



# PROJECT CONCEPT NOTE

## CARBON OFFSET UNIT (CoU) PROJECT

**Title** : Small Scale Solar Power Project in Mandpam, Rajasthan

**Version** : 1.0

**PCN Date** : 28/03/2024

**CoU Issuance Period** : 18 Years 6 Months

**Monitoring Duration** : 12/07/2017 to 31/12/2035



**Project Concept Note (PCN)**  
**CARBON OFFSET UNIT (CoU) PROJECT**

<b>BASIC INFORMATION</b>	
<b>Title of the project activity</b>	Small Scale Solar Power Project in Mandpam, Rajasthan
<b>Scale of the project activity</b>	Small Scale
<b>Completion date of the PCN</b>	28/03/2024
<b>Project participants</b>	Creduce Technologies Private Limited (Project Aggregator) M/s RSWM Ltd (Project Owner)
<b>Host Party</b>	India
<b>Applied methodologies and standardized baselines</b>	Applied Baseline Methodology: AMS-I. F: “Renewable electricity generation for captive use and mini-grid, Version 05.0” Standardized Methodology: Not Applicable.
<b>Sectoral scopes</b>	01 Energy industries (Renewable/Non-Renewable Sources)
<b>Estimated amount of total GHG emission reductions</b>	To be estimated during verification [An ex-ante estimate is 2,365 CoUs per year]

## SECTION - A - Description of project activity

### A.1 General description of Carbon offset Unit (CoU) project activity

The proposed project titled under UCR is “Small Scale Solar Power Project in Mandpam, Rajasthan”, which is a grid connected Solar Power project located in Bhilwara district in the state of Rajasthan (India). PP has the full ownership of the project activity. The project is an operational activity with continuous reduction of GHG, currently being applied under “Universal Carbon Registry” (UCR).

#### A.1.1 Purpose of the project activity:

The purpose of the proposed project activity is to generate electricity using a clean and renewable source of energy i.e., solar radiation. This project has been promoted by M/s RSWM Ltd.

The proposed project activity of 1.5 MW DC is installation and operation of solar power plant as per below mentioned details.

Village	Tehsil	District	Type	Total installed Capacity (DC)	Commissioning date
Mandpam	Hamirgarh	Bhilwara	Rooftop mounted	1.5 MW	12/07/2017 (first date of generation)

As per the ex-ante estimate, this project will generate approximately 2,628 MWh of electricity per annum considering an average PLF of 20%. The Solar power projects has Multi Crystalline Silicon Modules. The generation of power from solar photovoltaic is a clean technology as there is no fossil fuel fired or no GHG gases are emitted during the process. Photovoltaic module consists of several photovoltaic cells connected by circuits and sealed in an environmentally protective laminate, which forms the fundamental building blocks of the complete PV generating unit. Several PV panels mounted on a frame are termed as PV Array. Thus, project activity leads to reduce the GHG emissions as it displaces power from fossil fuel-based electricity generation in the regional grid. The technological details have been provided in Section A.4.

The estimated annual average and the total CO<sub>2e</sub> emission reduction by the project activity is expected to be 2,365 tCO<sub>2e</sub>, whereas actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification.

Since the project activity generates electricity through solar energy, a clean renewable energy source it will not cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

#### A.1.2 Project's Contribution to Sustainable Development

This project is a greenfield activity where grid power is the baseline. The Indian grid system has been predominantly dependent on fossil fuel-powered plants. Renewable power generation is gradually contributing to the share of clean & green power in the grid; however, the grid emission factor is still on the higher side which defines the grid as a distinct baseline.

The Government of India has stipulated the following indicators for sustainable development in the interim approval guidelines for such projects which are contributing to GHG mitigations. The Ministry


of Environment, Forests & Climate Change, has stipulated economic, social, environmental, and technological well-being as the four indicators of sustainable development. It has been envisaged that the project shall contribute to sustainable development using the following ways:

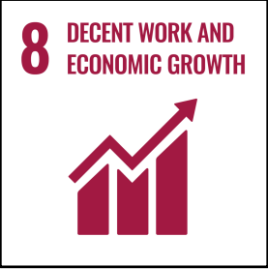

**Social well-being:** There has been good employment opportunities created for the local workforce during the project construction phase. The project after implementation has also continued to provide employment opportunities for the local populace in a sustained manner and the same would be continued over the project life time. The employment opportunities created will contribute towards alleviation of poverty in the surrounding area throughout the lifetime of the project activity.

