



# PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT



**Title:** 1.50 MW bundled Solar PV projects in Dhar Tatoh, Distt. Bilaspur, Himachal Pradesh, India

Version 1.0

Date- 19/04/2022

First CoU Issuance Period: 1 Year, 5 Months and 29 Days

Date: 03/10/2020 to 31.03.2022



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

BASIC INFORMATION	
Title of the project activity	1.50 MW bundled Solar PV project in Dhar Tatoh, Distt. Bilaspur, Himachal Pradesh, India
Scale of the project activity	Small Scale
Completion date of the PCN	19/04/2022
Project participants	<ol style="list-style-type: none"> <li>1. M/s Dhar Solar Plant: Prop. M/s Ankit Singh, V.P.O Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (Developer)</li> <li>2. Bhandari Ram Solar Plant: Prop. M/s Narendra Devi, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur, (H.P.) - 174001 (Developer)</li> <li>3. Sankhyan Solar Plant: Prop. M/s Abhishek Sankhyan, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (Developer)</li> </ol>
Host Party	India
Applied methodologies and standardized baselines	<p>Applied Baseline Methodology: AMS-I.D.: “Grid connected renewable electricity generation”, version 18</p> <p>Standardized Methodology: Not Applicable</p>
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of total GHG emission reductions	<p>To be estimated during verification</p> <p>[An ex-ante estimate is 2373 CoUs per annum]</p>

## SECTION A. Description of project activity

### A.1. Purpose and general description of Carbon offset Unit (CoU) project activity >>

This is a bundled project activity of capacity 1.5 MW which is grid connected solar PV power generation project in district Bilaspur of Himachal Pradesh in India. The purpose of these bundled solar power project is to sell the electricity generated to Himachal Pradesh State Electricity Board through NEWNE National Grid. The promoters of the project activity are (i) Dhar Solar Plant: Prop. Ankit Singh, V.P.O Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (500 kw), (ii) Bhandari Ram Solar Plant: Prop. M/s Narendra Devi, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.) (500 kw) (iii) Sankhyan Solar Plant: M/s Abhishek Sankhyan, VPO Dhar Tatoh, Tehsil Sadar, District Bilaspur (H.P.)-174001 (500 kw), (herein after called as Project Proponent or PP). PP has the full ownership of the project activity. This project is an operational activity with continuous reduction of GHG, currently being applied under “Universal Carbon Registry” (UCR).

#### 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. The proposed bundled project activity of 1.5 MW is installation and operation of solar power plant in district Bilaspur of Himachal Pradesh, India

Details of the individual promoters of each individual projects are as under:

Name of the Entity	DC Capacity of each entity	Date of Commissioning
1. M/s Dhar Solar Plant: Prop. M/s Ankit Singh, V.P.O Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (Developer)	500 kw	03.10.2020
2. Bhandari Ram Solar Plant: Prop. M/s Narendra Devi, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur, (H.P.) -174001 (Developer)	500 kw	01.01.2022
3. Sankhyan Solar Plant: Prop. M/s Abhishek Sankhyan, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (Developer)	500 kw	17.04.2022

As per the ex-ante estimate, these three bundled projects will generate approximately a total of 2637 MWh electricity per annum considering an average PLF of 19%. Clean power generated from these solar projects is sent into grid. The project activity uses Mono Crystalline solar photovoltaic technology to generate clean energy. 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>2</sub>e emission reduction as per design energy of these three bundled projects/ activities is expected to be 2373 tCO<sub>2</sub>e.

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

### **Project's Contribution to sustainable development**

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

The Government of India has stipulated 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 social, economic, technological and environment well-being as the main four indicators of sustainable development. It has been envisaged that the project shall contribute to sustainable development in these aspects in following ways:

- **Social well-being:** There has been good employment opportunities created for the local workforce during the project's construction phase. Thereafter during commercial operation of these projects, employment opportunities for the local populace is also available 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.
- **Economic well-being:** These bundled projects are clean technology investment decided based on carbon revenue support, which signifies flows of clean energy investments to host country. The project activity requires skilled & semi-skilled and temporary & permanent manpower at the project location; this will create additional employment opportunities in the region. The electricity generated will be available for nearby area which directly and indirectly improves the economy and life style of the region. 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 generates power using zero emissions solar based power generation facility which helps in mitigation of GHG emissions and specific pollutants like SO<sub>x</sub>, NO<sub>x</sub>, 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. 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.

