PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT

Title: "51 MW Solar Project by Torrent Green Energy Pvt Ltd in Gujarat"

Version 1.1
Date: 23/07/2025
First CoU Issuance Period: 9 Years 9 Months 23 Days
Date: 09/03/2015 to 31/12/2024

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

BASIC INFORMATION	
Title of the project activity	"51 MW Solar Project by Torrent Green Energy Pvt Ltd in Gujarat"
Scale of the project activity	Large scale
Completion date of the PCN	23/07/2025
Project participants	**Torrent Green Energy Pvt Ltd**
Host Party	India
Applied methodologies and standardized baselines	ACM0002-Consolidated baseline methodology for grid-connected electricity generation from renewable sources - Version 22.0
Sectoral scopes	01 Energy industries (Renewable/Non-renewable Sources)
Estimated amount of total GHG emission reductions	**701,370** CoUs (**701,370** tCO_{2eq})

SECTION A. Description of project activity

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

The project activity titled "51 MW Solar Project by Torrent Green Energy Pvt. Ltd." is located in Charanka, Patan district, Gujarat, India.

The details of the registered project are as follows:

Purpose of the project activity:

51 MWp Grid-Connected Solar Photovoltaic (PV) Power Project by Torrent Green Energy Pvt Ltd (TGPL) at the Gujarat Solar Park is an ambitious project that harnesses multi-crystalline fixed-tilt technology to deliver clean, sustainable energy. The system comprises solar PV arrays, Power Conditioning Units (PCUs) to convert DC to AC power, transformers, and associated switchgear, enabling power evacuation at 66 kV to the Gujarat Energy Transmission Corporation (GETCO) substation. The generated power is secured through a Power Purchase Agreement (PPA) with Torrent Power Limited through wheeling for their captive consumption.

Environmental Impact and GHG Emissions Reduction

The 51 MWp Solar PV Project is a cornerstone of TGPL's commitment to combating climate change through renewable energy. With an annual estimated generation of **77930.381 MWh** the project displaces fossil fuel-based power, significantly reducing approximately **70,137 (tCO_2e)** greenhouse gas (GHG) emissions annually.

Unlike coal or gas plants, solar PV systems produce electricity without combustion, eliminating emissions of **carbon dioxide (CO_2)**, **sulfur dioxide (SO_2)**, **nitrogen oxides (NOx)**, and **particulate matter**. This reduction not only mitigates climate change but also improves air quality, benefiting public health and ecosystems in the region.

Leveraging solar energy, the project supports India's renewable energy goals reducing dependence on fossil fuels. It contributes to energy security, providing clean, reliable power to communities through TGPL's distribution network.

Sr. No.	Capacity (MW)	Commissioning Date
1	12.65	9th March 2015
2	16.31	26th March 2015
3	22.03	18th March 2015

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

There are social, environmental, economic and technological benefits which contribute to sustainable development.

Social well-being:

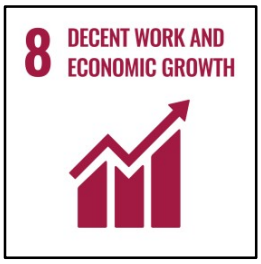
- The project activity will contribute to socio-economic development through improving the infrastructure for road network and other mode of communications in the remote part of the state during both the construction and operational period.
- The project activity will utilize renewable energy source for electricity generation instead of fossil fuel-based electricity generation which would have emitted gaseous, liquid and/or solid effluents/wastes. Thus, the project causes no negative impact on the surrounding environment and contributes to environmental well-being.
- The project activity will contribute towards reduction of the GHG emissions as well as emission of pollutants like SOx, Suspended Particulate Matters (SPMs) etc. by avoiding equivalent amount of power generation from fossil fuel-based power plants

Economic well-being:

- The project will generate electricity utilizing Solar Energy, thus will increase the contribution of renewable based power generation in the region and will also help in reducing the demand - supply gap of the respective grid.
- The project activity involves substantial amount of investment, thus will contribute towards generation of direct and indirect employment opportunities as per the requirement of the skilled and semi-skilled manpower.
- Use of a renewable source of energy reduces the dependence on imported fossil fuels and associated price variation, thereby leading to increased energy security.