**Economic well-being:** The project is a clean technology investment decided based on carbon revenue support, which signifies flows of clean energy investments into the host country. The project activity requires temporary and permanent, skilled and semi-skilled manpower at the project location; this will create additional employment opportunities in the region. The electricity replaced in grid will be available for nearby area which directly and indirectly improves the economy and life style of the area. In addition, success of these kind of project will provide new opportunities for industries and economic activities to be setup in the area. Apart from getting better employment opportunities, the local people will get better prices for their land, thereby resulting in overall economic development.

**Technological well-being:** The successful operation of project activity would lead to promotion of solar based power generation and would encourage other entrepreneurs to participate in similar projects. Increased interest in solar energy projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future. 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.

**Environmental well-being:** The project activity will generate power using zero emissions solar based power generation facility which helps to reduce GHG emissions and specific pollutants like SOx, NOx, and SPM associated with the conventional thermal power generation facilities. The project utilizes solar energy for generating electricity which is a clean source of energy. Also, being a renewable resource, use of solar energy to generate electricity contributes to resource conservation. It reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. The impact on land, water, air and soil is negligible. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well- being.

SDG Goals	Description
<p data-bbox="256 1671 347 1704">Goal 7</p> <div data-bbox="169 1727 440 1995"> <p data-bbox="188 1749 395 1805"><b>7 AFFORDABLE AND CLEAN ENERGY</b></p>  </div>	<ul style="list-style-type: none"> <li data-bbox="485 1659 1463 1749">➤ The project activity will generate clean energy, which with increased shared will increase the affordability at a cheaper rate to end user.</li> <li data-bbox="485 1771 1463 1917">➤ The project activity will utilize solar energy (renewal resource) to generate power. The project activity will increase the share of renewable resource-based electricity to global mix of energy consumption</li> </ul>

<p>Goal 8</p> 	<ul style="list-style-type: none"> <li>➤ Decent work and economic growth.</li> <li>➤ This project activity generates additional employment for skilled and unskilled, also the project situated in remote area will provide employment opportunities to unskilled people from villages. The training on various aspect including safety, operational issues and developing skill set will also be provided to employees</li> <li>➤ This project will 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</li> </ul>
<p>Goal 13</p> 	<ul style="list-style-type: none"> <li>➤ This 1.5 MW Solar meet the SDG 13 goal by saving fossil fuel and produce clean energy.</li> <li>➤ This project is expected to reduce CO<sub>2</sub> emission 2,365 ton per year.</li> <li>➤ <b>SDG 13</b> on clean energy is closely related and complementary.</li> <li>➤ In a Greenfield project, electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants. Thereby the project activity reduces the dependence on fossil fuel-based generation units and as there are no associated emissions with this project it contributes to the reduction of greenhouse gases (GHG) emissions.</li> </ul>

### A.1.3 With regards to ESG credentials:

At present specific ESG credentials have not been evaluated, however, the project essentially contributes to various indicators which can be considered under ESG credentials. Some of the examples are as follows:

- **Under Environment:**

Environmental criteria may include a company's energy use, waste, pollution, natural resource conservation, and treatment of animals, etc. For the project proponent, the energy use pattern is now based on renewable energy due to the project and it also contributes to GHG emission reduction and conservation of depleting energy sources associated with the project baseline. Also, the criteria can be further evaluated on the basis of any environmental risks that the company might face and how those risks are being managed by the company. Here, as the power generation will be based on Solar power, the risk of environmental concerns associated with non-renewable power generation and risk related to increasing cost of power, etc. are now mitigated. Hence, the project contributes to ESG credentials.

- **Under Social:**

Social criteria reflect on the company's business relationships, qualitative employment, working conditions with regard to its employees' health and safety, interests of other stakeholders' etc. With respect to this project, the Project Proponent has robust policies in place to ensure equitable employment, health & safety measures, local jobs creation etc. Also, the organizational CSR activities directly support local stakeholders to ensure social sustainability. Thus, the project contributes to ESG credentials.

- **Under Governance:**

Governance criteria relates to overall operational practices and accounting procedure of the organization. With respect to this project activity, the PP practices a good governance practice with transparency, accountability and adherence to local and national rules & regulations etc. This can be further referred from the company's annual report. The electricity generated from the project can be accurately monitored, recorded and further verified under the existing management practice of the company. Thus, the project and the proponent ensure good credentials under ESG.

