



PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT



Title: 2.425 MW Bundled Wind Power Project in Tamil Nadu

Version 1.0

Date: 27/10/2023

First CoU Issuance Period: 10 years, 0 months

Date: 01/01/2013 to 31/12/2022



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

BASIC INFORMATION

Title of the project activity	2.425 MW Bundled Wind Power Project in Tamil Nadu
Scale of the project activity	Small Scale
Completion date of the PCN	27/10/2023
Project participants	First Climate (India) Private Limited (Aggregator) Loyal Renewable Energy Pvt. Ltd. (Developer)
Host Party	India
Applied methodologies and standardized baselines	CDM UNFCCC Methodology AMS- I.D Grid connected renewable electricity generation (Version 18.0)
Sectoral scopes	01 Energy industries (Renewable/Non Renewable Sources)
Estimated amount of total GHG emission reductions	5,340 tCoUs/year (5,340 tCO _{2e} /year)

SECTION A. Description of project activity

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

The project “2.425 MW Bundled Wind Power Project in Tamil Nadu” is a bundled project consisting of 10 Wind Energy Generators, or WEGs located in 6 different villages in the of district of Tiruppur and Tenkasi, in Tamil Nadu, India.

The concerned WEGs have been installed over time, from 2009 to 2012. The details of the commissioning date and location of project WEGs are as follows:

Sr. No	HTSC No. (Old)	HTSC. No (New)	Installed capacity (KW)	Commissioning Date	Village	State
1	1717	039224391464	250	29-09-2009	Kethalrav	Tamil Nadu
2	2030	039224391834	250	15-03-2011	Eragampatti	Tamil Nadu
3	374	039204340304	225	20-03-2004	Metrathy	Tamil Nadu
4	375	039204340305	225	20-03-2004	Metrathy	Tamil Nadu
5	376	039204340306	225	20-03-2004	Metrathy	Tamil Nadu
6	3093	79224723093	250	24-03-2010	Serthamangalam	Tamil Nadu
7	1016	39214391016	250	23-09-2006	Elavanthy	Tamil Nadu
8	2885	79224722885	250	29-07-2009	Serthamangalam	Tamil Nadu
9	4125	79224724125	250	31-03-2012	Serthamangalam	Tamil Nadu
10	4114	79224724114	250	31-03-2012	Sambavar Vadakari	Tamil Nadu

Purpose of the project activity:

The project activity is a bundled wind project with total capacity of 2.425 MW, which has been developed to generate clean electricity utilizing wind energy. The project proponent, Loyal Renewable Energy Private Limited, has signed wheeling agreements with Tamil Nadu Generation and Distribution Corporation Limited (TANGDCO), to transfer the green electricity generated from the project activity to a designated consumer. The project activity replaces anthropogenic emissions of greenhouse gases (i.e., GHGs) into the atmosphere, by displacing equivalent amount of electricity generation through the operation of conventional fuel (i.e., mostly fossil fuel-based) power plants. The main purpose of the project activity is to generate electrical energy through sustainable means by using wind power resources. Thus, the generated green electricity will contribute to climate action and climate change mitigation efforts by avoiding GHG emissions.

The project activity comprises of 10 WEGs installed at different locations in Tamil Nadu. As all the

project WEGs have been commissioned after 2002 and before 2013, so, as per UCR guideline, the start date of the crediting period for the project would start from 01/01/2013.

In the absence of the project activity, equivalent amount of electricity would have been generated from conventional sources of energy generation in India. As the Indian grid is majorly coal-fed, the electricity would have been mostly supplied from fossil fuel-based thermal power plants. The electricity generated from the wind energy generators being GHG-emission free contributes to avoidance of GHG emission and thereby promotes climate action. The project activity is envisaged to generate 5736 MWh/ year of renewable electricity and is expected to reduce anthropogenic GHG emissions by 5,340 t-CO₂e/year.

