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 1.2

Date: 10/12/2025

First CoU Issuance Period: 08 years, 11 months, 18 days

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

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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	10/12/2025
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
Sectoral scopes	01. Energy Industries (Renewable - / Non-Renewable Sources)
Estimated amount of total GHG emission reductions	1,62,499 CoUs (1,62,499 tCO2eq) per year

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SECTION A. Description of project activity

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

The **123.88 MW Bundled Wind, Solar, and Hybrid Power Project by KP Group** is located across the villages of Matalpur, Keshav, Rinavada, Sathara, Samoj, Vedcha, Shahpura, Bhungar, Simdhara, Karad, Muler, Ranada, Sudi, Tancha, Kurchan, and Bhimpura in the state of Gujarat, India.

This project activity represents a bundle of grid-connected solar photovoltaic (PV) and wind power generation projects, including a hybrid system that combines both technologies. The Project Proponents (PPs) are listed 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 to displace GHG intensive electricity generation with renewable electricity. The power is generated through sustainable, clean, and renewable energy sources, namely solar energy and wind energy.

The total installed capacity of the bundled project activity is 123.88 MW (AC). The individual project locations with commissioning details and associated DISCOM are provided below:

Wind Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date	Associated DISCOM
KP ENERGY LTD	Matalpar	Bhavnagar	Wind	2.1	11-Mar-16	Gujarat Urja Vikas Nigam Ltd. (GUVNL)
KP ENERGY LTD	Keshav	Porbandar	Wind	2.1	31-Mar-17	Dakshin Gujarat Vij Company Limited (DGVCL)
KP ENERGY LTD	Rinawada	Porbandar	Wind	2.1	30-May-17	Madhya Gujarat Vij Company Limited (MGVCL)
KP ENERGY LTD	Sathara	Bhavnagar	Wind	2.1	29-Jun-17	Dakshin Gujarat Vij Company Limited (DGVCL)
			Total	**8.4**		

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Solar Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date	Associated DISCOM
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.16	13-Jan-16	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.39	24-Apr-16	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.63	25-Jul-16	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.7	24-Feb-17	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	2.015	04-Jul-17	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.97	23-Sep-17	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.31	01-Dec-17	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.05	31-Jul-18	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	2.52	29-Nov-18	Madhya Gujarat Vij Company Limited (MGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.165	29-Jan-19	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.71	30-Apr-19	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	6.85	27-Jun-19	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	5.43	21-Sep-19	Dakshin Gujarat Vij Company Limited (DGVCL)

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KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	5.81	04-Nov-19	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.783	31-Mar-20	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.87	31-Mar-20	Uttar Gujarat Vij Company Limited (UGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.56	06-Nov-20	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	3.26	15-Dec-20	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	6.2	01-Jun-21	Dakshin Gujarat Vij Company Limited (DGVCL)
KPIG ENERGIA PVT LTD	Muler	Bharuch	Solar	1	01-Dec-21	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	7.5	10-Dec-21	Madhya Gujarat Vij Company Limited (MGVCL)
KPI GREEN ENERGY LTD	Bhimpura	Bharuch	Solar	1.2	31-Dec-21	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Kurchan	Bharuch	Solar	1.2	11-Feb-22	Dakshin Gujarat Vij Company Limited (DGVCL)
KPIG ENERGIA PVT LTD	Ranada	Bharuch	Solar	11	01-Mar-22	Dakshin Gujarat Vij Company Limited (DGVCL) Madhya Gujarat Vij Company Limited (MGVCL)
KPI GREEN ENERGY LTD	Vedcha 2	Bharuch	Solar	0.6	25-Mar-22	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Vedcha 1	Bharuch	Solar	0.6	29-Mar-22	Dakshin Gujarat Vij Company Limited (DGVCL)