## **A.2 Do no harm or Impact test of the project activity**

There was no harm identified from the project and hence no mitigations measures are applicable.

Rational: as per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016), it has been declared that Solar project activity falls under the "White category". White Category projects/industries do not require any Environmental Clearance such as 'Consent to Operate' from PCB as such project does not lead to any negative environmental impacts. Additionally, as per Indian Regulation, Environmental and Social Impact Assessment is not required for Solar Projects. Additionally, there are social, environmental, economic and technological benefits which contribute to sustainable development. The key details have been discussed in the previous section.

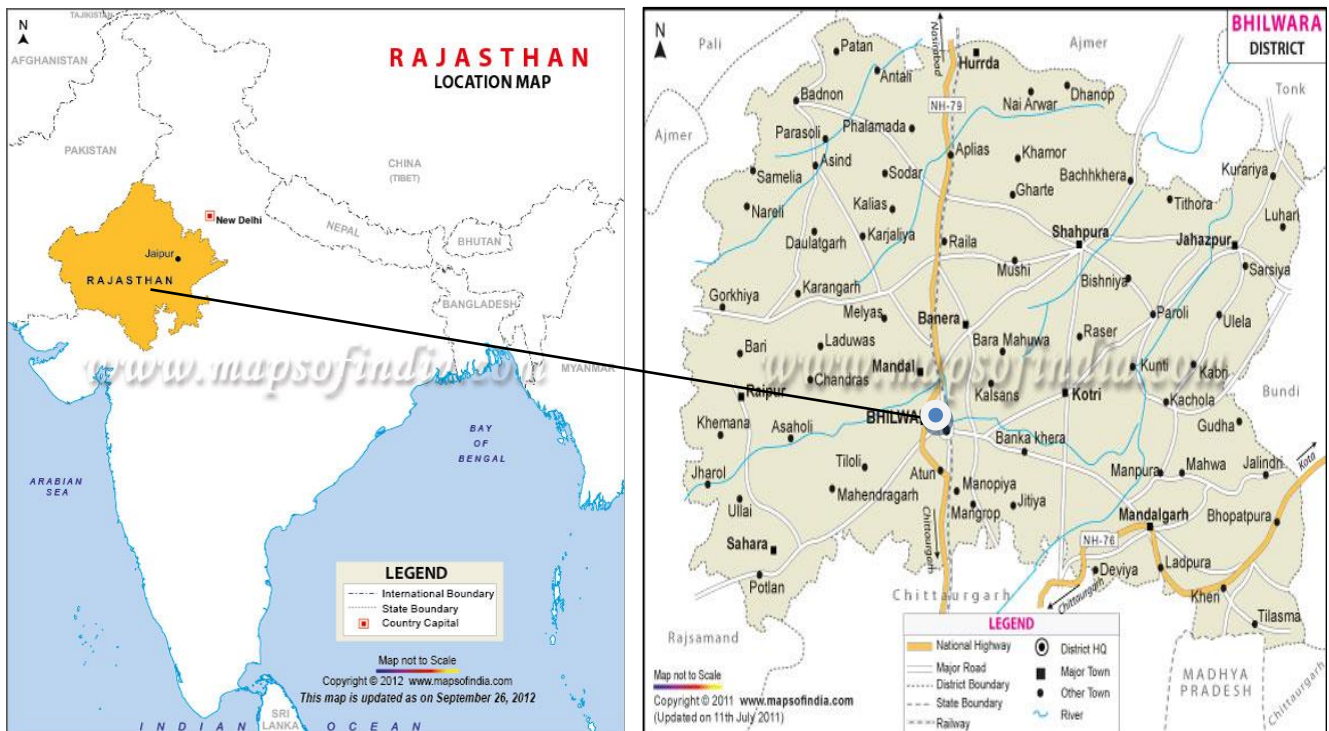
## **A.3 Location of the project activity**

Country : India  
State : Rajasthan

The project sites are well connected from airport and railway station. The geographic co-ordinates of the project location have been given below:

<b>Tehsil</b>	<b>Village</b>	<b>District</b>	<b>Type</b>	<b>Project location</b>
Hamirgarh	Mandpam	Bhilwara	Rooftop mounted	Latitude : 25°12'29.2"N Longitude : 74°36'14.4"E

The representative location map is shown below



**Figure-1- Location of the project activity (courtesy: google images and [www.mapsofindia.com](http://www.mapsofindia.com))**

#### **A.4 Technologies/measures**

The project activity is using clean renewable solar energy to produce electricity. The applied technology is considered to be one of the most environment friendly technologies available as the operation of the Solar photovoltaic does not emit any GHGs or any other harmful gases unlike the operation of conventional power plants.