The project activity, beside “Climate action” (i.e., SDG 13), addresses multiple other UN SDGs too. The list of the SDGs addressed through the Project is mentioned below:

SDG	The Project contributes to	Description of contribution
 SDG 7: Affordable and Clean Energy	Target: 7.1 Indicator: 7.1.2 Target: 7.2 Indicator: 7.2.1 Target: 7.a Indicator: 7.a.1 Target: 7.b Indicator: 7.b.1	Wind power generation system promotes greenhouse gas emission avoidance and by requesting submission of this project under UCR, the project owner is evidently seeking international cooperation to facilitate investment into clean energy infrastructure. By installing Wind Energy Generator's for generating renewable energy, the demand of fossil fuels is reduced.
 SDG 8: Decent work and Economic Growth	Target: 8.4 Indicator: 8.4.1	By using renewable energy sources for economic productivity to achieve same outcomes at the process level- the project owner aims to decouple environmental degradation, global warming and climate crisis from economic productivity.
 SDG 9: Industry, Innovation and Infrastructure	Target: 9.4 Indicator: 9.4.1	The project directly contributes to abatement of carbon dioxide emissions.

 SDG 12: Responsible Consumption and Production	Target: 12.2 Indicator: 12.2.1 Target: 12.a Indicator: 12.a.1	By installing renewable energy generating systems, the project owner is moving towards more sustainable patterns of consumption and production.
 SDG 13: Climate Action	Target: 13.2 Indicator: 13.2.2	Wind power generation system avoids the GHG emissions of the planet at large.

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 benefits:**

- The installation and commissioning activity of this wind power project provides employment which further contributes to economic development.
- Such project promotes green jobs and having sustainability at its core, employees also discover a sense of meaning and purpose of their jobs and value their collective and individual contributions in building a sustainable future. This in turn promotes happiness and harmony in the employees.
- The occupational hazards associated with the coal mining industry is serious and impairs the healthy living of the miners. By promoting green energy, the use of coal (which is the primary and major energy fuel supplying electricity to the grid) is discouraged and thereby coal mining industry is discouraged. This abates the exposure of people to such dangerous working conditions.

- **Environmental benefits:**

- As this project generates renewable energy, it replaces the use of coal (the most common fuel of choice for generating electricity) in the grid and promotes greenhouse gas emission avoidance in the course.
- By avoiding global warming (from using fossil fuels for electricity which would have otherwise occurred in absence of the project activity), the project owner is avoiding further catastrophic impacts on the global climate due to global warming. Events such as melting ice caps, increase in sea levels, changes in global rainfall patterns and its subsequent impact on agriculture, health and diseases, food security and economy are significant problems that can be reduced with such GHG emission avoidance projects.

- **Economic benefits:**

- The more renewable energy is adopted, the more shall this industry flourish- reducing the marginal cost of the next installation. Over time, there shall be a sizeable reduction in cost of installation of such projects due to economies of scale.
- A prosperous renewable energy generation industry helps in creating new and promising avenues for employment and investment of capital. This in turn shall lead to economic prosperity.

- **Technological benefits:**

- Adoption and implementation of renewable energy generation projects promote more investment of men, capital and resources into the research and development of better and more efficient technologies in this domain.
- When the technology becomes rampant, it is easier to locate for spare parts, qualified service staff, etc., promoting continued and sustained use of the renewable technology equipment.

A.3. Location of project activity >>

Country: India

Districts: Tiruppur and Tenkasi

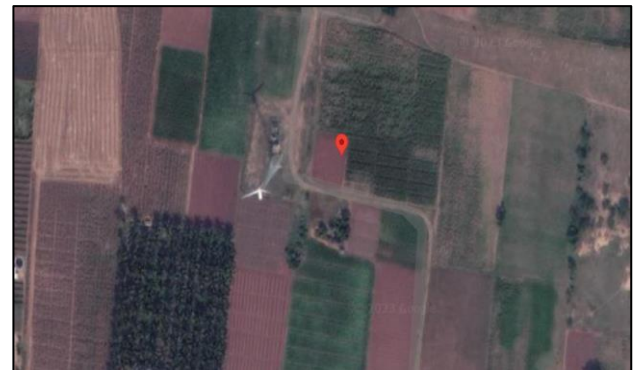
State: Tamil Nadu

The project site is well connected by district and village roads to the nearest town. The geographic co-ordinates of the project location are:

Sr.No	HTSC No. (Old)	HTSC. No (New)	Installed capacity (KW)	Physical address	Geographical co-ordinates
1	1717	039224391464	250	Kethalrav village, Tiruppur district	10.7666 N 77.4055 E
2	2030	039224391834	250	Eragampatti village, Tiruppur district	10.7983 N 77.3998 E
3	374	039204340304	225	Metrathy village, Tiruppur district	10.6731 N 77.3182 E
4	375	039204340305	225	Metrathy village, , Tiruppur district	10.6745 N 77.3176 E
5	376	039204340306	225	Metrathy village, Tiruppur district	10.6755 N 77.3173 E
6	3093	79224723093	250	Serthamangalam village, Tenkasi district	9.0397 N 77.4324 E
7	1016	39214391016	250	Elavanthy village, Tiruppur district	10.9446 N 77.3120 E
8	2885	79224722885	250	Serthamangalam village, Tenkasi district	9.0588 N 77.4040 E
9	4125	79224724125	250	Serthamangalam village, Tenkasi district	9.0404 N 77.4274 E
10	4114	79224724114	250	Sambavar Vadakari village, Tenkasi district	9.0232 N 77.3897 E



HTSC No: 039224391834



HTSC No: 039204340305



HTSC No: 039204340306



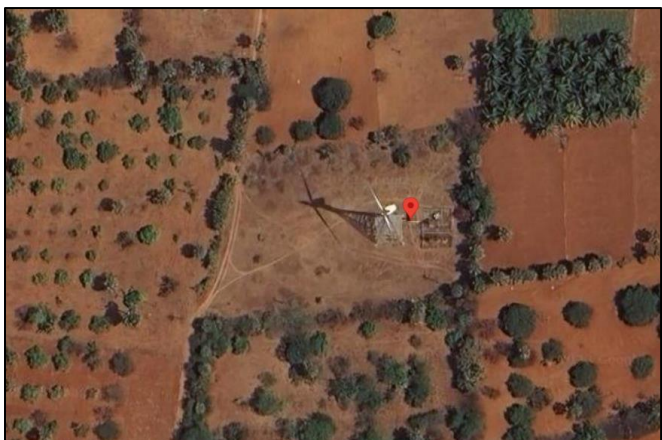
HTSC No: 79224723093



HTSC No: 39214391016



HTSC No: 79224722885



HTSC No: 79224724125



HTSC No: 79224724114

Map showing the exact locations of the project activities

A.4. Technologies/measures >>

The proposed project activity involves installation and operation of Wind Energy Generators (WEGs) with a total installed capacity of 2.425 MW located in the state of Tamil Nadu. The project activity generates renewable energy. The applied technology is considered to be one of the most environment friendly technologies available for energy generation as the electricity generated from the wind energy generators does not emit any GHGs or any other harmful gases- unlike the operation of conventional thermal power plants, which is the dominant type of electricity generation plant in India.

Sr.No	Parameters Locations	No. of WEGs	Rated Power (KW)	Rotor Diameter (m)	Cut in speed (m/sec)	Cut out speed (m/sec)	Hub height (m)
1	Kethalrav	1	250	30	3.4	25	50
2	Eragampatti	1	250	29	3	24	50
3	Metrathy	1	225	29	5	20	50
4	Metrathy	1	225	29	5	20	50
5	Metrathy	1	225	29	5	20	50
6	Serthamangalam	1	250	29	3	25	48
7	Elavanthy	1	250	29	3	25	48
8	Serthamangalam	1	250	29	3	25	48
9	Serthamangalam	1	250	29.6	4	25	50
10	Sambavar Vadakari	1	250	29.6	4	25	50



HTSC No: 039224391834
(Eragampatti)