Environmental well-being:

- Utilizing wind energy instead of burning fossil fuels for electricity generation significantly decreases the emission of harmful pollutants, fostering cleaner air, water, and soil.
- Leveraging Solar Energy aids in preserving natural resources and minimizing detrimental impacts on the environment, contributing to overall ecological well-being.
- Moreover, harnessing Solar energy offers a sustainable alternative to burning fossil fuels, which not only mitigates pollution but also conserves natural habitats and biodiversity, supporting healthier ecosystems and enhancing environmental resilience.

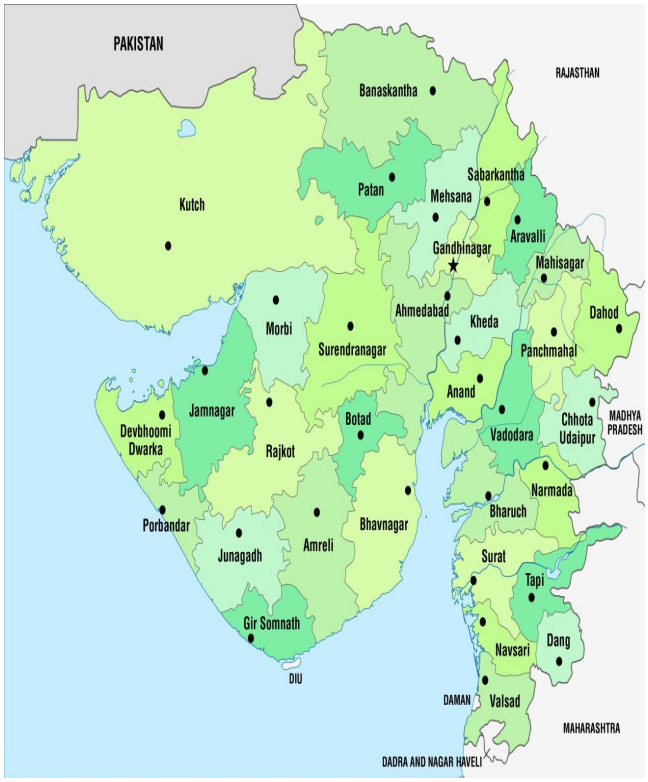
Goal 7 	➢ The project activity will generate clean energy, which with increased share will increase the affordability at a cheaper rate to end user. The project activity will utilize solar energy (renewal resource) to generate power. The project activity will increase the share of renewable resource-based electricity to global mix of energy consumption.
Goal 8 	➢ Decent work and economic growth. This project generates additional employment for skilled and unskilled people, also the project situated in remote area will provide employment opportunities to unskilled people from villages. The training on various aspects including safety, operational issues and developing a skill set will also be provided to employees ➢ This project will achieve full and productive employment and decent work.
Goal 13 	➢ This 51MW Solar power project meets the SDG 13 goal by saving fossil fuel and producing clean energy. This project is expected to reduce **701,370 tCO_2** annually ➢ 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 emissions associated with this project it contributes to the reduction of greenhouse gases (GHG) emissions.

