



PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT



Title: 123.88 MW Bundled Wind, Solar and Hybrid Power Project by KP Group in Gujarat

Version 1.0

Date 10/01/2025

First CoU Issuance Period: 8 years, 11 months

Date: 13-01-2016 to 31-12-2024



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

BASIC INFORMATION

Title of the project activity	123.88 MW Bundled Wind, Solar and Hybrid Power Project by KP Group in Gujarat
Scale of the project activity	Large Scale
Completion date of the PCN	10/01/2025
Project participants	KPI GREEN ENERGY LIMITED (Project Proponent) KPIG ENERGIA PRIVATE LIMITED (Project Proponent) SUNDROPS ENERGIA PRIVATE LIMITED (Project Proponent) KP ENERGY LIMITED (Project Proponent) ADVAIT GREENERGY PRIVATE LIMITED (Authorized Representative)
Host Party	India
Applied methodologies and standardized baselines	ACM0002 Version 22.0 ¹
Sectoral scopes	01. Energy industries (Renewable - / Non-Renewable Sources)
Estimated amount of total GHG emission reductions	1,89,246 CoUs per year (1,89,246 tCO ₂ eq/yr)

¹ <https://cdm.unfccc.int/methodologies/DB/XB1TX7TAZ6SLWM9B7BC67THHVD16JV>

SECTION A. Description of project activity

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

The project 123.88 MW Bundled Wind, Solar and Hybrid Power Project by KP Group in Gujarat is located in the villages Matalpur, Keshav, Rinavada, Sathara, Samoj, Vedcha, Shahpura, Bhungar, Simdhara, Karad, Muler, Ranada, Sudi, Tancha, Kurchan, and Bhimpura, in the state of Gujarat, India. The project activity is a bundle of grid connected solar PV and wind power generation projects. The Project Proponents (PP) are given in the table below.

The details of the registered project are as follows:

Purpose of the project activity:

The purpose of the project activity is for displace GHG-intensive electricity generation with renewable electricity. The power is generated through a sustainable, clean and renewable power source, i.e., solar radiation and wind power. The total capacity of the bundle is 123.88 MW (AC). The individual project location and commissioning details are as follows:

Wind Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW _{AC})	Commissioning Date
KP ENERGY LTD	Matalpar	Bhavnagar	Wind	2.1	11-Mar-2016
KP ENERGY LTD	Keshav	Porbandar	Wind	2.1	31-Mar-2017
KP ENERGY LTD	Rinavada	Porbandar	Wind	2.1	30-May-2017
KP ENERGY LTD	Sathara	Bhavnagar	Wind	2.1	29-Jun-2017
			Total	8.4	

Solar Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW _{AC})	Commissioning Date
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.16	13-Jan-2016
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.39	24-Apr-2016
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.63	25-Jul-2016
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.7	24-Feb-2017
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	2.015	4-Jul-2017
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.97	23-Sep-2017
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.31	1-Dec-2017
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.05	31-Jul-2018

KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	2.52	29-Nov-2018
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.165	29-Jan-2019
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.71	30-Apr-2019
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	6.85	27-Jun-2019
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	5.43	21-Sep-2019
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	5.81	4-Nov-2019
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.783	31-Mar-2020
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.87	31-Mar-2020
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.56	6-Nov-2020
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	3.26	15-Dec-2020
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	6.2	1-Jun-2021
KPIG ENERGIA PVT LTD	Muler	Bharuch	Solar	1	1-Dec-2021
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	7.5	10-Dec-2021
KPI GREEN ENERGY LTD	Bhimpura	Bharuch	Solar	1.2	31-Dec-2021
KPI GREEN ENERGY LTD	Kurchan	Bharuch	Solar	1.2	11-Feb-2022
KPIG ENERGIA PVT LTD	Ranada	Bharuch	Solar	11	1-Mar-2022
KPI GREEN ENERGY LTD	Vedcha	Bharuch	Solar	0.6	25-Mar-2022
KPI GREEN ENERGY LTD	Vedcha	Bharuch	Solar	0.6	29-Mar-2022
KPIG ENERGIA PVT LTD	Ranada	Bharuch	Solar	4	1-Apr-2022
SUNDROPS ENERGIA PVT LTD	Ranada	Bharuch	Solar	4.5	1-Apr-2022
SUNDROPS ENERGIA PVT LTD	Ranada	Bharuch	Solar	1.5	1-Jun-2022
KPIG ENERGIA PVT LTD	Kurchan	Bharuch	Solar	0.44	1-Nov-2022
KPI GREEN ENERGY LTD	Samoj	Bharuch	Solar	0.4	1-Dec-2022
KPI GREEN ENERGY LTD	Vedcha	Bharuch	Solar	0.4	1-Mar-2023
KPIG ENERGIA PVT LTD	Kurchan	Bharuch	Solar	1.76	1-Mar-2023
KPI GREEN ENERGY LTD	Shahpura	Bharuch	Solar	0.88	23-Mar-2023