### **With regards to Environment Social Governance (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 co-relation with nature etc. For the PP, 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 which 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 mitigated. Hence, project contributes to environmental 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 activity, the PP 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 social 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. Also, the

project activity is a solar power project owned and managed by the proponent for which all required NOCs and approvals are already in place. The electricity generated from these projects is accurately monitored, recorded and further verified under the existing rules of Government and monitoring management practices. Thus, the project and the proponent ensure good credentials under governance.

### **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 & Climate Change, 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 small-scale Solar Projects.

Nevertheless, PP had conveyed about project activity before implementation in nearby areas and respective villages in district Bilaspur of Himachal Pradesh, India to understand, discuss, record all possible concerns related to environment and socio-economic aspects under these project. The feedback and inputs received from local stakeholders confirm that no negative impact is foreseen by them.

Additionally, there are social, environmental, economic and technological benefits which contribute to sustainable development. The key details have already been discussed in the previous section.

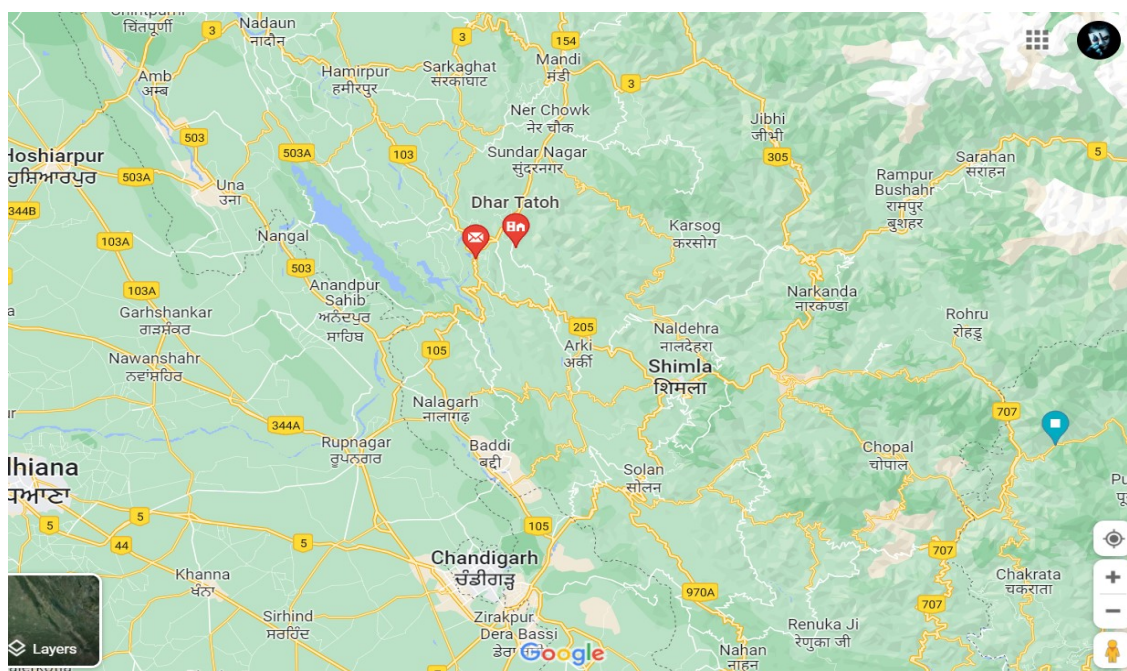
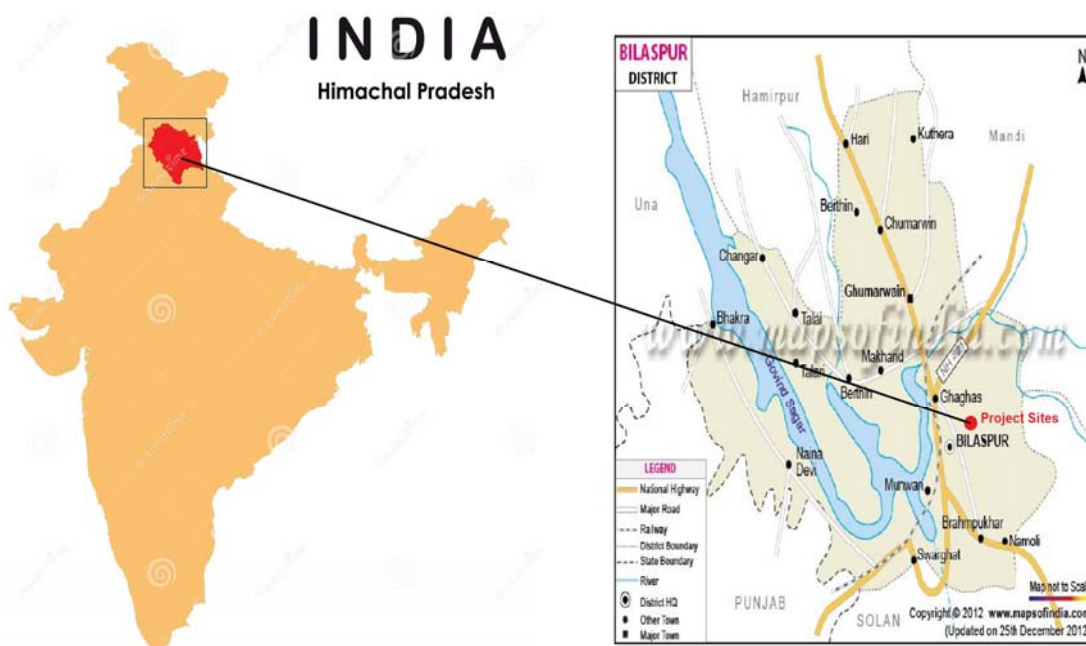
### **A.3. Location of project activity >>**