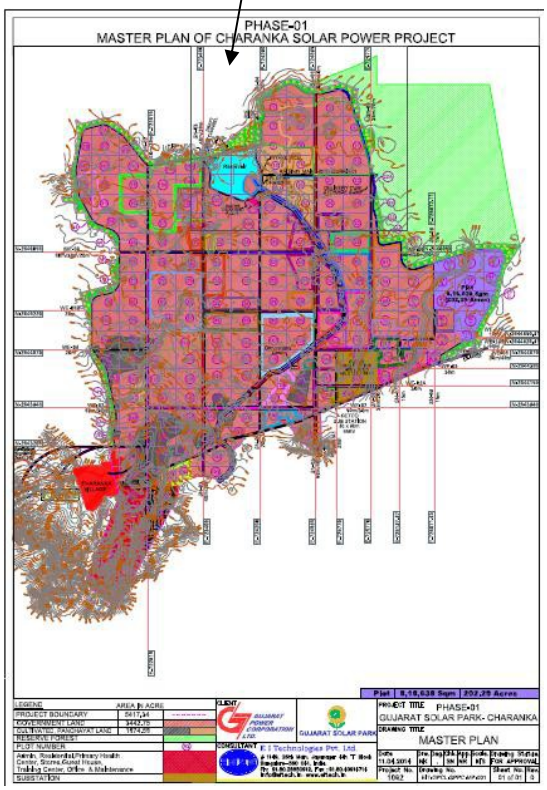
	➢ Distribution of eco-friendly hygiene kits (e.g., biodegradable/reusable sanitary products) reduces plastic waste. ➢ Empowers 6,000 adolescent girls by enabling school attendance, increasing future employability. ➢ Breaks menstrual taboos and promotes gender equality.
Goal 6 	➢ Promotes environmental health through community education (e.g., clean water, waste segregation). ➢ Engages employee volunteers (Shaishav Mitrs), attracting local partnerships or investments. ➢ Improves access to healthcare information for marginalized groups.
Goal 11 	➢ Enhances urban green cover and contributes to climate resilience. ➢ Supports biodiversity and sustainable urban planning. ➢ May increase local property value and small business opportunities near parks.

A.3. Location of project activity >>

Country: India
District: Patan
Village: Charanka
Taluka: Santalpur
State: Gujarat
Latitude – 23.903185
Longitude – 71.2279782

TORRENT SOLAREGRAM.





GUJARAT CHARANKAR

GEO – CORDINATES: CHARANKAR, SANTALPUR GUJARAT

A.4. Technologies/measures >>

51 MWp Solar PV Power Project Details:

Parameter	Details
Capacity	51 MWp
State	Gujarat
Site	Gujarat Solar Park, Village: Charanka, Taluka: Santalpur, District: Patan
Technology	**Multi-Crystalline Fixed Tilt**
Evacuation Voltage	66 kV to GETCO Substation
Estimated Plant Load Factor (PLF)	18%
Land Requirement	Up to 225 Acres
Land Type	Revenue Land on Lease
COD	March 31, 2015
Power Supply Agreement	PPA with Torrent Power Limited – Distribution

Working principle

When two different (or differently doped i.e. 'P type' and 'N type') materials in close contact with each other (forming P-N Junction) generate an electric current when exposed to sunlight is known as PV (photovoltaic). Sunlight provides the electrons with the energy needed to leave their bounds and cross the junction between two materials.

This occurs more easily in one direction than in other and gives one side of the junction a negative charge with respect to the other side (P-N junction) thus generating a voltage and Direct Current (DC).

PV cells are interconnected to form a PV module, and PV modules are interconnected to form PV array. The PV arrays are connected in series and parallel to produce the DC power. The DC power produced is feed to the grid via inverter. Solar Photo-voltaic (SPV) Power plant thus converts solar energy to electricity energy.

- **Technology and its constitution Which has been applied in this project:**

PV cells technologies are classified into three generation, depending on the basic material used and the level of commercial maturity:

Sr. No.	Classification	Ingredient
1	First generation PV system	Wafer based crystalline silicon(c-Si) either mono crystalline (SC-Si) or multi (Poly) crystalline (mc-Si)

Poly crystalline
Multi crystalline panels use solar cells that are cut from multifaceted silicon crystal. These are less uniform in appearance than mono crystalline cells. 