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KPIG ENERGIA PVT LTD	Ranada	Bharuch	Solar	4	01-Apr-22	Dakshin Gujarat Vij Company Limited (DGVCL)
SUNDROPS ENERGIA PVT LTD	Ranada	Bharuch	Solar	4.5	01-Apr-22	Dakshin Gujarat Vij Company Limited (DGVCL) Uttar Gujarat Vij Company Limited (UGVCL)
SUNDROPS ENERGIA PVT LTD	Ranada	Bharuch	Solar	1.5	01-Jun-22	Uttar Gujarat Vij Company Limited (UGVCL)
KPIG ENERGIA PVT LTD	Kurchan	Bharuch	Solar	0.44	01-Nov-22	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Samoj	Bharuch	Solar	0.4	01-Dec-22	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Vedcha 4	Bharuch	Solar	0.4	01-Mar-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KPIG ENERGIA PVT LTD	Kurchan	Bharuch	Solar	1.76	01-Mar-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Shahpura	Bharuch	Solar	0.88	23-Mar-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Shahpura	Bharuch	Solar	0.44	31-Mar-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KP ENERGY LTD	Simdhara	Bharuch	Solar	3.52	14-Jun-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	1.32	14-Jun-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	0.88	17-Jul-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	1.32	24-Jul-23	Dakshin Gujarat Vij Company Limited (DGVCL)
			Total	**88.843**		

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Wind-Solar Hybrid Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date	DISCOM
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Solar-Hybrid	7.04	11-Apr-23	Dakshin Gujarat Vij Company Limited (DGVCL) Madhya Gujarat Vij Company Limited (MGVCL)
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Wind-Hybrid	9.2	11-Apr-23	
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Wind-Hybrid	6.9	24-Apr-23	
KPI GREEN ENERGY LTD	Samoj	Bharuch	Solar-Hybrid	1.4	14-Jun-23	Dakshin Gujarat Vij Company Limited (DGVCL)
KPI GREEN ENERGY LTD	Samoj	Bharuch	Wind-Hybrid	2.1	14-Jun-23	
			Total	**26.64**		

As per the ex-ante estimate, the project will generate approximately 2,10,273.78 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)[1] as per

[1] National Grid

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wheeling agreement signed between Power Purchasers and PP.

The 123.88 MW bundled project activity, comprising solar, wind, and hybrid projects, has executed separate Wheeling Agreements with the respective DISCOMs[2] based on project locations. These agreements, valid for a period of 25 years in line with the operational lifetime of the projects, define the terms for energy injection, transmission losses, scheduling, and settlement.

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.

The project also incorporates a hybrid approach by combining solar PV and wind power generation. This ensures a more reliable and consistent supply of renewable electricity, as the two sources complement each other's variability. The hybrid system enhances grid stability while maximizing clean energy generation.

Thus, project activity leads to reduce the GHG emissions as it displaces power from fossil fuel-based electricity generation in the regional grid. The technological details have been provided in Section A.4.

The estimated annual average and the total CO_2 emission reduction by the project activity is expected to be 1,62,499 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.

Project's Contribution to Sustainable Development

This project is a greenfield initiative where the baseline electricity source is grid power. In India, the national grid has traditionally been dominated by electricity generated from fossil fuel-based power plants. Although the share of renewable energy in the grid is gradually increasing, the emission factor of the grid remains relatively high, making it a distinct and impactful baseline for renewable interventions.

SDG	Relevant SDG Target	Project Contributions
SDG7: Affordable and Clean Energy 	Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix.	The project contributes to Sustainable Development Goal 7 by generating 123.88 MW of renewable electricity using solar and wind energy systems. The clean energy generation at approximately 2,10,273.78 MWh annually produced is

[2] As per Wheeling Agreement

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		supplied directly to the grid, thereby reducing the dependency on fossil fuel-based electricity and enhancing access to sustainable, affordable energy.
SDG13: Climate Action 	Target 13.2: Integrate climate change measures into national policies, strategies and planning.	The project avoids significant greenhouse gas emissions during the monitoring period by replacing conventional fossil fuel-based energy sources with solar and wind power. This directly supports Sustainable Development Goal 13 by contributing to climate change mitigation and promoting a transition to low-carbon energy infrastructure. As a result, the project is expected to reduce approximately 1,62,499 tonnes of CO_2 equivalent (tCO_2e) annually on average over its crediting period. This significant reduction in greenhouse gas emissions supports national and global targets for carbon mitigation and represents a transition towards low-carbon energy infrastructure.

The 123.88 MW Bundled Wind, Solar, and Hybrid Power Project by KP Group in Gujarat therefore represents a milestone in advancing renewable energy adoption, reducing emissions, and accelerating the shift to a sustainable energy future.