Photovoltaic module consists of photovoltaic cells connected by circuits and sealed in an environmentally protective laminate, which forms the fundamental building blocks of the complete PV generating unit. Several PV panels mounted on a frame are termed as PV Array. The project activity has used the reliable and proven technology to ensure that an environmentally safe and sound technology is only being implemented in the proposed project activity leading to the GHG reduction.

In the absence of the project activity, the equivalent amount of electricity imported from the NEWNE grid would have been generated from the NEWNE grid, which is predominantly based on fossil fuels<sup>1</sup>, hence baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

Salient features of the Solar Rooftop mounted 1.5 MW

Solar Power plant details:

<sup>1</sup> [http://www.cea.nic.in/executive\\_summary.html](http://www.cea.nic.in/executive_summary.html)

Parameter	Description
Total number of Photovoltaic Modules	4688
Rating of Photovoltaic Module	320wp
Module make	Trina
Technology	Multi crystalline
No. of Inverter	33
Inverter make/Rating	Micromax
Inverter capacity	40Kw

## A.5 Parties and project participants

Party (Host)	Participants
India	<p><b>Creduce Technologies Private Limited (Aggregator)</b>  <b>Contact person</b> : Shailendra Singh Rao  <b>Mobile</b> : +91 9016850742, 9601378723  <b>Address</b> : 2-O-13,14 Housing Board Colony,  Banswara, Rajasthan -327001, India</p> <p><b>M/s RSWM Ltd (Project Owner)</b>  Address: RSWM Ltd, Post box No. 29, Kharigram Gulabpura, Dist.  Bhilwara, Rajasthan - 311001</p>

## A.6 Baseline Emissions

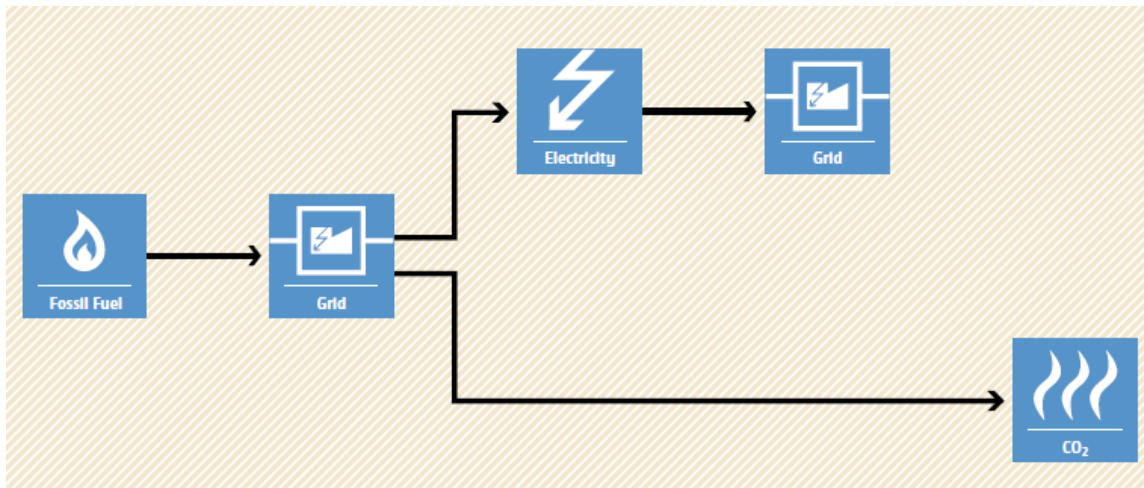
The baseline scenario identified at the PCN stage of the project activity is:

In the absence of the project activity, the equivalent amount of electricity would have been imported from the grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to being predominantly sourced from fossil fuel-based power plants. Hence, the baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