Technology	Crystalline Silicon	Thin Film
Handling	Better protection against breakage	Need extra care
Repair	Relatively easy	Difficult due to complex structure
Irradiance	Efficient for Direct Normal radiations	Efficient for Diffuse radiations
Stabilization	Stable power output from initial stage	Stability achieved after 3-4 months

- ***Operational Philosophy of the PCU in the Grid Connected System***

The system automatically 'wakes-up' in the morning and feeds-in power to the grid, provided the grid power is within the window (voltage and frequency limit) of synchronization. The Maximum Power Point Tracking (MPPT) circuit within the PCU extracts the Maximum available power from the solar array and feeds it to the grid. If the grid voltage and / or frequency goes out of the window, the PCU immediately isolates from the grid.

The PCU will reconnect after a pre-determined time when the grid is back within the window. When the feed-in power is below a predetermined level or when the solar insolation is below a selected value for a pre-determined period of time the PCU is isolated from the grid and is operated in sleep mode. This minimizes the standby losses.

The Power Conditioning Units used in grid connected SPV systems consist of an Inverter and other electronics for MPPT, Synchronization and Remote Monitoring. The system exports power to the grid when the DC output from solar array is available. The 3 Ph output voltages and current are sinusoidal with low total harmonic distortion meeting UL 1741 - 2005, IEEE 1547 and IEEE 519 - 1992 harmonic standards.

Module Mounting System
The mounting structure is designed for holding suitable number of modules in series. The frames and leg assemblies of the array structures is made of mild steel hot dip galvanized confirming to IS 2062. Stainless steel nuts and bolts will be used. The structure is designed in such a way that it will occupy minimum space without sacrificing the output from SPV modules.

Grid Connectivity Arrangements
The power from the PCUs is collected and channelled through the low voltage panel to the transformers. From the transformers the high voltage power is routed through the circuit breakers to be eventually connected to the grid.

Control Room

Control room design, if possible, will be using passive architecture techniques. The design will focus on optimal usage of space, material and labour without compromising the effect of shadow, cooling, ventilation, accessibility, losses during electrical interconnections, etc. The objective will be to house all electronic equipments like main DC Complier boxes, PCUs, Low voltage panels, Transformers (if possible), High voltage panels, Metering and Protection, etc.

The Solar power project envisages a power export up to **51MW at 66 kV.** The exportable power from the plant shall be evacuated by stepping-up the power from 415 V to 66 kV and/or above through suitable number of transformers.

CTs, PTs, isolators, lightning arrestors, and Availability Based Tariff ("ABT") meter will be installed for switchyard protection purpose and metering the energy exported to grid. Switchyard arrangement and other requirements will be in line with prevailing guidelines for the same.
Protection, metering & control panels for the switchyard and grid feeder will be installed in the control room.

Safety Earthing System
A safety earthing system consisting of a buried GI flat conductor earthing grid will be provided for the switchyard. The earthing system will be formed to limit the grid resistance to below 1 ohm. In the switchyard area, the touch potential and step potential will be limited to the safe values.

The buried earthing grid will be connected to earthing electrodes buried underground. Neutral point of transformer, non-current carrying parts of equipment, lightning arrestors, fence, etc., will be earthed rigidly. The following factors will be considered for earthing system design:

Magnitude of fault current
- Duration of fault
- Soil resistivity
- Resistivity of surface material
- Material of earth conductor
- Earth mat grid geometry

Lightning Protection System
Switchyard equipment will be shielded against direct lightning strikes by providing spikes/shield wires. The spikes/wires shall be formed to shield all substation equipment with an angle of shield of 30 Deg.

Safety Regulations
Statutory regulations on safety measures shall be strictly followed. Safety appliances, viz. fire extinguishers, sand buckets, earth rods, gloves, rubber mats, danger sign boards, safety regulation charts, etc. shall be procured and installed as per safety norms. Oil collection pits and soak pits for the transformers shall also be constructed.