The Government of India has stipulated following indicators for sustainable development in the interim approval guidelines for such projects which are contributing to GHG mitigations. The Ministry of Environment, Forests & Climate Change (MoEFCC), has stipulated economic, social, environment 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 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.

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

Technological Well-Being:

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

The project activity leads to the promotion and demonstrates the success of solar projects in the region which further motivate more investors to invest in solar and wind power projects. Hence, the project activity leads to technological well-being.

Environmental Well-Being:

The project activity will generate power using zero emissions solar based power generation facility which helps to reduce GHG emissions and specific pollutants like SOx, NOx, and SPM associated with the conventional thermal power generation facilities. The project utilizes solar energy for generating electricity which is a clean source of energy.

Also, being a renewable resource, use of solar energy to generate electricity contributes to resource conservation. It reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. The impact on land, water, air and soil is negligible. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well- being.

With regards to ESG credentials:

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

Under Environment:

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 SOx, NOx, 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.

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Under Social:

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.

Under Governance:

Governance criteria relate to overall operational practices and accounting procedure of the organization. With respect to this project, the Project Proponent 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 owned and managed by the PP 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.

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

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

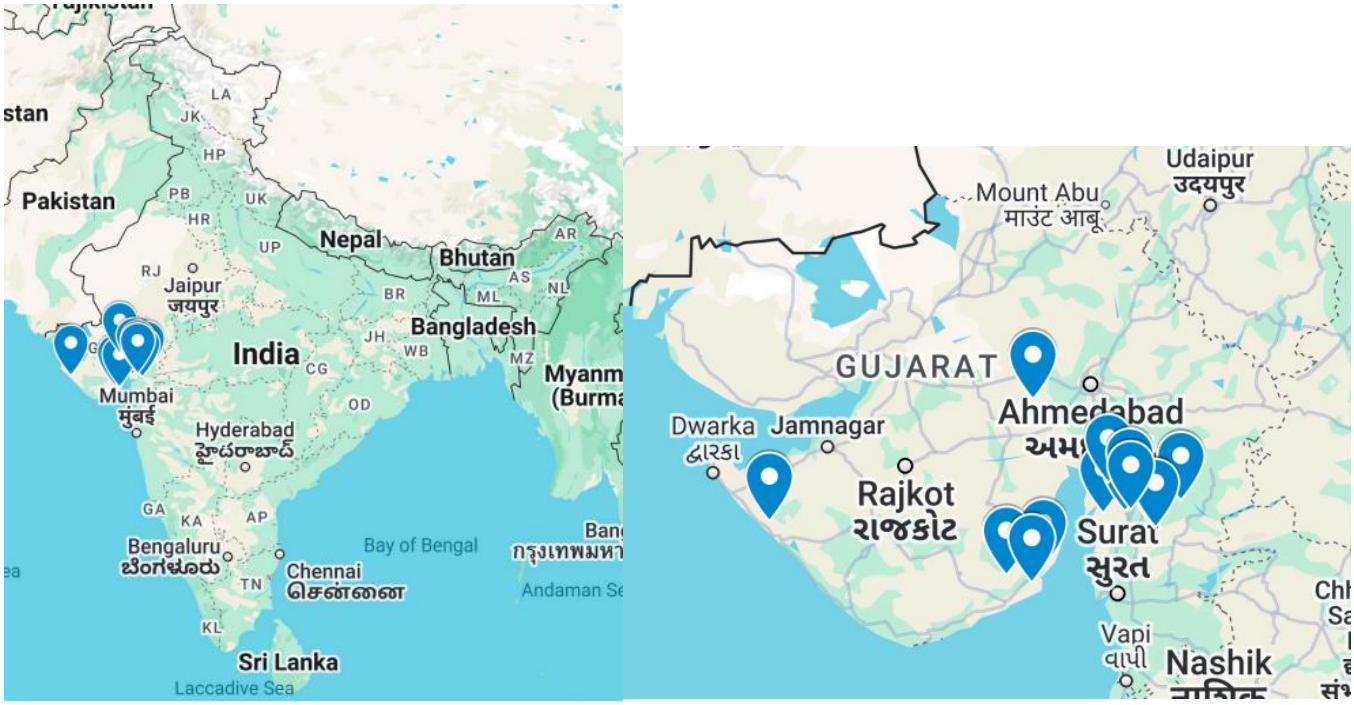
Rational: as per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016)[3], it has been declared that solar and wind project activity falls under the "**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: Bhimpura, Bhungar, Keshav, Kurchan, Matalpar, Muler, Ranada, Rinavada, Samoj, Sathara, Shahpura-1, Shahpura-4, Simdhara & Karad, Sudi & Tancha, Vedcha-1, Vedcha-2, Vedcha-4.

