that the Project Activity is likely to achieve the identified Risk Mitigation Action Plan targets for managing risks to levels that are unlikely to cause any harm.*	*Confirm that the Project Activity risks of negative social impacts are expected to be managed to levels that are unlikely to cause any harm (Mark +1 for **Yes** or and -1 for **No**)*
Social Safeguards												
Social - *Jobs*	*Long-term jobs (> 1 year) created/ lost*	*Project activity creates direct long term employment for project lifetime of 25 years.*	No regulation available	Harmless	Not applicable	No action required	No action required	No Action required	No action required	Project activity creates direct employment for around 150 people per year during the Operation and maintenance of the	There is no mandatory law to generate permanent employment from the project activity, however, project proponent has been	+1

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

										project activity. Which provides the positive impact on society which would have not been available in the absence of the project activity. It will e monitored through Employmen t records	decided to provide training to the local people & generate permanent employment for local people. Therefore this parameter will be scored	
	New short-term jobs (< 1 year) created/ lost	Project activity created short term jobs for less than year during the project construction period.	No regulation	Harmless	No action required	No action required	Not applicable	Not applicable	Not applicable	Project activity created short term jobs during the construction of the project activity. It can be verified from the construction work records and employment records. Since it is one time impact during the crediting period need not be monitord for the entire crediting period.	There is no mandatory law to generate permanent employment from the project activity, however, project proponent has been decided to provide training to the local people & generate permanent employment for local people Therefore this parameter will be scored.	+1
	Sources of income generation increased / reduced	Negative	No regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	Local income has been increased due to local employment generation	NA

											from the project activity. But cannot be monitored. Hence this parameter will not be scored	
Social - *Health & Safety*	*Disease prevention*	Negative	No regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	It should be ensured that proper and adequate number of toilets is constructed for the Laboure's so that hygienic conditions prevail in the site area. Therefore this parameter will not be scored.	NA
	Reducing / increasing accidents	Negative	The Factories Act, 1948 & EHS policy of Hero Solar Energy Private Limited	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	The project proponent 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.	NA
	Reducing / increasing	Negative	Crime comes under law &	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	Project activity will increase	NA

	crime		order of local government authority and there is no legal requirement from local authority to project proponent to liable to reduce crime.								local employment so there is no chance to increase crime in the local area due to the solar projects. Therefore this parameter will not be scored.	
	Reducing / increasing food wastage	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	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.	NA
	Reducing / increasing indoor air pollution	Negative	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(CPA)/2015-16; dated March 07, 2016 (Appendix A) solar power project falls in White category and it is mentioned	NA

											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.	
	Efficiency of health services	Negative	No local regulation available	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	Health services are limited in villages falls under project activity. Project proponent shall conduct health camp in all villages as per their CSR commitment throughout the operation time of the project activity Therefore this parameter will not be scored.	NA
	Sanitation and waste management	Negative	No local regulation available	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	As per MoEFCC notification dated 01.03.2019 (G.S.R.	NA

											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, Project management should ensure 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. 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.	
	Other health and safety issues	Negative	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	No action required	Not applicable	All health & safety issue at project sites to be mitigate as per EHS policy of Hero Solar Energy Private Limited and local regulation. Therefore this parameter will not be scored.	NA

	Add more rows if required	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	NA
Social - *Education*	*Job related training imparted or not*	Project involves training of new people on project technology.	There is no legal requirement from local authority to provide training to local people	No action required	No action required	Not applicable	Not applicable	Not applicable	No action required	Not applicable	Project owner confirms that by training the people on new technology it will upgrade their skills and creates positive impact. Hence it will be scored	+1
	Educational services improved or not	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	NA
	Project-related knowledge dissemination effective or not	Project activity transfers knowledge on new renewable energy technology	No mandatory regulation	No negative impact to the society due to this project activity.nce not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Project proponent employes around 150 people to work on the operation and maintenance of the project during its lifetime. Project owner keep training them on the new technology installed in the project and its operation and maintenance. It can be monitored through training records and	+1

											interview with plant O&M team. Hence this parameter will be scored	
	Other educational issues	Negative	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	No action required	Not applicable	Project Management will 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.	NA
	Add more rows if required											
Social - *Welfare*	*Improving/ deteriorating working conditions*	Negative	EHS policy of project company	Not applicable	No action required	No action required	Not applicable	Not applicable	No action required	Not applicable	There is no chance to deterioratin g working conditions as Project Owner will maintain high working culture for their employee with complying	NA