KPI GREEN ENERGY LTD	Shahpura	Bharuch	Solar	0.44	31-Mar-2023
KP ENERGY LTD	Simdhara	Bharuch	Solar	3.52	14-Jun-2023
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	1.32	14-Jun-2023
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	0.88	17-Jul-2023
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	1.32	24-Jul-2023
			Total	88.843	

Wind-Solar Hybrid Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Solar-Hybrid	7.04	11-Apr-2023
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Wind-Hybrid	9.2	11-Apr-2023
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Wind-Hybrid	6.9	24-Apr-2023
KPI GREEN ENERGY LTD	Samoj	Bharuch	Solar-Hybrid	1.4	14-Jun-2023
KPI GREEN ENERGY LTD	Samoj	Bharuch	Wind-Hybrid	2.1	14-Jun-2023
			Total	26.64	

As per the ex-ante estimate, the project will generate approximately 2,77,561.39 MWh of electricity per annum. The net generated electricity from the project activity is being wheeled to industrial customers through PPAs through the Indian grid (previously known as NEWNE grid) as per wheeling agreement signed between Power Purchasers and PP. The generation of power from solar photovoltaic and wind are 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. Wind power harnesses the natural, inexhaustible energy of the wind to generate electricity without emitting greenhouse gases. By replacing fossil fuels, it contributes significantly to climate change mitigation and promotes a sustainable, renewable energy future. 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 1,89,246 tCO₂e, whereas actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification. Since the project activity generates electricity through solar and wind energy, which are clean renewable energy sources, it will not cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

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

Social benefits:

- During the construction phase of the project, significant employment opportunities were generated for the local workforce. These opportunities not only supported the project's development but also had a positive impact on the community.
- Importantly, even after the project's implementation, it has continued to provide sustained employment for the local population. This ongoing support contributes to poverty alleviation in the surrounding area, ensuring that economic benefits extend throughout the project's lifetime.

Environmental benefits:

- The proposed project aims to generate electricity using a zero-emission solar and wind-based power generation facility. By harnessing solar and wind energy, the project avoids greenhouse gas (GHG) emissions and specific pollutants like SO_x, NO_x, and SPM associated with conventional thermal power plants. Solar and wind power are clean and renewable energy sources, contributing to resource conservation. It reduces reliance on fossil fuels and helps preserve natural resources that are at risk of depletion. Importantly, the project has minimal impact on land, water, air, and soil, ensuring a positive environmental footprint.
- Through solar photovoltaic (PV) and wind power technology, the project displaces an equivalent amount of power from the regional grid. This displacement directly contributes to reducing GHG emissions associated with electricity generation in India's regional grids. As the world strives to prevent permanent climate disaster by ramping up clean technologies by 2030, carbon incentive policies like the UCR CoU program play a crucial role.

Economic benefits:

- The project represents a strategic investment in clean technology, effectively mitigating CO₂ emissions from the grid. As a result, it qualifies for carbon incentives in the form of CoUs (Certified Emission Reduction Units), signifying an influx of clean energy investments into the host country. The project's operations necessitate both temporary and permanent skilled and semi-skilled manpower at the project site, thereby creating additional employment opportunities within the region.
- By replacing grid-based electricity, the project ensures that surplus power is available for nearby areas. This direct and indirect benefit contributes to local economic growth and enhances overall quality of life. Furthermore, the success of such projects can catalyze new industrial ventures and economic activities in the area. As the world strives to limit global warming to a 1.5-degree Celsius increase by 2030, these initiatives also offer carbon incentives for capacity upgrades or expansions.
- Beyond improved employment prospects, local communities stand to gain better land prices, fostering comprehensive economic development.