The representation of the project locations is given below:



Source: Google Maps and Geo-Coordinates[4]

[3] Environment Ministry
[4] As per Wheeling Agreement

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Wind Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date	Latitude Longitude
KP ENERGY LTD	Matalpar	Bhavnagar	Wind	2.1	11-Mar-16	**21.30467, 71.75556**
KP ENERGY LTD	Keshav	Porbandar	Wind	2.1	31-Mar-17	**21.78877, 69.49095**
KP ENERGY LTD	Rinawada	Porbandar	Wind	2.1	30-May-17	**21.75022, 69.53578**
KP ENERGY LTD	Sathara	Bhavnagar	Wind	2.1	29-Jun-17	**21.12055, 71.824**
			Total	**8.4**		

Solar Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date	Latitude Longitude
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.16	13-Jan-16	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.39	24-Apr-16	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.63	25-Jul-16	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.7	24-Feb-17	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	2.015	04-Jul-17	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.97	23-Sep-17	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.31	01-Dec-17	**21.89184, 72.89558**
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.05	31-Jul-18	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	2.52	29-Nov-18	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.165	29-Jan-19	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.71	30-Apr-19	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	6.85	27-Jun-19	

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KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	5.43	21-Sep-19	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	5.81	04-Nov-19	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.783	31-Mar-20	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	0.87	31-Mar-20	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	1.56	06-Nov-20	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	3.26	15-Dec-20	
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	6.2	01-Jun-21	
KPIG ENERGIA PVT LTD	Muler	Bharuch	Solar	1	01-Dec-21	**21.8734, 72.6817**
KPI GREEN ENERGY LTD	Sudi & Tancha	Bharuch	Solar	7.5	10-Dec-21	**21.8952, 72.89912**
KPI GREEN ENERGY LTD	Bhimpura	Bharuch	Solar	1.2	31-Dec-21	**21.98989, 72.88295**
KPI GREEN ENERGY LTD	Kurchan	Bharuch	Solar	1.2	11-Feb-22	**21.90261, 72.95901**
KPIG ENERGIA PVT LTD	Ranada	Bharuch	Solar	11	01-Mar-22	**21.89397, 72.91231**
KPI GREEN ENERGY LTD	Vedcha 2	Bharuch	Solar	0.6	25-Mar-22	**22.00806, 72.93829**
KPI GREEN ENERGY LTD	Vedcha 1	Bharuch	Solar	0.6	29-Mar-22	**22.00872, 72.94233**
KPIG ENERGIA PVT LTD	Ranada	Bharuch	Solar	4	01-Apr-22	**21.89397, 72.91231**
SUNDROPS ENERGIA PVT LTD	Ranada	Bharuch	Solar	4.5	01-Apr-22	
SUNDROPS ENERGIA PVT LTD	Ranada	Bharuch	Solar	1.5	01-Jun-22	
KPIG ENERGIA PVT LTD	Kurchan	Bharuch	Solar	0.44	01-Nov-22	**21.90261, 72.95901**
KPI GREEN ENERGY LTD	Samoj	Bharuch	Solar	0.4	01-Dec-22	**22.15181, 72.72794**
KPI GREEN ENERGY LTD	Vedcha 4	Bharuch	Solar	0.4	01-Mar-23	**22.00837, 72.93237**

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KPIG ENERGIA PVT LTD	Kurchan	Bharuch	Solar	1.76	01-Mar-23	**21.90261, 72.95901**
KPI GREEN ENERGY LTD	Shahpura	Bharuch	Solar	0.88	23-Mar-23	**21.8759, 73.10925**
KPI GREEN ENERGY LTD	Shahpura	Bharuch	Solar	0.44	31-Mar-23	**21.8717, 73.1101**
KP ENERGY LTD	Simdhara	Bharuch	Solar	3.52	14-Jun-23	**21.74663, 73.18334**
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	1.32	14-Jun-23	**21.74822, 73.17817**
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	0.88	17-Jul-23	
KP ENERGY LTD	Simdhara & Karad	Bharuch	Solar	1.32	24-Jul-23	
			Total	**88.843**		