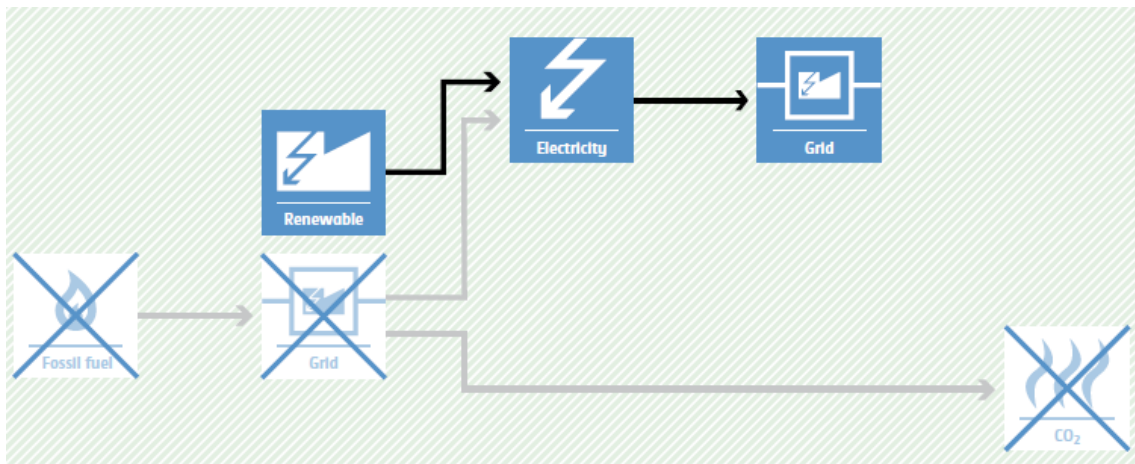
Schematic diagram showing the baseline scenario:

**Baseline Scenario:**





### Project Scenario:



### A.7 De-bundling

This project activity is not a bundled component of a larger project activity.

## SECTION - B - Application of methodologies and standardized baselines

### B.1 Reference to methodologies and standardized baselines

**Sectoral scope** : 01, Energy industries (Renewable/Non-renewable sources)

**Type** : I-Renewable Energy Projects

**Category** : AMS. I.F. (Title: “Grid connected renewable electricity generation”, version 05)

### B.2 Applicability of methodologies and standardized baselines

The project activity involves generation of grid connected electricity from the construction and operation of a new Solar power-based power project. The project activity has installed capacity of 1.5 MW which will qualify for a small-scale project activity under Type-I of the Small-Scale methodology. The project status is corresponding to the methodology AMS-I.F., Version 05 and the applicability of the methodology is discussed below:

Applicability Criterion	Project Case
<p>1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit, i.e., in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below:</p> <p>(a) A national or a regional grid (grid hereafter);</p> <p>(b) A fossil fuel fired captive power plant;</p> <p>(c) A carbon intensive mini-grid.</p>	<p>The project activity is a Renewable Energy Project i.e., a Rooftop Mounted solar power projects which falls under applicability criteria option 1 (a) i.e., “Consuming electricity generated and supplying excess to an identified consumer facility via national/regional grid.</p> <p>Hence the project activity meets the given applicability criterion.</p>
<p>2. This methodology is applicable for project activities that:</p> <p>(a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant);</p>	<p>The option (a) of applicability criteria 2 is applicable as project is a Greenfield plant/Unit. Hence the project activity meets the given applicability criterion.</p>

<ul style="list-style-type: none"> <li>(b) Involve a capacity addition,</li> <li>(c) Involve a retrofit of (an) existing plant(s); or</li> <li>(d) Involve a replacement of (an) existing plant(s).</li> </ul>	
<p>3. Illustration of respective situations under which each of the methodology (“AMS-I.D.: Grid connected renewable electricity generation”, “AMS-I.F.: Renewable electricity generation for captive use and mini-grid” and “AMS-I.A.: Electricity generation by the user” ) applies is included -</p> <ul style="list-style-type: none"> <li>a) Project supplies electricity to a national/regional grid</li> <li>b) Project displaces grid electricity consumption (e.g., grid import) and/or captive fossil fuel electricity generation at the user end (excess electricity may be supplied to a grid)</li> <li>c) Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)</li> <li>d) Project supplies electricity to a mini grid system where in the baseline all generators use exclusively fuel oil and/or diesel fuel</li> <li>e) Project supplies electricity to household users (included in the project boundary) located in off grid areas</li> </ul>	<p>Option (a) and option (b) are applicable to AMS-1. F. methodology.</p>
<p>4. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.</p>	<p>The proposed project is 1.5 MW Rooftop Mounted solar power projects, i.e., only component is renewable power project below 15 MW, thus the criterion is not applicable to this project activity.</p>
<p>5. Combined heat and power (co-generation) systems are not eligible under this category.</p>	<p>This is not relevant to the project activity as the project involves only solar power generating units.</p>
<p>6. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.</p>	<p>The proposed project is a greenfield 1.5 MW Rooftop Mounted solar power projects, i.e., the only component is a renewable power project below 15 MW, thus the criterion is not applicable to this project activity.</p>

