



PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT



Title: 2.107 MW Bundled Solar Power Project by Som Shiva Impex Ltd., Gujarat

Version 1.0

Date: 13/04/2024

1st CoU Issuance Period: 11 years

1st Crediting Period: 01/01/2013 to 31/12/2023(both dates inclusive)



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

BASIC INFORMATION

Title of the project activity	2.107 MW Bundled Solar Power Project by Som Shiva Impex Ltd., Gujarat
Scale of the project activity	Small Scale
Completion date of the PCN	13/04/2024
Project participants	M/s Maverik Incorporation (Aggregator) M/s Som Shiva Impex Limited (Project Owner)
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I.D.: "Grid connected renewable electricity generation", version 18 Standardized Methodology: Baseline: UCR Protocol Emission Factor
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of total GHG emission reductions	To be estimated during verification [An ex-ante estimate is 24,171 tCo_{2e}]

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SECTION A. Description and Purpose of the Project Activity

A.1.1 General Description of project activity

The project titled **2.107 MW Bundled Solar Power Project by Som Shiva Impex Ltd, Gujarat** is the bundled project located at Survey Number 305, Village: Savda, Taluka: Dasada, State: Gujarat, Country: India.

The project activity is a bundled activity of 1.007 MW grid connected and 1.1MW grid connected for captive usage for the PP via a wheeling agreement with the grid. The Power Purchase Agreement (PPA) and the Connectivity Permission Procedure (CPP) for captive use for this project activity were duly signed with the Gujarat Energy Development Agency (GEDA), the regulatory body overseeing energy projects in Gujarat. These agreements were finalized on the commissioning date as mentioned below, ensuring regulatory compliance and facilitating the seamless integration of the solar power project into the state's energy infrastructure.

Type	Total installed Capacity in MW	Village	Taluka	District	Commissioning date
Ground mounted	1.1 MW	Savda	Dasada	Surendranagar	29/01/2016
	1.007 MW	Savda	Dasada	Surendranagar	30/12/2011

The promoters of the project activity is 'M/s Som Shiva Impex Limited' (herein after called as Project Proponent or PP). PP has 100% ownership of the project activity. This project activity is an operational activity with continuous reduction of GHG emissions, currently being applied under "Universal Carbon Registry" (UCR). This project has been spearheaded within the vibrant energy landscape of Gujarat, India. The commissioning date of this project activity is 30/12/2011.

The site location details of proposed project activity of 2.107 MW is as below:



Captive Plant – 1.1MW



PPA Plant – 1.007MW

A.1.2. Purpose of the project activity

The purpose of this solar power project activity is twofold: first, to supply renewable energy to the grid, contributing to overall energy sustainability and reducing reliance on fossil fuels. Second, it aims to provide electricity directly to the premises of the PP, ensuring reliable and sustainable power for their operations. This dual objective aligns with efforts to promote clean energy adoption while meeting the specific energy needs of the developers' premises.

As per the ex-ante estimate, this project will generate approximately **3310 MWh** of electricity per annum considering an average PLF of 20%. The power generated is supplied to the grid. The project activity uses Monocrystalline 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 CO₂e emission reduction by the project activity is expected to be **24,171 tCO₂e** whereas actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification.

A.1.3. 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.


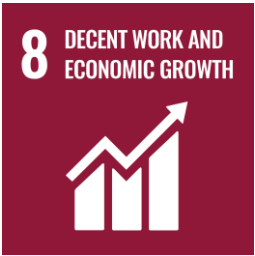

The Government of India has stipulated the following indicators for sustainable development in the interim approval guidelines for such projects which are contributing to GHG mitigations. The Ministry of Environment, Forests & Climate Change, has stipulated economic, social, environmental, and technological 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 have 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 decision 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 the grid will be available for the nearby area which directly and indirectly improves the economy and lifestyle of the area. In addition, the success of these kinds of projects will provide new opportunities for industries and economic activities to be set up 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 the project activity would lead to the 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 the future. The project activity leads to the promotion and demonstrates the success of solar projects in the region which further motivates more investors to invest in solar power projects. Hence, the project activity leads to technological well-being.