Wind-Solar Hybrid Projects:

Project Proponent	Village	District	Project Type	Installed Capacity (MW_{AC})	Commissioning Date	Latitude Longitude
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Solar-Hybrid	7.04	11-Apr-23	**21.25252, 72.01685**
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Wind-Hybrid	9.2	11-Apr-23	
KPI GREEN ENERGY LTD	Bhungar	Bhavnagar	Wind-Hybrid	6.9	24-Apr-23	
KPI GREEN ENERGY LTD	Samoj	Bharuch	Solar-Hybrid	1.4	14-Jun-23	**22.14362, 72.72412**

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KPI GREEN ENERGY LTD	Samoj	Bharuch	Wind-Hybrid	2.1	14-Jun-23	
			Total	**26.64**		

A.4. Technologies/measures >>

The project activity utilizes clean renewable solar and wind energy to generate electricity. The applied technology is regarded as one of the most environmentally friendly options, as the operation of solar photovoltaic (PV) and wind power systems does not result in greenhouse gas (GHG) emissions or other harmful pollutants, unlike conventional fossil fuel-based power plants.

A photovoltaic module comprises several interconnected PV cells, encapsulated within an environmentally protective laminate, forming the fundamental building block of the PV generating system. Multiple modules mounted together on a frame constitute a PV array.

The project activity employs reliable, proven, and environmentally safe technologies, ensuring long-term operational sustainability while achieving significant GHG emission reductions through the displacement of fossil fuel-based electricity generation.

In wind energy generation, the kinetic energy of moving air is first converted into mechanical energy through the rotation of turbine blades, and subsequently transformed into electrical energy via a connected generator. When high-speed wind passes through the turbine blades, it causes them to rotate, which in turn drives the generator to produce electricity.

The synopsis of the Technical Arrangements of the project activity are provided below:

Total Capacity of the Project	123.88 MW (AC)
SPV Modules – Type	Polycrystalline/Monocrystalline
SPV Modules – Make	Goldi Green / Sonali Solar / Navitas Solar / Lanco Solar / Emmvee / Waaree / Seraphim / Renewsys / PV Powertech
Type of Inverters	Central/String
Make of Inverters	Delta/Raychem/Growatt/Sungrow
Bi-Directional Meter Make	L&T/Secure
Wind Turbine Generators (WTGs) - Make	Suzlon Energy Ltd. and Senvion Wind Technology Pvt. Ltd.

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This technology is recognized as a clean and sustainable solution, as electricity generation from wind power does not involve the combustion of fossil fuels and hence results in zero greenhouse gas (GHG) emissions during operation.

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 Representor)

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:

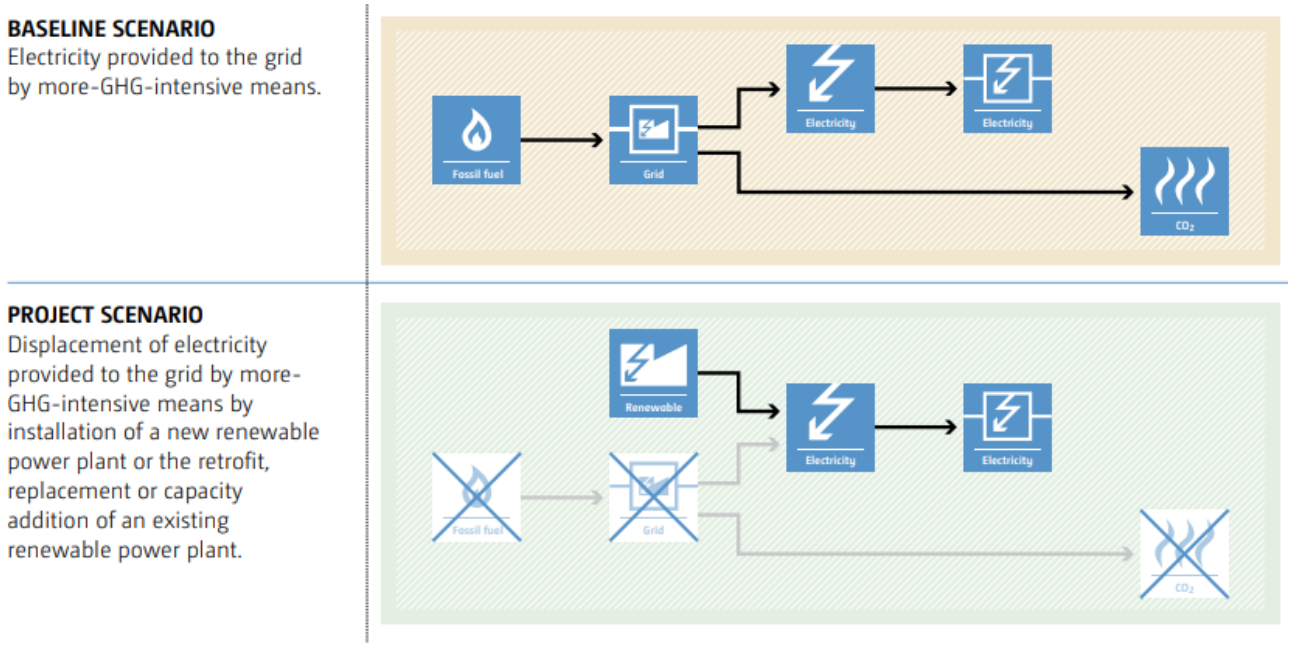

Figure 1

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.

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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[5]

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:	The project activity is Greenfield wind and solar power plants without the involvement of a BESS.

[5] ACM0002: Grid-connected electricity generation from renewable sources -Version 22.0

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(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 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 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); (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.	Hence, this criterion is not applicable.
In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in	The project is installation of Greenfield wind and solar power plants and hence this criterion is not applicable.

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existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (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 (7), is greater than 4 W/m2; or (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 (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: (i) The power density calculated using the total installed 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 shall be: 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.	
In the case of integrated hydro power projects, project participants 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 in different seasons to optimize the water flow at	The project is installation of Greenfield wind and solar power plants and hence this criterion is not applicable.

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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.	
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/units.	The project is installation of Greenfield wind and solar power plants and hence this 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

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Project	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

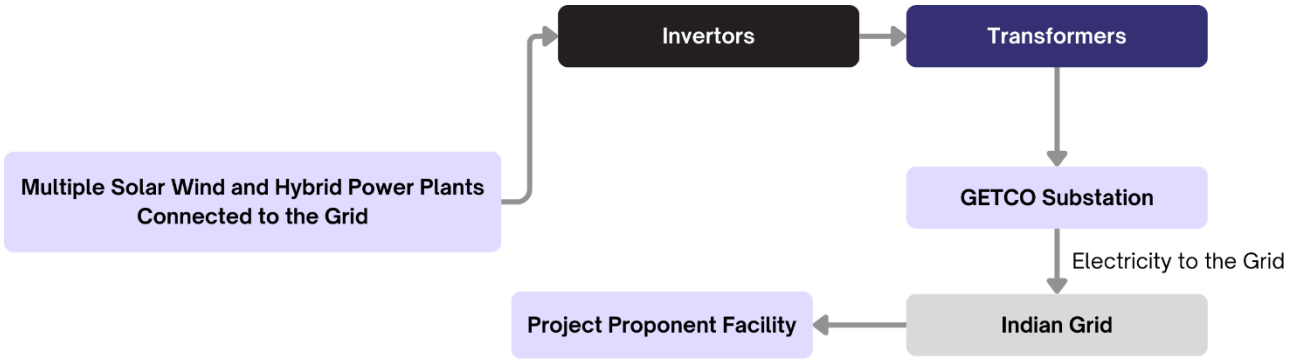

Figure 2: Project Boundary

Thus, the project boundary includes the Solar Wind and Hybrid power systems and the Indian grid system.

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**".

The project activity involves establishing new wind and solar power plants along with hybrid projects as well 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.

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 CO_2 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 tCO_2/MWh for the 2013–2023 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. The UCR recommends a grid emission factor of 0.757 tCO_2/MWh for the 2024 vintage year as a fairly conservative estimate for Indian projects not previously verified under any GHG program.