											EHs guideline & local regulation Therefore this parameter will not be scored	
	Community and rural welfare	Negative	CSR Policy of Project Company	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	Not applicable	Project owner will provide the basic livelihood needs to the local rural people like sanitation and health and nutritional needs through the company CSR policy. This parameter will not be scored	NA
	Poverty alleviation (more people above poverty level)	Negative	No local regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	Not applicable	The objective of the project company 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	NA

											assisting member countries in formulating and implementing their gender and development goals Therefore this parameter will not be scored.	
	Improving / deteriorating wealth distribution/ generation of income and assets	Negative	No local regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	Not applicable	Local community might chose 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 score	NA
	Increased or / deteriorating municipal revenues	Negative	No local regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	Not applicable	Projects are not falling under municipal areas, hence this parameter will not be scored.	NA
	Women's empowerment	Negative	No local regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	Not applicable	Project Company will take initiative for Promoting	NA

											gender equality, empowering women. The women's participation in the consultation needs to be ensured Therefore this parameter will not be scored.	
	Reduced / increased traffic congestion	Negative	No local regulation	Not applicable	No action required	No action required	Not applicable	Not applicable	Not applicable	Not applicable	Adequate training on 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 on traffic safety rules and signage during construction & operation phase of the project Therefore this parameter will not be scored.	NA
	Other social welfare issues	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	NA
	Add more rows if required											

Note: If the score is: (a) zero or greater, the overall impact is neutral or positive and there is no net harm; and (b) less than zero, the overall impact is negative and there is net harm to society.Score is obtained after adding the individual scores in each of the rows in the last column of the above table.	
Net Score:	+4
Project Owner's Conclusion in PSF:	The Project Owner confirms that the Project Activity will not cause any net harm to society.

Section F. United Nations Sustainable Development Goals (SDG)

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UN-level SDGs	UN-level Target	Declared Country-level SDG	Defining Project-level SDGs					Project Owner(s)'s Conclusion	
			Project-level SDGs	**Project-level Targets/ Actions**	**Project-level Indicators**	**Contribution of Project-level Actions to SDG Targets**	**Monitoring**	**Explanation of Conclusion**	**Are Goal/ Targets Likely to be Achieved?**
Describe UN SDG targets and indicators *See: https://unstats.un.org/sdgs/indicators/indicators-list/*	*Describe the UN-level target(s) and correspo-nding 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.* ***For guidance see:****Integrating the SDGs into Corporate Reporting- A Practical Guide: https://www.unglobalcompact.org/docs/publications/Practical_Guide_SDG_Reporting.pdf* *Case-study from Coca-Cola and other organizations to develop organization-wide SDGs (page 114):*https://pub.iges.or.jp/pub/realising-transformative-potential-sdgs	*Define project-level targets/actions, by suitably modifying and customizing UN/Country-level targets to the project scope. Define the target date by which the Project Activity is expected to achieve the project-level SDG target(s). Refer to the previous column for guidance*	*Define project-level indicators by suitably modifying and customizing UN/Country-level indicators to the project scope or creating a new indicator(s). Refer to the previous column for guidance*	*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 and is additional to what would have occurred in the absence of the Project Activity*	*Describe the monitoring approach and the monitoring parameters to be applied for each project-level SDG target and Indicator*	*Describe how the Project Owner has concluded 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	NA	NA	NA
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	NA	NA	NA	NA	NA	NA	NA	NA	NA

Goal 3. Ensure healthy lives and promote well-being for all at all ages	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 5. Achieve gender equality and empower all women and girls	5.C Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	YES	Equal employment opportunities and pay scales for both men and women in the project activities.	Equal working opportunity for both men and women	Equal working opportunity for both men and women	Project owner implement and maintain the HR policy to ensure that no gender discrimination should be entertained while employing the workforce and paying the wages for the project activity 100% probability and equal pay packages will be provided to the both men and women employees.	Project proponent monitors the parameter through Employment register for cross checking the nos and values.	Project proponent concludes that by strictly implementing the company policy men & women have equal rights and no discrimination will be tolerated against women. Project is already implemented and hence the targeted SDG is already is being under implementation.	YES Since the project activity is already operational Project activity targeted SDG is likely to be achieved during the project entire crediting period.
Goal 6. Ensure availability and sustainable management of water and sanitation for all	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 7. Ensure access to	7.2 By 2030, increase	YES	The project generates electricity from the sustainable and	Project target to generate and	Project generate	Project owner ensures and	Project O&M team at	Project has already	YES