The project activity in Surendranagar district of Gujarat, complies the following sustainability goals

SDG Goals	Description
 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	<ul style="list-style-type: none"> • The project activity will generate clean energy, which with increased shared will increase the affordability at a cheaper rate to end user. • 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
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<ul style="list-style-type: none"> • Decent work and economic growth. • 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 • 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
 <p>13 CLIMATE ACTION</p>	<ul style="list-style-type: none"> • This 2.00 MW bundled solar meet the SDG 13 goal by saving fossil fuel and produce clean energy. • This project is expected to reduce CO2 emission <u>2979 tCO2</u> per year. • SDG 13 on clean energy is closely related and complementary. • 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.

A.1.4. 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 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 now mitigated. Hence, 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 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 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. Also, the project activity is a solar power project owned and managed by the proponent for which all required NOCs and approvals are received. 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 mitigation measures are applicable.

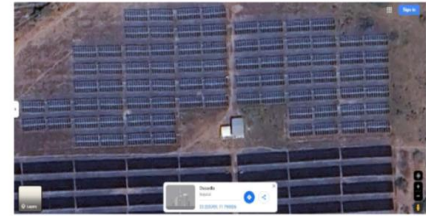
Rational: As per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016), it has been declared that solar project activity falls under the "White category". 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.

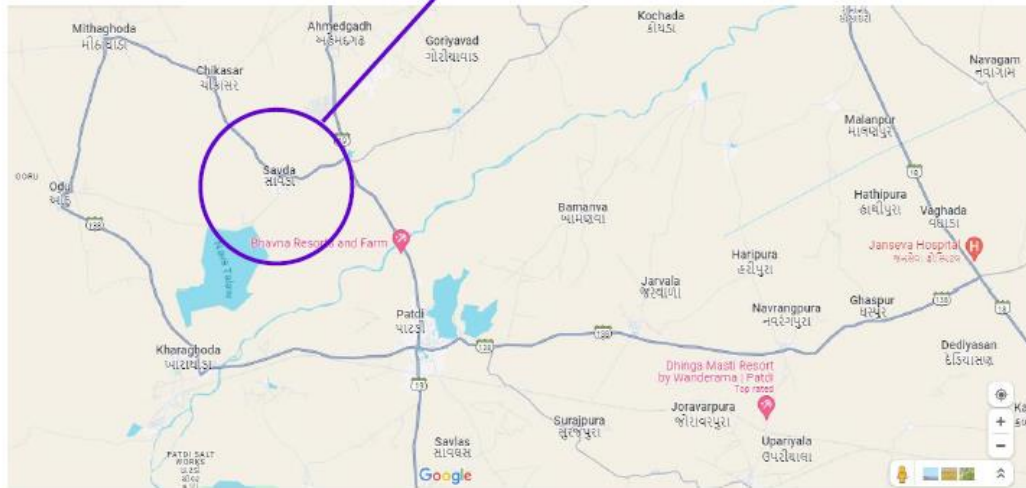
A.3. Location of project activity

Country: India
 District: Surendranagar
 Village: Savda
 Taluka: Dasada
 State: Gujarat

The project site is located in Savda village of Surendranagar district, Gujarat, which is approximately 120 km away from the Ahmedabad via Viramgam-Patadi-Dasada. From the proposed site existing Patadi 66 kV substation is approximately 3 km away. The project site is well connected from airport and railway station. The geographic co-ordinates of the project location have been given below.

Village	Savda
Taluka	Dasada
District	Surendranagar
Longitude	71° 46' 59.02" E
Latitude	23° 10' 55.86" N
MSL (Mean Sea Level)	10 M
Maximum Temperature	45.6° C
Minimum Temperature	7.8° C
Average Rainfall	760 mm
Seismic Zone	III
Nearest Railway Station	Viramgam Railway Station
Nearest Airport	Ahmedabad International Airport
Connected Road	SH – 18
Nearest Port	Port of Navlakhi