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

There was no harm identified from the project and hence no mitigations measures are applicable. Rational: as per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016)², it has been declared that solar and wind 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 Wind 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

Districts: Bharuch, Porbandar, and Bhavnagar

Villages: Matalpur, Keshav, Rinavada, Sathara, Samoj, Vedcha, Shahpura, Bhungar, Simdhara, Karad, Muler, Ranada, Sudi, Tancha, Kurchan, and Bhimpura.

The representation of the project locations is given below:



Source: Google Maps

² http://moef.gov.in/wp-content/uploads/2017/07/Latest_118_Final_Directions.pdf

A.4. Technologies/measures >>

The project activity is using clean renewable solar and wind 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 and Wind Power does not emit any GHGs or any other harmful gases unlike the operation of conventional 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 provided below:

Capacity of the Project	123.88 MW (AC)
SPV Modules – Type	Polycrystalline/Monocrystalline
SPV Modules – Make	Navitas / Goldi Green / Sonali Solar / Lanco/Emmvee
Type of Inverters	Central/String
Make of Inverters	Delta/Raychem/Growatt/Sungrow
Bi-Directional Meter Make	L&T/Secure

All the Wind Turbine Generators (WTGs) have been developed by Suzlon Energy Ltd. and Senvion Wind Technology Private Limited. In wind energy generation, kinetic energy of wind is converted into mechanical energy and subsequently into electrical energy. Wind has considerable amount of kinetic energy when blowing at high speeds. This kinetic energy when passes through the blades of the WEG is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected generator also rotates, thereby producing electricity. The technology is a clean technology since there are no GHG emissions associated with the electricity generation.

A.5. Parties and project participants >>

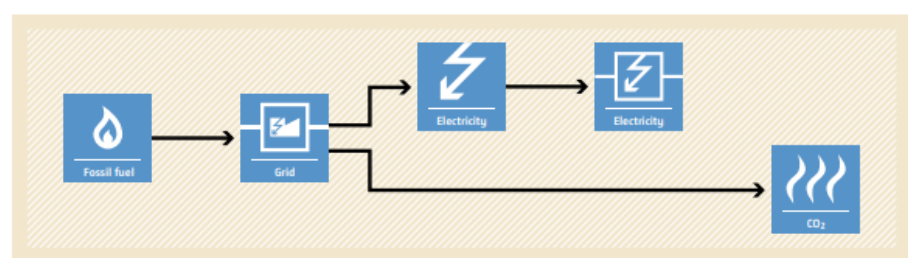
Party (Host)	Participants
INDIA	KPI GREEN ENERGY LIMITED
INDIA	KPIG ENERGIA PRIVATE LIMITED
INDIA	SUN DROPS ENERGIA PRIVATE LIMITED
INDIA	KP ENERGY LIMITED
INDIA	ADVAIT GREENERGY PRIVATE LIMITED (Authorized Represantor)

A.6. Baseline Emissions>>

The baseline scenario identified at the PCN stage of the project activity is: In the absence of the project activity, the equivalent amount of electricity would have been imported from the grid. This grid relies heavily on fossil fuel-based power plants, making it carbon-intensive. Therefore, the baseline scenario for the project activity aligns with the grid-based electricity system, which also represents the pre-project situation:

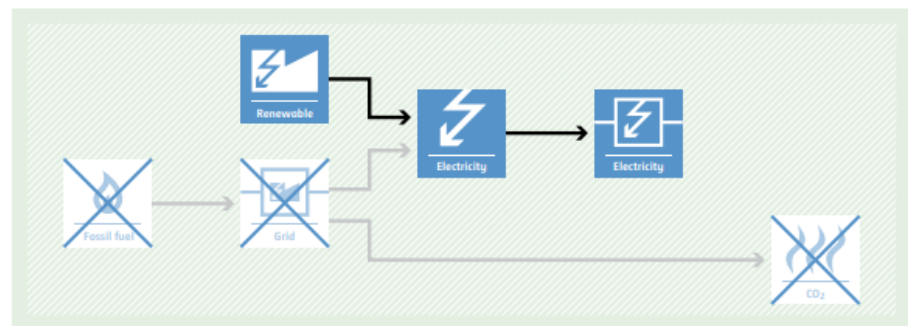
BASILINE SCENARIO

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



PROJECT SCENARIO

Displacement of electricity provided to the grid by more-GHG-intensive means by installation of a new renewable power plant or the retrofit, replacement or capacity addition of an existing renewable power plant.



A.7. Debundling>>

This 123.88 MW Bundled Wind and Solar Power Project by KPI Group in Gujarat 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 I - Renewable Energy Projects

CATEGORY- ACM0002: Grid-connected electricity generation from renewable sources - Version 22.0

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

Applicability Condition	Justification
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).	The project activity is (a) greenfield wind and solar power plants substituting electricity produced on the grid by renewable energy. Therefore, the project activity is applicable to the criteria.
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).	The project activity does not involve the integration of BESS. Hence, this criterion is not applicable.
The methodology is applicable under the following conditions: (a) Hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal	The project activity is Greenfield wind and solar power plants without the involvement of a BESS. Hence, this criterion is not applicable.

<p>power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;</p> <p>(b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power 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;</p> <p>(c) In case of Greenfield project activities applicable under paragraph 5 (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);</p> <p>(d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies 2 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 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.</p>	
<p>In case of hydro power plants, one of the following conditions shall apply:</p> <p>(a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or</p> <p>(b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation</p>	<p>The project is installation of Greenfield wind and solar power plants and hence this criterion is not applicable.</p>

<p>(7), is greater than 4 W/m²; or</p> <p>(c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m²; or</p> <p>(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m², all of the following conditions shall apply:</p> <p>(i) The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m²;</p> <p>(ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity;</p> <p>(iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m² shall be:</p> <p>a. Lower than or equal to 15 MW; and</p> <p>b. Less than 10 per cent of the total installed capacity of integrated hydro power project.</p>	
<p>In the case of integrated hydro power projects, project participants shall:</p> <p>(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</p> <p>(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 in different 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 of five years prior to the implementation of the CDM project activity.</p>	<p>The project is installation of Greenfield wind and solar power plants and hence this criterion is not applicable.</p>
<p>The methodology is not applicable to:</p> <p>(a) Project activities that involve switching</p>	<p>The project is installation of Greenfield wind and solar power plants and hence this</p>

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/units.	criterion is not applicable.
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 project is installation of Greenfield wind and solar power plants and hence this criterion is not applicable.

The project activity is applicable under the Common Eligibility Criteria for All Project Types, UCR CoU Standard (Updated August 2024) Version 7.0 and meets all the applicable conditions.

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 the ACM0002 Version 22.0 Methodology, the project boundary is “the spatial extent of the project boundary includes the project power plant/unit and all power plants/units connected physically to the electricity system that the project power plant is connected to.”

	Source	GHG	Included?	Justification/Explanation
Baseline	Emissions from burning non-renewable wood	CO2	Included	Major source of emission
		CH4	Excluded	Excluded for simplification. This is conservative
	Emissions from animal manure stored on site	N2O	Excluded	Excluded for simplification. This is conservative
Project Activity	Emissions from on-site electricity use	CO2	Excluded	Electricity is generated from clean, sustainable and renewable sources, i.e., solar.
	Emissions from residue from anaerobic digester composting	CH4	Excluded	Excluded for simplification. This is conservative
		N2O	Excluded	Excluded for simplification. This is conservative

B.5. Establishment and description of baseline scenario (ACM0002 Version 22.0) >>

As per the approved consolidated methodology ACM0002 Version 22.0, 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”.