<p>7. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.</p>	<p>This is a green field project and no expansion and retrofitting were carried out. Hence this criterion is not applicable.</p>
<p>8. If the unit added has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<p>The proposed project is a greenfield 1.5 MW Rooftop Mounted solar power projects; hence, this criterion is not applicable to this project activity.</p>
<p>9. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <p>(a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</p> <p>(b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>;</p> <p>(c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m<sup>2</sup>.</p>	<p>No biomass is involved, the project is a Rooftop Mounted solar power projects and thus the criterion is not applicable to this project activity.</p>
<p>10. If electricity and/or steam/heat produced by the project activity is delivered to a third party, i.e., another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered that ensures that there is no double counting of emission reductions.</p>	<p>The electricity generated by the Rooftop solar power plant is consumed by manufacturing facility of PO and injected to the grid of the distribution utility under the mechanism of net metering if any surplus electricity is available after meeting their own consumption.</p>
<p>11. In the case the project activities utilize biomass, the “TOOL16: Project and leakage emissions from biomass” shall be applied to determine the relevant project emissions from the cultivation of biomass and the utilization of biomass or biomass residues.</p>	<p>No biomass is involved, the project is a Rooftop Mounted solar power projects and thus the criterion is not applicable to this project activity.</p>

### B.3 Applicability of double counting emission reductions

There is no double accounting of emission reductions in the project activity due to the following reasons:

- Project is uniquely identifiable based on its location coordinates,
- Project has a dedicated commissioning certificate and connection point,
- Project is associated with energy meters which are dedicated to the consumption point for the project developer.

### B.4 Project boundary, sources, and greenhouse gases (GHGs)

As per applicable methodology AMS-I.F. Version 05, “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to.”

Thus, the project boundary includes the Solar Power Plant and the Indian grid system.

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	CO <sub>2</sub>	Yes	Main emission source
		CH <sub>4</sub>	No	Minor emission source
		N <sub>2</sub> O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield Solar Electric Power project Activity	CO <sub>2</sub>	No	No CO <sub>2</sub> emissions are emitted from the project
		CH <sub>4</sub>	No	Project activity does not emit CH <sub>4</sub>
		N <sub>2</sub> O	No	Project activity does not emit N <sub>2</sub> O
		Other	No	No other emissions are emitted from the project

### B.5 Establishment and description of the baseline scenario

As per the approved consolidated methodology AMS-I.F. Version 05, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

**“The baseline scenario is that the 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 into the grid”.**

In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel-fired plants. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

A "grid emission factor" refers to a CO<sub>2</sub> emission factor (tCO<sub>2</sub>/MWh) that will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO<sub>2</sub>/MWh for the 2013 – 2020 as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2022, the combined margin emission factor

calculated from the CEA database in India results in higher emissions than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under a conservative approach.

### **B.5.1 Net GHG Emission Reductions and Removals**

$$\text{Thus, } ER_y = BE_y - PE_y - LE_y$$

Where:

$ER_y$  = Emission reductions in year y (tCO<sub>2</sub>/y)

$BE_y$  = Baseline Emissions in year y (t CO<sub>2</sub>/y)

$PE_y$  = Project emissions in year y (tCO<sub>2</sub>/y)

$LE_y$  = Leakage emissions in year y (tCO<sub>2</sub>/y)

#### • **Baseline Emissions**

Baseline emissions include only CO<sub>2</sub> emissions from electricity generation in 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:

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

$BE_y$  = Baseline emissions in year y (t CO<sub>2</sub>)

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

$EF_{grid,y}$  = UCR recommended emission factor of 0.9 tCO<sub>2</sub>/MWh has been considered.  
(Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

Estimated annual baseline emission reductions (BE<sub>y</sub>)

$$= 2628 \text{ MWh} \times 0.9 \text{ tCO}_2/\text{MWh}$$

$$= 2365 \text{ tCO}_2$$

#### • **Project Emissions**

As per paragraph 25 of AMS-I.F. version-05, Project emissions for the following categories of project activities, including relevant definitions, shall be considered following the procedure described in the ACM0002:

- a. Emissions related to the operation of geothermal power plants (e.g., no condensable gases, electricity/fossil fuel consumption);
- b. Emissions from water reservoirs of hydro power plants.

$$\text{Thus, } PE = 0$$

#### • **Leakage Emission**

- As per paragraph 29 of AMS-I.F. Version 05, “For project activities utilizing biomass and/or biomass residues, the TOOL16 shall be applied to determine the leakage.”.