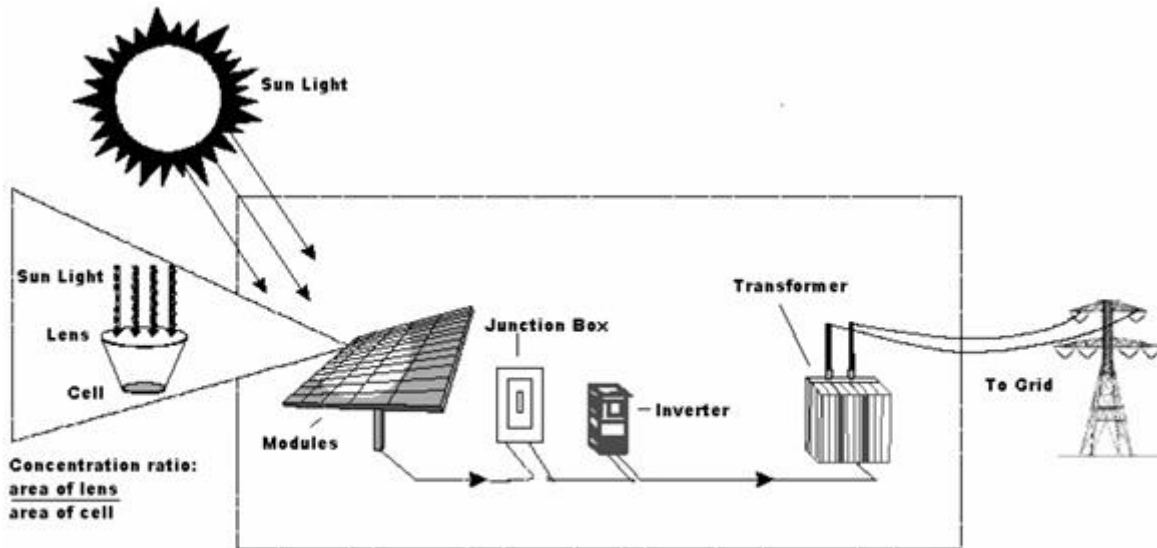




(Courtesy: Google map images and www.mapofindia.com)

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.



System Description: Solar Photovoltaic power generator is the arrangement of all modules in series and parallel connections. In order to achieve a higher system voltage, modules are installed in a row arrangement, called a string. A higher system voltage has the advantage of lesser installation work, higher efficiency of the entire plant and usage of smaller cross section cables. The calculated numbers of strings are connected in parallel to a junction box. These junction boxes are then connected to each string inverter. This Power Control Unit (PCU) will convert solar generated DC power into conventional 3 phase AC power. PCU operates on MPPT (Maximum Power Point Tracking) mode to ensure maximum output from the solar generators at different ambient conditions. String inverters use system voltages to reach very high plant efficiency. Furthermore, installations can be expanded with additions of more modules without problems. The conventional AC power from the inverter is fed through the LV (Low Voltage) panel to the main step up transformer. From the transformer, power is fed to the HT (High Tension) power panel and required measuring & protection devices before connecting to the grid.

The other salient features of the technology are:

Parameters	Description	
Location	Savda(1.007MW) PPA	Savda(1.1MW) Captive
Total number of Photovoltaic Modules	1593 / 7776	2304 / 2496
Rating of Photovoltaic Module	335 / 65 (Wp)	235 / 235 (Wp)
Module make	INV1 – WAREE / INV2 – ABOUND SOLAR	CANADIAN SOLAR
Technology	POLY / THIN FILM	POLY
LT Switchgear	SCHNEIDER	ABB
LT Cable	POLYCAB	POLYCAB

No. of Inverter	2 NOS.	2 NOS.
Invertor Capacity	500Kw	524 / 600
Invertor make	SMA	POWERONE
PV Connectors	FIZER	FIZER
Power Transformer 11/0.3 kV	DANISH PVT. LTD.	KOTSON
Serial No.	-	-

A.5. Parties and project participants

Party (Host)	Participants
INDIA	<p>M/s Maverik Incorporation (Aggregator) Contact Person: Nutan P Email: projects@maverikgroup.biz</p> <p>M/s Som Shiva Impex Limited (Project Owner) Address: Office:- 301, Oscon Maii, Above Star india Bazaar, Satellite, Ahmedabad-380015° & Registered Office:- Plot no. 111, GIDC, Phase 1, Chatral, Tal: Kalol, Gandhinagar-382729</p>