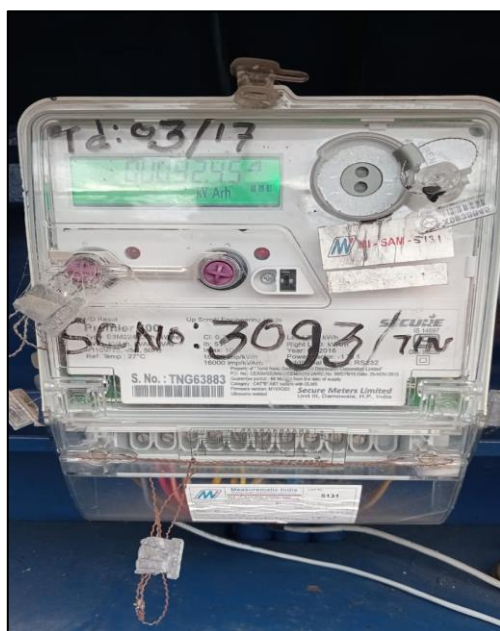
HTSC No: 039204340304
(Metrathy)



HTSC No: 039204340305
(Metrathy)



HTSC No: 039204340306
(Metrathy)



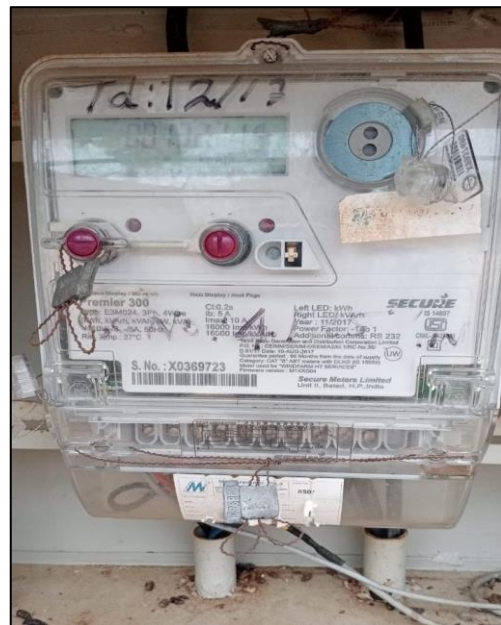
HTSC No: 79224723093
(Serthamangalam)



HTSC No: 39214391016
(Elavanthy)



HTSC No: 79224722885
(Serthamangalam)



HTSC No: 79224724125
(Serthamangalam)



HTSC No: 79224724114
(Sambavar Vadakari)

Energy Meters of Wind Energy Generators

A.5. Parties and project participants >>

Party (Host)	Participants
India	First Climate (India) Private Limited (AGGREGATOR) Contact person: Partha P Chaudhuri Mobile: +91 9831012824 Address: 903, ERGO Tower, Plot No. A1-4, Block EP & GP, Sector V, Salt Lake, Kolkata 700 091 Loyal Renewable Energy Private Limited (DEVELOPER) Address: Plot No. 32, First Cross Street, Chandran Nagar, Chromepet, Chennai, Tamil Nadu 600 044

A.6. Baseline Emissions>>

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

In absence of the project activity, equivalent amount of electricity requirement would have been met using conventional energy resources, mostly coal-fired thermal power plants. Therefore, in absence of the project, equivalent quantity of electricity would have been provided to the grid from GHG-emission intensive power generation plants; representing the baseline scenario for the project.

This is a green field project activity. There was no energy generation activity at the project site prior to the implementation of this project activity. Hence pre-project scenario and baseline scenario are the same.