- No biomass is involved; the project is a Rooftop Mounted solar power projects and thus the criterion is not applicable to this project activity.

**Hence, LE = 0**

The actual emission reduction achieved during the first CoU period shall be submitted as a part of the first monitoring and verification. However, for the purpose of an ex-ante estimation, the following calculation has been submitted:

Hence Net GHG emission reduction, = 2365-0-0 = 2365 tCO<sub>2</sub>/year (i.e., 2365 CoUs/year).

## **B.6 Prior History**

The project was not applied under any other GHG mechanism. Hence the project will not cause double accounting of carbon credits (i.e., CoUs).

## **B.7 Changes to the start date of crediting**

There is no change in the start date of crediting period.

The start date of crediting under UCR is considered as 12/07/2017, which is the day when electricity generation started.

## **B.8 Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline**

Not applicable.

## **B.9 Monitoring period number and duration**

Total Monitoring Period: 18 Years 6 Months

Date: 12/07/2017 to 31/12/2035 (inclusive of both dates).

## **B.10 Monitoring Plan**

**Data and Parameters available (ex-ante values):**

Data / Parameter	UCR recommended emission factor
Data unit	tCO <sub>2</sub> /MWh
Description	As per UCR CoU Standard Aug 2022 (Updated Ver.6), Clause – Emission Factors “The UCR recommends an emission factor of 0.9 tCO <sub>2</sub> /MWh for the 2013-2020 as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Emission factors for the post 2020 period are to be selected as the most conservative estimate between the national electricity/power authority published data set and UCR default of 0.9 tCO <sub>2</sub> /MWh.”
Source of data	<a href="https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf">https://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission_2021_22.pdf</a> <a href="https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRCoUStandardAug2022updatedVer6_090822220127104470.pdf">https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRCoUStandardAug2022updatedVer6_090822220127104470.pdf</a>

Value applied	0.9
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of Data	For the calculation of Emission Factor of the grid
Additional Comment	The combined margin emission factor as per the CEA database (current Version 05, December 2022) results into a higher emission factor. Hence for 2022 vintage UCR default emission factor remains conservative

**Data and Parameters to be monitored (ex-post monitoring values):**

Data / Parameter	EG <sub>PJ, facility, y</sub>
Data unit	MWh
Description	Net electricity supplied to the NEWNE grid facility by the project activity between 12/07/2017 to 31/12/2035.
Source of data	Energy Generation Report/Monthly Energy Invoices
Measurement procedures (if any):	<p>Data Type: Measured</p> <p>Monitoring equipment: Energy Meters are used for monitoring</p> <p>Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually</p> <p>Archiving Policy: Paper &amp; Electronic</p> <p>Calibration frequency: 5 years (as per CEA provision)</p> <p>The Net electricity generation by the Solar panel is recorded at the sub-station. At the end of every month, Energy Generation Report is generated based on the total monthly electricity exported to the grid.</p>
Measurement Frequency:	Monthly
Value applied:	1751 (Ex-ante estimate)
QA/QC procedures applied:	<p>Calibration frequency: 5 years (as per CEA provision)</p> <p>Based on the joint meter reading certificates/credit notes, and energy generation report.</p> <p>As per Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2019, dated 23rd December, 2019.</p> <p>Clause 14, point 1, (b) "All Interface Meters shall be tested on-site</p>



	<p>using accredited test laboratory for routine accuracy testing at least once in five years and recalibrated if required”. And</p> <p>Point 2, (iii) Energy Accounting and Audit Meters: Energy Accounting and Audit Meters shall be tested at site through accredited test laboratory at least once in five years or whenever the accuracy is suspected or whenever the readings are inconsistent with the readings of other meters, e.g., Check Meters, Standby Meters and defective meters shall be recalibrated, if required: Provided that the testing shall be carried out without removing the Instrument Transformers connection.”</p>
Purpose of data:	The Data/Parameter is required to calculate the baseline emission.
Any comment:	Data will be archived electronically for a period of 36 months beyond the end of crediting period.