A.5. Parties and project participants >>

Party (Host)	Participants
INDIA	**Torrent Green Energy Pvt ltd** **Aggregator**: Viviid Emissions Reductions Universal Private Limited **Address:** 1001-B, Sri Krishna Complex, New Link Road, Opp. Laxmi Industrial Estate, Andheri West, Maharashtra 400053

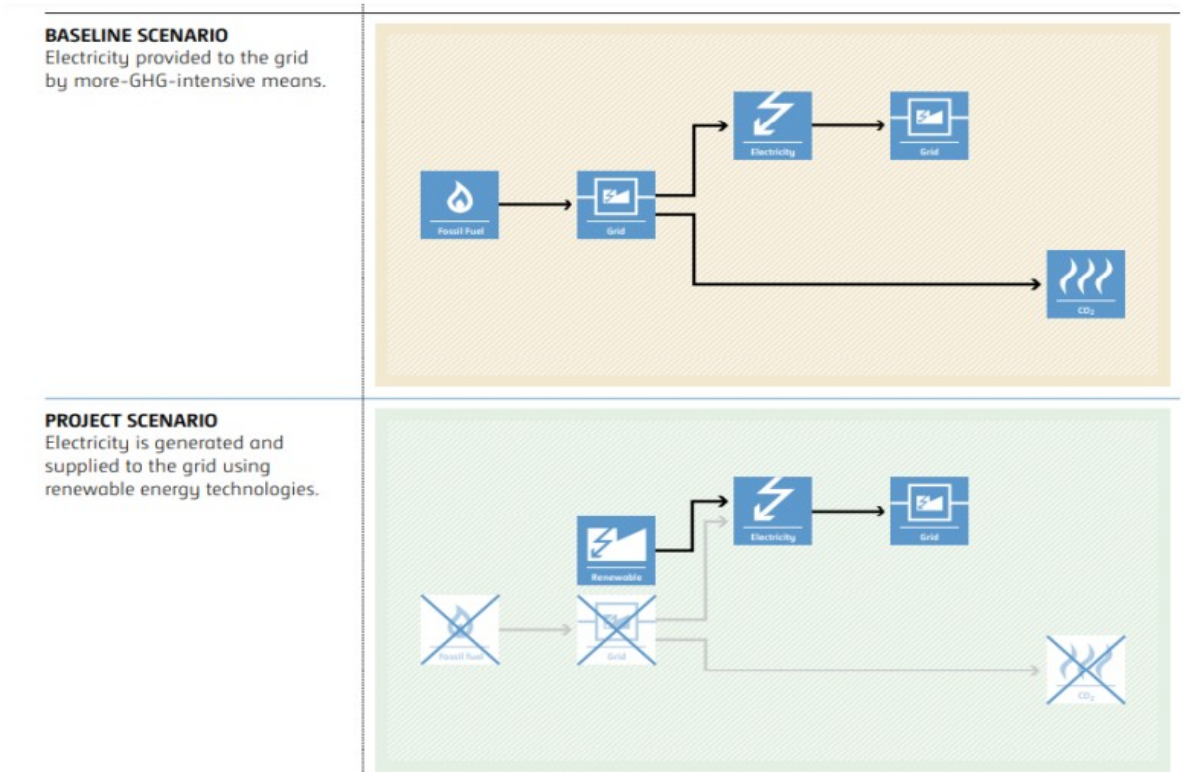
A.6. Baseline Emissions>>

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

The scenario existing prior to the implementation of the project activity, is electricity delivered to the facility by the project activity that would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources. This is a green field project activity. There was no activity at the site of the project participant prior to the implementation of this project activity. Hence pre-project scenario and baseline scenario are the same.

As per the approved consolidated methodology ACM0002 Version 22, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following: "If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources to the grid".