The baseline emissions scenario and the project scenario are depicted in the following diagram:

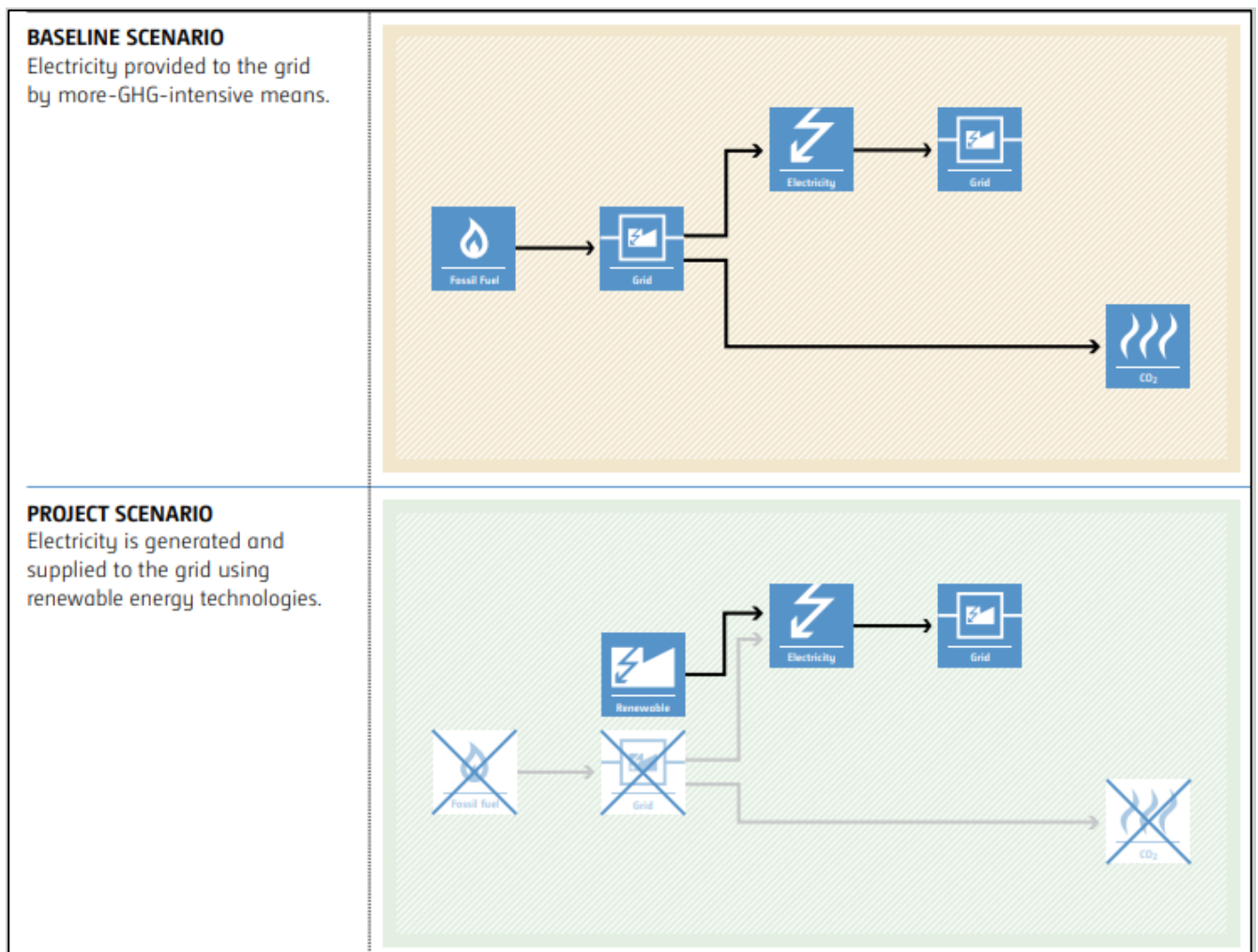


Image Source: https://cdm.unfccc.int/methodologies/documentation/meth_booklet.pdf

A.7. Debundling>>

This “2.425 MW Bundled Wind Power Project in Tamil Nadu” 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 I - Renewable Energy Projects

CATEGORY- AMS- I.D Grid connected renewable electricity generation (Version 18.0)