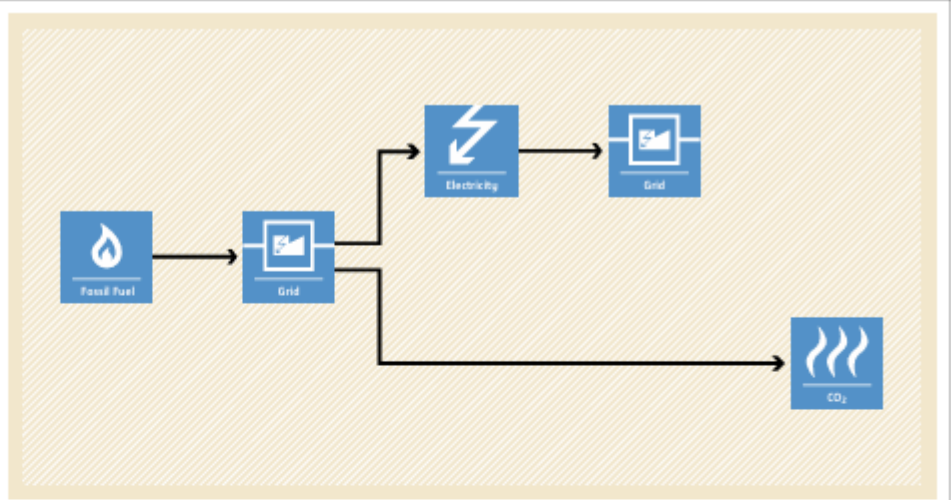
A.6. Baseline Emissions

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

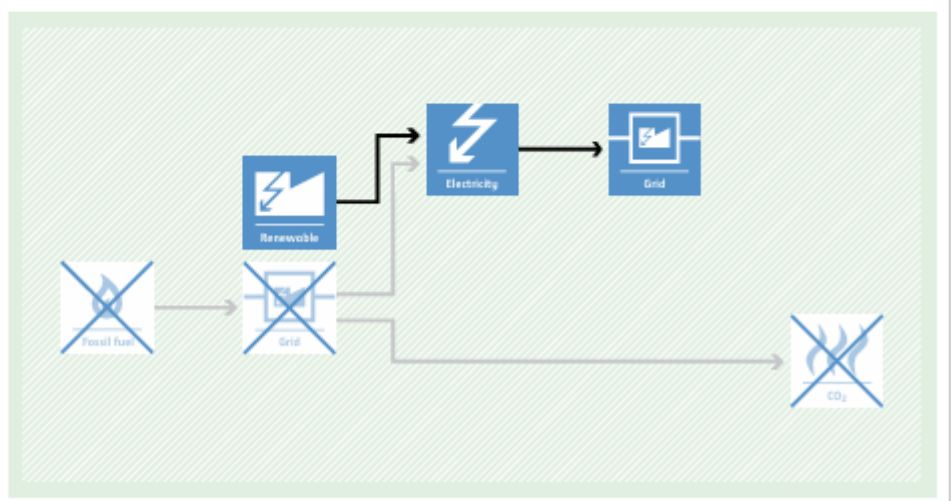
- In the absence of the project activity, the equivalent amount of electricity would have been imported from the grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to being predominantly sourced from fossil fuel-based power plants. Hence, the baseline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

Schematic diagram showing the baseline scenario:

BASELINE SCENARIO
Electricity provided to the grid by more-GHG-intensive means.



PROJECT SCENARIO
Electricity is generated and supplied to the grid using renewable energy technologies.



A.7. Debundling

This project activity is not a debundled portion of a larger project activity.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines

The project activity is approved under the positive list of approved activities under the UCR CoU Standard

Sectoral Scope	: 01, Energy industries (Renewable/Non-renewable sources)
Type	: I - Renewable Energy Projects
Scale	Small Scale
Category	:AMS-I.D. (Title: "Grid connected renewable electricity generation", version 18)

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 in Table 2 below.

Table 2. Applicability of AMS-I.D, AMS-I.F and AMS-I.A based on project types

	Project type	AMS-I.A	AMS-I.D	AMS-I.F
1	Project supplies electricity to a national/regional grid		√	
2	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)			√
3	Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)		√	
4	Project supplies electricity to a mini grid ⁵ system where in the baseline all generators use exclusively fuel oil and/or diesel fuel			√
5	Project supplies electricity to household users (included in the project boundary) located in off grid areas	√		

Applied conditions 1 and 3

B.2. Applicability of methodologies and standardized baselines

The project activity involves generation of grid connected electricity from the construction and operation of a solar power-based power project. The project activity has installed capacity of 2.107 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 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:</p> <p>(a) Supplying electricity to a national or a regional grid; or</p> <p>(b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</p>	<p>The project activity is a Renewable Energy Project which falls under applicability criteria both options (a) and (b) i.e.,</p> <p>(a)“Supplying electricity to a national or a regional grid”. and (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.</p> <p>Hence the project activity meets the given applicability criterion.</p>
<p>2. This methodology is applicable to project activities that:</p> <p>(a) Install a Greenfield plant;</p> <p>(b) Involve a capacity addition in (an) existing plant(s);</p>	<p>The option (a) of applicability criteria is applicable as project is a Greenfield plant /unit.</p> <p>Hence the project activity meets the given</p>

<p>(c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).</p>	<p>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: (a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or (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 4 W/m². (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/m²</p>	<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>The proposed project is 2.107 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 project should be lower than 15 MW and should be physically distinct¹ from the existing units.</p>	<p>There is no other existing renewable energy power generation facility at the project site. Therefore, this criterion is not applicable.</p>
<p>7. In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted,</p>	<p>The project activity is a new installation, it does not involve any retrofit measures nor any replacement and hence is not</p>

rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	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 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 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 PV systems and the Indian grid system.