The Schematic diagram showing the baseline scenario:



A.7. Debundling>>

This Project is not a debundled 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 **- Renewable Energy Projects**

CATEGORY- ACM0002., Consolidated baseline methodology for grid-connected electricity generation from renewable sources -Version 22.0

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

Applicability Criteria.	**Applicability status**
1)This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plant(s)/unit(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s), or (e) Involve a replacement of (an) existing plant(s)/unit(s). (f) Install a Greenfield power plant together with a grid-connected Greenfield pumped storage power plant. The greenfield power plant may be directly connected to the PSP or connected to the PSP through the grid.	The proposed project involves establishing a new grid-connected renewable Solar power plant, confirming to the specified criteria.
2) In case the project activity involves the integration of a BESS, the methodology is applicable to grid-connected renewable energy power generation project activities that: (a)Integrate BESS with a Greenfield power plant; (b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic1 or wind power plant(s)/unit(s); (c) Integrate a BESS to (an) existing solar photovoltaic or wind power plant(s)/unit(s) without implementing any other changes to the existing plant(s); (d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or wind power plant(s)/unit(s). (e) Integrate a BESS together with a Greenfield power plant that is operating in coordination with a PSP. The BESS is located at site of the greenfield renewable power plant.	The project entails installing a new grid-connected renewable solar power project without the integration of a Battery Energy Storage System (BESS). Therefore, this condition does not apply to the project activity.
3)The methodology is applicable under the following conditions: (a) Hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power	The proposed project involves installing new solar power plants without integrating a Battery Energy Storage System (BESS). Thus, the mentioned criterion does not apply

capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity; (c) In case of Greenfield project activities applicable under paragraph 7(a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g., by referring to feasibility studies or investment decision documents); (d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies2 may the BESS be charged with electricity from the grid or a fossil fuel electricity generator. In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 below. The charging using the grid or using fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g., week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period. (e) In case the project activity involves PSP, the PSP shall utilize the electricity generated from the renewable energy power plant(s) that is operating in coordination with the PSP during pumping mode	
4)In case of hydro power plants, one of the following conditions shall apply: a)The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or b)The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7) is greater than 4 W/m2; or c)The project activity results in new single or multiple reservoirs and the power density calculate equation (7), is greater than 4 W/m2. d)The project activity is an integrated hydro power project involving multiple reservoirs, where the power density of any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m2, all of the following conditions shall apply. (i)The power density calculated using the total installed	The proposed project involves the installation of Solar power plants/units. Hence, the mentioned criterion is not applicable.

capacity of the integrated project, as per equation (8), is greater than 4 W/m2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii)Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2 are: a) Lower than or equal to 15 MW; and b) Less than 10 per cent of the total installed capacity of integrated hydro power project.	
5)In the case of integrated hydro power projects, project proponent shall: a)Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or b)Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability indifferent seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The proposed project activity involves the installation of Solar power plants/units. Therefore, the mentioned criteria are not applicable.
6) In the case of PSP, the project participants shall demonstrate in the PDD that the project is not using water which would have been used to generate electricity in the baseline.	The proposed project activity involves installing Solar power plants/units. Therefore, the specified criteria are not applicable.
7)The methodology is not applicable to: a)Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; b) Biomass-fired power plants;	The proposed project activity involves installing Solar power plants/units. Therefore, the specified criteria are not applicable.
8)In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance	The proposed project activity involves installing Solar power plants/units. Therefore, the specified criteria are not applicable.

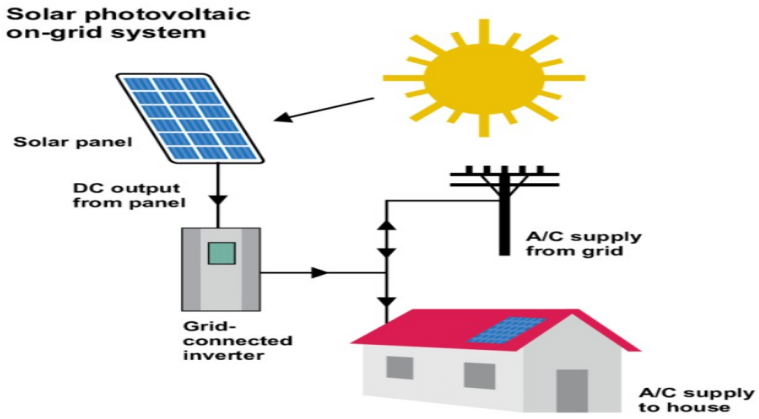
B.3. Applicability of double counting emission reductions >>

1. The project activity initially sought registration under Verified Carbon Standard (VCS) ID 2064[1]. However, the project proponent did not pursue VCS registration thereafter and remained unregistered. The Project Proponent is solely pursuing verification under the Universal Carbon Registry (UCR).
2. The project has not been applied under any other greenhouse gas (GHG) mechanism except for VCS. Additionally, for any period under UCR, VCS validation and verifications have not been conducted, and no credits have been issued. Therefore, the project will not cause double accounting of carbon credits (i.e., COUs).