affordable, reliable, sustainable and modern energy for all	substantially the share of renewable energy in the global energy mix. 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. 7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least		renewable solar source and contributes to increase the share of renewable energy mix in the global energy mix. Project uses advanced Solar Photovoltaic technology which is cleaner source of energy which avoids the equivalent amount of fossil fuel consumption for the power generation in the absence of the project activity. Project activity thus promotes investment into the cleaner technology based power generation projects. By installing advanced solar PV technology project owner also promotes upgraded cleaner technology solutions and infrastructure in the power generation sector in the host country.	feed 117,874 MWh/year solar based electricity for entire lifetime of the project activity into the INDIAN national grid. Project has already started contributing to the SDG 7 from its start date 24/01/2017	and feed 117,874 MWh/year based electricity for entire lifetime of the project activity into the INDIAN national grid.	undertake following actions to contribute to the SDGs. 1. Signed Power purchase agreement with consumers to ensure the consumption of generated power by the end consumer. 2.Ensures optimum plant efficiency to reduce outages and maximum generation. 3.Educate customers about consumption patterns to optimize renewable energy use	project site continuously monitors the Quantity of net electricity generation supplied by the project (Solar) plant. Main and Check meters are installed at the KPTCL substation by the electricity utility to measure the net exported electricity from the plant . The value of net electricity generation supplied to the grid as per Monthly Joint Meter Reading Report forms (B-Forms) which can be cross-checked from the invoice raised to Consumer. .	commissioned to national grid and feeding the renewable power to the grid. Hence complied to the SDG. No 7	Since the project activity is already operational Project activity targeted SDG is likely to be achieved during the project entire crediting period.

	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	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 8.8 Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in	YES	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	Project creates new employment and generates income for 150 no of people during the project lifetime. Through Project activity economic development has been achieved in the project location by creating opportunities to the other allied services and indirect employment.	Project creates new employment and generates income for 85 no of people during the project lifetime.	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.	Project owner monitors the implantation of the policies and employee grievances if any through the separate HR manager and site in charge. Quantity of employment will be monitored through employment records.	Project has already commissioned and achieving the Goal targets. Hence complied to SDG No 8	YES Targeted SDG is likely to be achieved during the entire crediting period.

	particular women migrants, and those in precarious employment								
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 9.4.1CO2 emission per unit of value added	YES	Project activity involves up gradation to advanced solar PV technology which is clean and resilient infrastructure from the conventional fossil fuel based power plant technology. Supports advanced industrialization by providing zero greenhouse gas and non-polluting clean electricity. Support industrialization through local hiring, procurement, and training and skills development. .	Project activity involves installation of 70 MW solar PV project in India.	Project activity reduces 110,165 tCO_2e per annum and 1,101,651 tCO_2e during the crediting period.	Project O&M team continuously work to reduce the plant outages and trying to achieve the maximum grid availability to generate and feed the maximum renewable energy to the grid.	O&M team monitors the real time generation from the plant and calculated equivalent CO2 reductions.. Plant outage and grid availability can be monitored through realtime scada data and O&M records.	Project has already commissioned and started reducing the emissions. Hence complied to the SDG No.9	YES Targeted SDG is likely to be achieved during the entire crediting period.
Goal 10. Reduce inequality within and among countries	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 11. Make cities and human settlements inclusive, safe, resilient and	NA	NA	NA	NA	NA	NA	NA	NA	NA

sustainable									
Goal 12. Ensure sustainable consumption and production patterns	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 13. Take urgent action to combat climate change and its impacts	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning 13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions	No	Project activity generates renewable energy based electricity and mitigates the CO2 emissions which would have been generated from the fossil fuel based power plants.	Project activity involves installation of 70 MW solar PV project in India.	Project activity reduces 110,165 tCO_2e per annum and 1,101,651 tCO_2e during the crediting period..	Ensure optimum generation from the plant to the grid	O&M team monitors the real time generation from the plant and calculated equivalent CO2 reductions.. Main and Check meters are installed at the KPTCL substation by the electricity utility to measure the net exported electricity from the plant. The value of net electricity generation supplied to the grid as per Monthly Joint Meter Reading Report forms (B-Forms) the basis for calculation of the emission reductions; which can	Project has already commissioned and started reducing the emissions. Hence complied to the SDG No.13	YES Targeted SDG is likely to be achieved during the entire crediting period.

							be cross-checked from the invoice raised to Consumer.		
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	NA	NA	NA	NA	NA	NA	NA	NA	NA
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable	NA	NA	NA	NA	NA	NA	NA	NA	NA

development									

SUMMARY	Targeted	Likely to be Achieved
Total Number of SDGs	**5**	**5**
Certification label (Bronze, Silver, Gold, Platinum, or Diamond) for the ACCs as defined in the PSF	**Platinum**	**Platinum**

Section G. Local stakeholder consultation

G.1. Modalities for local stakeholder consultation

Local Stakeholder consultation is not mandatory for the solar projects in the host country. However Project Proponent planned to conduct the Local stakeholder consultation (LSC) as per the GCC Project standard and the instructions given in the Project submission form template.