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

B.5. Establishment and description of baseline scenario

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 project activity involves setting up of a new grid connected solar power plant to harness the green power from solar energy and utilize the generated electricity as captive source for PP. 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. The power produced at grid 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 CO₂ emission factor (tCO₂/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO₂/MWh for the 2013-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021-2023, 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 (tCO₂/y)

BE_y = Baseline Emissions in year y (t CO₂/y)

PE_y = Project emissions in year y (tCO₂/y)

LE_y = Leakage emissions in year y (tCO₂/y)

Baseline emissions include only CO₂ 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 CO₂)

$EG_{PJ,y}$ = 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 tCO₂/MWh has been considered.

(Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

Estimated annual baseline emission reductions

$$(BE_y) = 3310 \text{ MWh/year} * 0.9 \text{ tCO}_2 / \text{MWh} = 2979 \text{ tCO}_2 / \text{year}$$

Project Emissions

As per Paragraph 39 of 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 project activity is a solar power project, project emission for renewable energy plant is nil.

Thus, $PE_y = 0$.

Leakage

As per paragraph 42 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:

**Hence,
Net GHG emission reduction, = 2979 – 0 - 0 = 2979 tCO₂/year (i.e., 2979 CoUs/year)**

B.6. Prior History

The project activity had submitted a prior consideration notification to the UNFCCC CDM executive board (EB) on 04/04/2011 for a project titled “1 MW Solar Power CDM Project by Som Shiva (Impex) Ltd. At Gujarat, India”.(source: https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html?s=6820). The project activity has however, not applied for a transition under the Article 6.4 mechanism and has never been registered as a CDM project activity, nor been issued CERs in the past and the capacity or the total project as a whole has not been applied for any other voluntary environmental crediting or certification mechanism. Hence the project activity will not cause double accounting of carbon credits (i.e., COUs).

B.7. Changes to start date of crediting period

The start date of the 1st crediting period considered as 01/01/2013.

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

Not applicable.

B.9. Monitoring period number and duration

1st Monitoring Period: 11Years

1st Monitored Dates: 01/01/2013 to 31/12/2023 (inclusive of both dates).

1st CoU Issuance Period: 11 Years

1st Crediting Period: 01/01/2013 to 31/12/2023 (inclusive of both dates).

Data and Parameters available (ex-ante values):

Data/Parameter	UCR recommended emission factor
Data unit	tCO2 /MWh
Description	A "grid emission factor" refers to a CO2 emission factor (tCO2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO2/MWh for the 2013 - 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	https://a23e347601d72166dcd616da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRStandardAug2022updatedVer5_030822005728911983.pdf
Value(s) applied	0.9
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of data	For the calculation of the Emission Factor of the grid
Additional Comment	The combined margin emission factor as per CEA database (current version, Year 2023) results into higher emission factor. Hence for 2022-2023 vintage UCR default emission factor remains conservative.

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

Data / Parameter:	EGPJ, facility, y
Data unit:	MWh
Description:	Total electricity produced by the project activity
Source of data:	Electricity Generation data through monitoring system
Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters and inverter data are used for monitoring

	<p>Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized</p> <p>Annually Archiving Policy: Paper & Electronic Calibration frequency: 5 years (as per CEA provision)</p> <p>For example, the difference between the measured quantities of the grid export and the import will be considered as net export: $EG_{PJ,y} = EG_{Export} - EG_{Import}$</p>
<p>Monitoring frequency:</p> <p>QA/QC procedures:</p> <p>Purpose of data:</p> <p>Any comment:</p>	<p>Monthly</p> <p>Calibration of the Main meters will be carried out once in five (5) years as per National Standards (as per the provision of CEA, India) and faulty meters will be duly replaced immediately as per the provision of power purchase agreement.</p> <p>The Data/Parameter is required to calculate the baseline emission.</p> <p>Data will be archived electronically for a period of 36 months beyond the end of crediting period.</p>