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

The project boundary includes the physical, geographical site(s) of:
According to the methodology ACM0002, version 22.0.0 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.

The baseline study of the Indian grid shows that the main sources of GHG emissions under the baseline scenario are CO_2 emissions from the conventional power generating systems. Other emissions are that of CH_4 and N_2O but both emissions have been excluded for simplification. The project activity generates.



Source		GHGs	Included?	Justification/Explanation
Baseline Scenario	Grid connected electricity generation	CO_2	Yes	In the baseline scenario, the electricity would have been sourced from the Indian grid which in turn would be connected to fossil fuel fired power plants which emit CO_2.

[1] VCS 2064

		CH_4	No	No methane is expected to be emitted.
		N_2O	No	No nitrous oxide is expected to be emitted.
Project Scenario	Greenfield Solar energy conversion system	CO_2	No	The project activity does not emit any emissions.
		CH_4	No	No methane is expected to be emitted.
		N_2O	No	No nitrous oxide is expected to be emitted.

B.5. Establishment and description of baseline scenario (UCR Standard or Methodology**) >>**

As per the approved consolidated methodology ACM0002. version - 22, 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. 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.

As per approved consolidated methodology ACM0002, version 22.0, emission reduction is estimated as difference between the baseline emission and project emission after factoring into leakage

Emission reductions are calculated as per methodology ACM0002, Version 22.0 Equation 17:

$$ER_y = BE_y - PE_y \qquad \textbf{(Eq. 1)}$$

Where,

ER_y = Emissions reductions in year y (t CO2)
BE_y = Baseline emissions in year y (t CO2)
PE_y = Project emissions in year y (t CO2)

Baseline Emissions

The baseline emissions as per methodology ACM0002, Version 22.0, para 57 ; encompass solely the CO2 emissions stemming from electricity generation in power plants displaced by the project activity. The methodology operates on the assumption that any electricity generation exceeding baseline levels would have originated from established grid-connected power plants and the integration of new grid-connected power plants.

The Baseline emissions as per methodology ACM0002, Version 22.0 Equation 11 in year y can be calculated as follows:

$BE_y = EG_{PJ,y} * EF_{grid,,y}$

Where:

BE_y= Baseline emissions in year *y* (tCO_2/yr)

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

$EF_{grid,y}$= Grid Emission factor in year y (tCO_2/MWh)

Since the project activity is the installation of a new grid connected renewable power plant (green field project), hence, $EG_{PJ,y}$ has been calculated as:

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

Where:

$EG_{PJ,y}$	= Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year *y* (MWh/yr)
EGfacility,y	= Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh/yr)

A "grid emission factor" denotes the CO2 emission factor (measured in tCO2/MWh) associated with each unit of electricity supplied by an electricity system. The UCR suggests employing an emission factor of 0.9[2] from 2013 to 2023 and Emission Factor of 0.757 tCO2/MWh for 2024 as a cautious estimate for Indian projects. The same emission factor is utilized for computing emission reductions for the Project Activity.

Project Emission:

Regarding project emissions, ACM0002 version 22.0 specifies that only emissions related to fossil fuel combustion, emissions from the operation of geothermal power plants due to the release of non-condensable gases, and emissions from water reservoirs of hydroelectric plants should be taken into account. Since the project involves a solar power project, emissions from renewable energy plants are negligible
Hence (PEy = 0).