But due to COVID pandemic, Physical stakeholder consultation meeting is not organized. However, to comply with the prerequisite requirements of the GCC project standard a survey was conducted in the project area among the local stakeholders to get their opinion and feedback on the development of the Solar Project in the region. Stakeholder feedback survey is conducted during the following dates:

Project Name	Project Owner	Survey dates
Project 1	Atria Solar Power (Ryapte) Pvt Ltd.	22/02/2021 & 23/02/2021
Project 2	Atria Solar Power (Chamarajanagar) Pvt Ltd.	24/02/2021 & 25/02/2021
Project 3	Atria Solar Power (Chamarajanagar) Pvt Ltd.	02/03/2021 & 03/03/2021

During the survey, the project was briefed to the stakeholders and asked whether they have any doubt or concern over the project activity. Few stakeholders asked some doubts which are clarified to them. No concerns or negative comments raised by any of the stakeholders

Also a feedback form was provided to stakeholders to provide their feedback. The following questions were asked in the feedback form:

1. Are you aware of the project?
2. What do you like about the project?
3. What do you not like about the project?
4. Is there any concern over the project activity?
5. Any other comments?

No concerns are reported in the feedback form.. All the feedback forms will be submitted to DOE during validation

However Physical local stakeholder meeting will be conducted in future once the pandemic situation come to normalcy and local regulations allowed to conduct the meeting.

G.2. Summary of comments received

The summary of comments received during the survey and responses provided by PP representative are provided below:

Stakeholder comment	Explanation provided by PP representative

You are claiming the job preference will be given to local people. But recently we requested job for one of the local person. But the job is not provided yet.	Currently there is no opening available for the skill category. As and when the requirement comes, first preference will be given to local person.
What is the life time of the project? What will happen to modules after the lifetime?	The life time of the solar power plant is about 25 years. After the lifetime, the solar modules will be disposed as per the regulatory requirements.
Does the solar plant affect the rain in the local area?	No, the solar module installation does have impact over the rainfall.
Any additional CSR activities will be conducted to our village?	You can provide your requirements to the site in charge through village representative. The activities will be undertaken based on the priority and fund availability.
Is there any vacancy in the solar plant?	Currently there is no vacancy available at the plant. However you can provide your CV to the plant in-charge. If any vacancy arises in the future, the first preference will be give to qualified people from the local area.

G.3. Consideration of comments received

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

Section H. Approval and authorization

No host country approval is required hence N/A.

Appendix 1. Contact information of project owners

Project 1:

Organization name	Atria Solar Power (Ryapte) Pvt.Ltd
Country	India
Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Fax	-
E-mail	info@atriapower.com
Website	www.atriapower.com
Contact person	Mr. Puneet Goel

Project 2:

Organization name	Atria Solar Power (Chamarajanagar) Pvt.Ltd
Country	India
Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Fax	-
E-mail	info@atriapower.com
Website	www.atriapower.com
Contact person	Mr. Puneet Goel

Project 3:

Organization name	Atria Solar Power (chamarajanagar) Pvt.Ltd
Country	India
Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Fax	-
E-mail	info@atriapower.com
Website	www.atriapower.com
Contact person	Mr. Puneet Goel

Appendix 2. Affirmation regarding public funding

Not Applicable

Appendix 3. Applicability of methodology(ies)

Refer Section B.2

Appendix 4. Further background information on ex ante calculation of emission reductions

Not applicable

Appendix 5. Further background information on monitoring plan

Not applicable

Appendix 6. Summary report of comments received from local stakeholders

Refer Section G.2

Appendix 7. Summary of de-registered CDM project (Type B)

Not Applicable as this project activity is not a De-Registered CDM project activity

DOCUMENT HISTORY

Version	Date	Comment
V 3.2	31/12/2020	▪ The name of GCC Program's emission units has been changed from "Approved Carbon Reductions" or ACRs to "Approved Carbon Credits" or ACCs.
V 3.1	17/08/2020	▪ Editorial revisions made o Revised Table in section B.7.2 on Monitoring-program of risk management actions o Revised Table in section E.1 on Environmental Safeguards o Revised Table in section E.1 on Social Safeguards o Revised Table in section F on United Nations Sustainable Development Goals (SDG)
V 3.0	05/07/2020	▪ Revised version released on approval by Steering Committee as per GCC Program Process; ▪ Revised version contains following changes: o Change of name from Global Carbon Trust (GCT) to Global Carbon Council (GCC); o Considered and addressed comments raised by Steering Committee: ➢ during physical meeting (SCM 01, dated 29 Oct 2019, Doha Qatar); and ➢ electronic consultations EC01-Round 01 (15.09.2019 – 25.09.2019), EC01-Round 02 (27.03.2020 – 27.06.2020). o Feedback from Technical Advisory Board (TAB) of ICAO on GCC submission for approval under CORSIA[23];
V 2.0	25/06/2019	▪ Revised version released for approval by the GCC Steering Committee. ▪ Revised version includes additional details and instructions on the information to be provided, consequent to the latest developments world-wide (e.g., CORSIA EUC).
V 1.0	01/11/2016	Initial version released under the GCC Program Version 1

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

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