Country : India, State : Himachal Pradesh, District- Bilaspur

These project sites are in village Dhar, Tehsil Sadar, District Bilaspur, Himachal Pradesh, India. Nearest international airport is Chandigarh, located 150 km from the site. The road network in Dhar is extremely well linked with District Headquarters Bilaspur (H.P.) which is connected with NH-21 and have a wide establish road network in the district. The nearest railway station is Kiratpur (Punjab) which is 83 km from site. Below Table indicates the location details of each Project with the geographic co-ordinates of the project location.

<b>Name of project</b>	<b>Village</b>	<b>Tehsil</b>	<b>District</b>	<b>Longitude and Latitude</b>
Dhar Solar Plant	Dhar Tatoh	Sadar	Distt. Bilaspur (HP)	Latitude: 31 <sup>0</sup> 22’19.17’’ N Longitude: 76 <sup>0</sup> 49’57.96’’ E
Bhandari Ram Solar Plant	Dhar Tatoh	Sadar	Distt. Bilaspur (HP)	Latitude: 31 <sup>0</sup> 22’19.17’’ N Longitude: 76 <sup>0</sup> 49’57.96’’ E
Sankhyan Solar Plant	Dhar Tatoh	Sadar	Distt. Bilaspur (HP)	Latitude: 31 <sup>0</sup> 22’19.17’’ N Longitude: 76 <sup>0</sup> 49’57.96’’ E

The representative location map is located below:



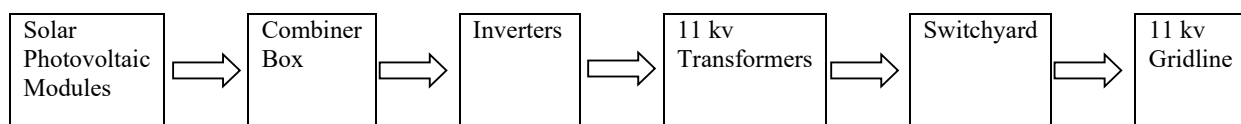
#### A.4. Technologies/measures >>

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 fossil fuel based power plants.