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In this project activity, the emission factor is determined in two distinct phases. For the period year up to 2023, a grid emission factor of 0.9 tCO_2/MWh is applied and for the year 2024, a grid emission factor of 0.757 tCO_2/MWh in accordance with the updated UCR guidelines.

In the Project Concept Note (PCN), a conservative grid emission factor of 0.9 tCO_2/MWh was used for ex-ante emission reduction estimates, as recommended by UCR for projects not previously registered under any GHG program.[6]

Net GHG Emission Reductions and Removals

Thus,

$ER_y = BE_y - PE_y - LE_y$

Where:

ER_y	=	Emission reductions in year y (tCO_2/y)
BE_y	=	Baseline Emissions in year y (t CO_2/y)
PE_y	=	Project Emissions in year y (t CO_2/y)
LE_y	=	Leakage Emissions in year y (t CO_2/y)

Baseline Emissions

Baseline emissions include only CO_2 emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

Where;

BE_y	Baseline Emissions in year y (t CO_2)
$EG_{PJ,y}$	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 factors of 0.9 tCO_2/MWh and 0.757 tCO_2/MWh has been considered.

Project Emissions

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, it's emission from renewable energy plants is nil.

Thus, $\mathbf{PE_y = 0}$.

Leakage Emissions

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.

[6] UCR CoU Standard Update

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Hence, **$LE_y = 0$**.

Since the project emissions are non-existent in the project activity so the emission reductions (ER_y) are equal to the baseline emissions due to the displacement of electricity (BE_y)

$$ER_y = BE_y$$

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

Estimated annual baseline emission reductions (BE_y)

BE_y = 1,62,499 tCO_2/year (i.e., 1,62,499 CoUs/year)

Year	Generation	Baseline Emissions	Project Emissions	Leakage Emissions	Emission Reductions
	(MWh)	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)
2016	9,435.10	8,491	0	0	8,491
2017	28,609.00	25,748	0	0	25,748
2018	41,562.22	37,405	0	0	37,405
2019	63,918.74	57,526	0	0	57,526
2020	92,914.50	83,623	0	0	83,623
2021	1,11,097.99	99,988	0	0	99,988
2022	1,72,193.57	1,54,974	0	0	1,54,974
2023	2,47,099.45	2,22,389	0	0	2,22,389
2024	2,77,561.39	2,10,113	0	0	2,10,113
2025	2,77,561.39	2,10,113	0	0	2,10,113

Hence, Estimated Annual Emission Reductions (ER_y) = 1,62,499 CoUs/year (1,62,499 tCO_2e/year)

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; Date: 13/01/2016

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, 11 months, 18 days - 13/01/2016 to 31/12/2024

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B.8. Monitoring plan>>

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

Data/Parameter	UCR recommended emission factor
Data unit	tCO_2 /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 tCO_2/MWh for the 2013–2023 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. The UCR recommends a grid emission factor of 0.757 tCO2/MWh for the 2024 vintage year as a fairly conservative estimate for Indian projects not previously verified under any GHG program.
Source of data	UCR CoU Standard and UCR CoU Standard Update
Value(s) applied	Emission Factor (Till 2023): 0.90 Emission Factor (2024 Onwards): 0.757
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of data	For the calculation of Emission Factor of the grid
Additional Comment	The value has been considered here for an ex-ante estimation only.

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

Data / Parameter:	$EG_{PJ,y}$
Data unit:	MWh
Description:	Net electricity supplied to the Indian grid facility by the project activity
Source of data:	Generation Statements
Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Archiving Policy: Electronic The electricity generation is monitored directly through energy meters installed by GETCO. The generation data is recorded, maintained, and periodically revised by GETCO based on their own meter readings and calibration processes.
Monitoring frequency:	Monthly
Value applied	2,10,273.78 (Ex-ante estimate)
QA/QC procedures:	Continuous monitoring, hourly measurement monthly recording. Tri-vector (TVM)/ABT energy meters with accuracy class 0.2s
Purpose of data:	Calculation of baseline emissions
Any comment:	The renewable power generated by the project is wheeled for captive consumption. Therefore, during monitoring and verification, the provisions outlined in the wheeling agreement may be referred to as supporting documentation.

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