Project Activity and Baseline: The project involves establishing new wind and solar power plants to harness green energy from renewable sources. The electricity generated will serve as a captive supply for a specific purpose. In the absence of this project, an equivalent amount of power would have been sourced from the Indian grid, which primarily relies on fossil fuel-fired plants. Therefore, the baseline for the project activity is the same amount of power produced by the Indian grid.

Grid Emission Factor: The term “grid emission factor” refers to the CO₂ emission factor (measured in tCO₂/MWh) associated with each unit of electricity provided by an electricity system. For Indian projects not previously verified under any GHG program, the UCR recommends using a conservative estimate of 0.9 tCO₂/MWh for the years 2013-2020. Additionally, for the vintage 2021-2022, the combined margin emission factor calculated from the CEA database in India indicates higher emissions than the default value. Consequently, the same emission factor has been applied to calculate emission reductions using a 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 (tCO₂e/y)

BE_y = Baseline Emissions in year y (t CO₂e/y)

PE_y = Project emissions in year y (tCO₂e/y)

LE_y = Leakage emissions in year y (tCO₂e/y)

Baseline Emissions

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:

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

BE_y = Baseline emissions in year y (tCO₂)

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

Estimated annual baseline emission reductions (BEy)
= 2,77,561.39 MWh/year *0.9 tCO₂/MWh
= 2,49,805 tCO₂e/year

Average Emission Reduction per year over the entire crediting period:
= 1,89,246 tCO₂e/year

Project Emissions (PEy)

As per ACM0002. version – 22.0, only emissions associated with fossil fuel combustion, emissions from the operation of geothermal power plants due to the release of non-condensable gases, and emissions from a water reservoir of Hydro should be accounted for the project emission. Since the project activity is a solar and wind electric power project, its emission from renewable energy plants is nil. Thus, PE = 0

Leakage Emission

As per ACM0002. version – 22.0, ‘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 zero. Hence, LE = 0

Estimated Emission reductions in year y (ERy)

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

Hence Net GHG emission reduction,
 $ER_y = 1,89,246 - 0 - 0$
= 1,89,246 tCO₂e/year (i.e., 1,89,246 CoUs/year)

Estimated Annual or Total baseline emission reductions (BEy) = 1,89,246 CoUs /year (1,89,246 tCO₂eq/yr)

B.6. Prior History>>

The project activity is a bundled large-scale wind and solar project, and this project was never applied under any other GHG mechanism prior to this registration with UCR. Also, the capacity or the total project has not been applied for any other environmental crediting or certification mechanism. Hence project will not cause double accounting of carbon offset units or credits (i.e., CoUs).

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

The crediting period under UCR has been considered from the date of commissioning of the earliest project in the bundle, i.e., 13/01/2016 to the end of the technical lifetime of the latest commissioned project in the bundle, i.e., 23/07/2048.

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: 8 years and 9 months, 13-01-2016 to 31-12-2024
Total Crediting Period of the Project Activity – 13/01/2016 to 23/07/2048

B.8. Monitoring plan>>

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

Data / Parameter:	EF _{CO2, GRID, y}
Data unit:	tCO ₂ /MWh
Description:	A "grid emission factor" refers to a CO ₂ emission factor (tCO ₂ /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 ₂ /MWh for the 2013 - 2020 years as a 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:	UCR Standard Protocol As per Standard
Value(s) applied	0.9 tCO ₂ e/MWh
Measurement procedures (if any):	N/A
Monitoring frequency:	N/A
QA/QC procedures:	N/A
Any comment:	N/A

Data and Parameters available at issuance (ex-post values):

Data/Parameter	EG _{PJ, facility, y}
Data unit	MWh
Description	Net electricity supplied to the Indian grid facility by the project activity.
Source of data	Joint meter reading report/Energy generation report
Value(s) applied	2,77,561.39 MWh
Measurement methods and procedures	Daily: Direct measurement using electricity meters
Monitoring frequency	Continuously, aggregated at least annually Calibration Frequency: The calibration will be done following the relevant applicable National Guidelines updated from time to time during the operation of the project activity.
Purpose of data	To get the total electricity generation from the project activity for the calculation of baseline emissions.