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. 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.

The technical arrangement of the project activity is as provided below:



The others salient features of the technology are:

Specification	Dhar Solar Plant	Bhandari Ram Solar Plant	Sankhyan Solar Plant
PV module technology	Monocrystalline Trina 405 W	Monocrystalline Trina 405 W	Monocrystalline Trina 405 W
Inverter technology	String inverters	String inverters	String inverters
Installed DC peak capacity	500 kWp	500 kWp	500 kWp
Mounting Structure Type	Fixed type	Fixed type	Fixed type
Tilt angle	26 °	26 °	26 °
Pitch	6 m	6 m	6 m
PV Module	1250 nos.	1250 nos.	1250 nos.
PV module manufacturer	Trina Solar	Trina Solar	Trina Solar
Wattage	405 W	400 W	400 W
Inverter manufacturer/ model	Goodwee/ six no., 80 kw cap.	Goodwee/ five no., 80 kw cap. and one no. 100 kw	Goodwee/ five no., 80 kw cap. and one no. 100 kw
Typical nominal AC output	92000 at 400 V	92000 at 400 V	92000 at 400 V
Mounting structure details	M.S. Galvanized	M.S. Galvanized	M.S. Galvanized
Orientation of modules	Landscape	Landscape	Landscape



#### A.5. Parties and project participants >>

Party (Host)	Participants
India	<ol style="list-style-type: none"><li>1. M/s Dhar Solar Plant: Prop. M/s Ankit Singh, V.P.O Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (Developer), Contact number: 8126228176, 8219131127 Email: rajpotpawan@gmail.com</li><li>2. Bhandari Ram Solar Plant: Prop. M/s Narendra Devi, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur, (H.P.) -174001 (Developer) Contact number: 8126228176, 8219131127 Email: rajpotpawan@gmail.com</li><li>3. Sankhyan Solar Plant: Prop. M/s Abhishek Sankhyan, VPO Dhar Tatoh, Tehsil Sadar, Distt. Bilaspur (H.P.)-174001 (Developer) Contact number: 8126228176, 8219131127 Email: rajpotpawan@gmail.com</li></ol>

#### A.6. Baseline Emissions>>

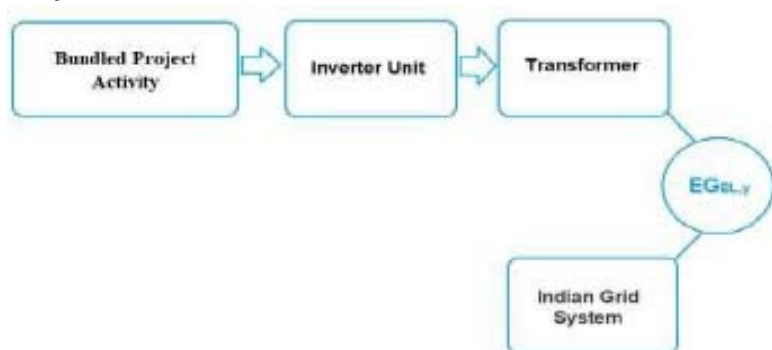
The baseline scenario identified at the PCN stage of the project activity is:

- Grid

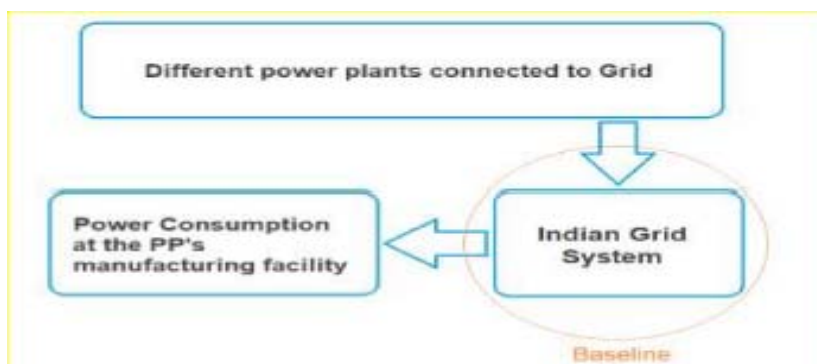
In the absence of the project activity, the equivalent amount of electricity would have been obtained from the regional grid (which is connected to the unified Indian Grid system), which is carbon intensive due to predominantly sourced from fossil fuel-based power plants. Hence, baseline scenario of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

Schematic diagram showing the baseline scenario:

**Project Scenario:**



## Baseline Scenario:



### A.7. Debundling>>

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

## SECTION B. Application of methodologies and standardized baselines

### B.1. References to methodologies and standardized baselines >>

#### SECTORAL SCOPE:

01, Energy industries (Renewable/Non-renewable sources)

#### TYPE:

I - Renewable Energy Projects

#### CATEGORY:

AMS. I.D. (Title: “Grid connected renewable electricity generation”, version 18)

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

This project activity involves generation of grid connected electricity from the construction and operation of new solar power-based power projects. The projects 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.D., version 18 and applicability of methodology is discussed below:

Applicability Criterion	Project Case
1.This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity involves grid connected renewable energy (solar) generation plants. This has replaced equivalent amount of electricity that would otherwise been imported from fossil fuel dominated electricity grid (Indian Grid system). Thus, the project activity meets this applicability conditions.

<p>2. This methodology is applicable to project activities that:</p> <ul style="list-style-type: none"> <li>(a) Install a Greenfield plant;</li> <li>(b) Involve a capacity addition in (an) existing plant(s);</li> <li>(c) Involve a retrofit of (an) existing plant(s);</li> <li>(d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or</li> <li>(e) Involve a replacement of (an) existing plant(s).</li> </ul>	<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>
<p>3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> <li>(a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or</li> <li>(b) The project activity is implemented in existing reservoir, where the volume of the reservoir(s) is increased and the power density as per definitions given in the project emissions section, is greater than <math>4 \text{ W/m}^2</math>.</li> <li>(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 <math>4 \text{ W/m}^2</math>.</li> </ul>	<p>The project activity involves installation of Solar PV (SPV). Hence, this criterion is not applicable.</p>
<p>4. If the new unit 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 new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<p>These proposed projects are 1.5 MW solar power project, 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</p>	<p>There is no other existing renewable energy power generation facility at the project site. Therefore, this criterion is not applicable.</p>

project should be lower than 15 MW and should be physically distinct from the existing units.	
7. In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is a new installation, it does not involve any retrofit measures nor any replacement and hence is not applicable for the project activity.
8. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energy production with or without electricity” shall be explored.	This is not relevant to the project activity as the project involves only solar power generating units.
9. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.	No biomass source is involved, the project is only a solar power project and thus the criterion is not applicable to this project activity.

### **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 dedicated commissioning certificate and connection point,
- Project is associated with energy meters which are dedicated to the consumption point for project developer

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

As per applicable methodology AMS-I.D. Version 18, “The spatial extent of the project boundary includes the power plants and all power plants connected physically to the electricity grid system that the power plant is connected to.”

Thus, the project boundary includes the Solar PV systems and the National grid system.

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	CO <sub>2</sub>	Yes	<b>Main emission source</b>
		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 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 baseline scenario (UCR Standard or Methodology) >>**

This section provides details of emission displacement rates/coefficients/factors established by the applicable methodology selected for the project.