Leakage Emission:

[2]As per UCR CoU Standard Update: 2024 Vintage UCR Indian Grid Emission Factor Announced | by Universal Carbon Registry | Jan, 2025 | Medium

Leakage, as outlined in ACM0002 version 22.0, para 5.6, is considered to be zero as there is no transfer of energy-generating equipment in the project activity
Hence (LEy = 0).

Total Estimated Baseline Emissions are calculated as per the table below:

Year	Net Generation	Baseline Emissions	Project Emissions	Emission Reductions	EF
	MWh	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO2/MWh)
Year 2015	80416.80	72375	0.00	72375	0.9
Year 2016	79853.88	71868	0.00	71868	0.9
Year 2017	79294.91	71365	0.00	71365	0.9
Year 2018	78739.84	70865	0.00	70865	0.9
Year 2019	78188.66	70369	0.00	70369	0.9
Year 2020	77641.34	69877	0.00	69877	0.9
Year 2021	77097.85	69388	0.00	69388	0.9
Year 2022	76558.17	68902	0.00	68902	0.9
Year 2023	76022.26	68420	0.00	68420	0.9
Year 2024	75490.10	67941	0.00	67941	0.757
Total	**779303.815**	**701370**	**0**	**701370**	
Annual Average	**77930.381**			**70,137**	

Estimated Annual or Total baseline emission reductions (BE_y) = 70,137 CoUs /year (70,137 tCO_2eq/year)

B.6. Prior History>>

3. The project activity sought registration under Verified Carbon Standard (VCS) ID 2064[3], However, the project proponent did not pursue VCS registration thereafter and remained unregistered. The Project Proponent is solely pursuing verification under the Universal Carbon Registry (UCR).
4. The project has not been applied under any other greenhouse gas (GHG) mechanism except for VCS. Additionally, for any period under UCR, VCS validation and verifications have not been conducted, and no credits have been issued. Therefore, the project will not cause double accounting of carbon credits (i.e., COUs).

[3] VCS 2064

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

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

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

There are no permanent changes from registered PCN monitoring plan and applied methodology

B.9. Monitoring period number and duration>>

First Issuance Period: 9 Years 9 Months 23 Days– **09-03-2015 to 31-12-2024**

B.8. Monitoring plan>>

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

Data/Parameter	EGy, net
Data unit	MWh
Description	Net electricity supplied to the grid by the Project activity.
Measurement methods and procedures	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Calibration frequency: once in five years (as per CEA Indian provision) Cross checking: Quantity of net electricity supplied to or consumed at PP's facility will be cross-checked from the monthly bills or invoices raised. The Net electricity supplied to the grid will be calculated by the values of electricity export to the grid.The Net electricity is recorded as follows: Thus, $EG_{PJ,y} = EG_{Net,Export}$
Value Applied	**77930** (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)
Monitoring frequency	The net energy exported to the grid is measured every month using calibrated energy meter by the State Electricity Board authorities in the presence of the project implementer or its representatives. The meter/s shall be jointly inspected and sealed by authorised representatives of the company and the state utility. Measuring procedure: Will be measured by an export-import energy meter. The net electricity exported by the project plant would either be directly sourced as a measured parameter or be calculated by deducting the amount of imported electricity from the total amount

	of exported electricity. Accuracy class of energy meter: 0.2s Calibration Frequency: As per the Central Electricity Authority the testing and calibration frequency should be once in five years[4].
Purpose of data	For baseline emission calculations

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

Data / Parameter:	*EF*Grid,y
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 period 2013 - 2023 and 0.757 tCO2/MWh from 2024 as a fairly conservative estimate for Indian projects. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.
Source of data:	UCR CoU Standard Update: 2024 Vintage UCR Indian Grid Emission Factor Announced | by Universal Carbon Registry | Jan, 2025 | Medium
Measurement procedures (if any):	-
Monitoring frequency:	Ex-ante fixed parameter
QA/QC procedures:	For the calculation of Emission Factor of the grid
Any comment:	-

[4] https://cea.nic.in/wp-content/uploads/2020/02/meter_reg.pdf