As per para 19 of the approved consolidated methodology AMS-I.D. Version 18, 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”.**

The projects activity involves grid connected solar power plants to harness the green power from solar energy. In the absence of the project activity, the equivalent amount of power would have been supplied to Indian grid by projects, which is fed mainly by fossil fuel fired plants. The power produced from the other conventional sources which are predominantly fossil fuel based. 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) which 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 2014-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021, the combined margin emission factor calculated from CEA database in India results into higher emission than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.

## Net GHG Emission Reductions and Removals

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:

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

Where

$BE_y$	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 CDM 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)

### Project Emissions

As per AMS-I.D. version-18, only emission associated with the fossil fuel combustion, emission from operation of geo-thermal power plants due to release of non-condensable gases, emission from water reservoir of Hydro should be accounted for the project emission. Since the projects activity is a solar power project, project emission for renewable energy plant is nil.

**Thus,  $PE_y = 0$ .**

### Leakage

As per paragraph 22 of AMS-I.D. version-18, 'If the energy generating equipment is transferred from another activity, leakage is to be considered.' In the project activity, there is no transfer of energy generating equipment and therefore the leakage from the project activity is considered as zero.

**Hence,  $LE_y = 0$**

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

Estimated annual baseline emission reductions (BEy) = 2,637 MWh/year × 0.9 tCO<sub>2</sub>/MWh = 2,373 tCO<sub>2</sub>e/year (i.e., 2,373 CoUs/year).

#### **B.6. Prior History>>**

The project activity is a bundle of small-scale three solar projects and these projects were never applied under any other GHG mechanism prior to this registration with UCR. Also, the capacities or the total project as a whole has not been applied for any other environmental crediting or certification mechanism. Hence project will not cause double accounting of carbon credits (i.e., COUs).

#### **B.7. Changes to start date of crediting period >>**

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

The start date of crediting under UCR is considered as per the commissioning date mentioned for the respective Projects in Section A.1 of this document i.e. 03.10.2020 and no GHG emission reduction has been claimed so far.

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

Not applicable.

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

First Issuance Period: 1 Year, 5 Months and 29 days –  
03/10/2020 to 31/03/2022

#### **B.8. Monitoring plan>>**

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

Data/Parameter	UCR recommended emission factor
Data unit	tCO <sub>2</sub> /MWh
Description	A "grid emission factor" refers to a CO <sub>2</sub> emission factor (tCO <sub>2</sub> /MWh) which 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 2014-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.
Source of data	Joint meter reading issued by State electricity board for project proponent
Value(s) 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 CEA database (current version 16, Year 2021) results into higher emission factor. Hence for 2021 vintage UCR default emission factor remains conservative.

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

Data / Parameter:	EG <sub>PJ, y</sub>
Data unit:	MWh
Description:	Net electricity supplied to PP's facility by the project activity
Source of data:	Energy Meter records and/or monthly generation statement



Measurement procedures (if any):	<p>Data Type: Measured</p> <p>Monitoring equipment: Energy Meters are used for monitoring</p> <p>Archiving Policy: Paper &amp; Electronic</p> <p>Calibration frequency: Once in 5 years (as per CEA India provision).</p> <p>The Net electricity supplied to PP's facility by the project activity will be calculated as the net units supplied to PP's facility by the project capacities;</p> <p><b>Thus, <math>EG_{PJ,y} = EG_{Export} - EG_{Import}</math></b></p> <p>Since the projects are without any net metering arrangement, hence the energy meters shall provide the net supply or consumption units; hence no separate export and import values are required as input parameters. The directly available value of net export quantity shall be used for calculation.</p> <p><b>Cross Checking:</b></p> <p>Quantity of net electricity supplied to or consumed at PP's facility will be cross checked from the monthly bills/ invoices or JMR raised by HPSEBL, whichever is applicable.</p>
Monitoring frequency:	Monthly
Value applied:	As per JMR (Annualized average value has been considered here for an ex-ante estimation only, whereas this is an-ex post parameter hence actual value shall be applied during monitoring and verification)
QA/QC procedures applied:	<p>Not required</p> <p>The PP has already been following proper documentation and management practices and also the monthly statement will be available during any verification ensuring the best accuracy in data and results.</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.