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

Applicability of AMS- I.D	Justification of its application or non-application with respect to the Project
The scope of this methodology mentions: “This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a) Supplying electricity to a national or a regional grid; or b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.”	Applicable The project activity is renewable energy project i.e., wind power plant which supplies electricity to an identified consumer facility via grid through a contractual arrangement such as wheeling. Hence, the scope of the methodology applies to the project activity.
“This methodology is applicable to project activities that: a) Install a Greenfield plant; b) Involve a capacity addition in (an) existing plant(s); c) Involve a retrofit of (an) existing plant(s); d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or e) Involve a replacement of (an) existing plant(s)”	Applicable The project activity is a greenfield plant. Clause (a) of the given applicability condition is fulfilled and meet by the project. Therefore this condition applies to the project.
“Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir; b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater	Not Applicable The project activity involves installation of Wind Energy Generators (WEGs); hence this criterion is not applicable.

than 4 W/m² ; c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m² .”	
“If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.”	Not Applicable 100% of the project’s generation capacity is wind-powered, i.e., there is only renewable energy generation component in this project and thus the criteria is not applicable to this project activity
“Combined heat and power (co-generation) systems are not eligible under this category.”	Not Applicable The project activity is wind power project thus the criterion is not applicable to this project activity.
“In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.”	Not Applicable The proposed project is a greenfield 2.425 MW wind power project. As no capacity addition is taking place thus the criterion is not applicable to this project activity.
“In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.”	Not Applicable The proposed project is a greenfield 2.425 MW wind power project. The project activity does not involve retrofit, rehabilitation or replacement. Therefore, the criterion is not applicable to this project activity.
“In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as “AMS-I.C.: Thermal energy production with or without electricity” shall be explored.”	Not Applicable The project activity is wind power project. Thus the criterion is not applicable to this project activity.
“In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply.”	Not Applicable No biomass is involved, the project is only a wind power project and thus the criterion is not applicable to this project activity.

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

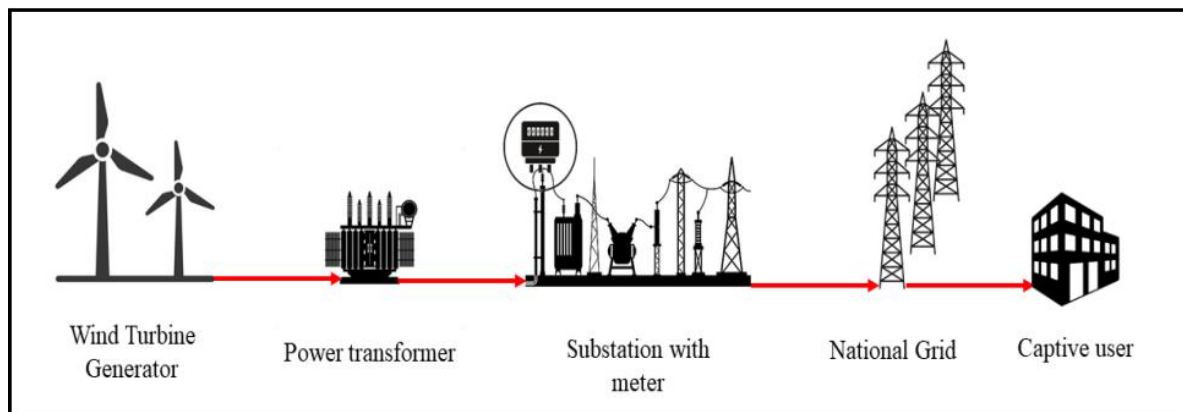
There is no double accounting of emission reductions in the project activity due to the following reasons:

- The project is a new green field project and neither registered previously in any other voluntary or compliance program, nor a de-bundled component of any large scale project or Programme of Activities (PoA).
- No GHG emission avoidance project was located at the given locations prior to the project.

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

As per applicable methodology, AMS-I.D (version 18.0) para 18- “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to.”

Project boundary of this project is illustrated below:



The table below provides an overview of the emissions sources included or excluded from the project boundary for determination of baseline and project emissions.

Source		GHG	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	CO ₂	Yes.	Major source of emission
		CH ₄	No.	Minor source of emission
		N ₂ O	No.	Minor source of emission
Project activity	Greenfield Wind Power Project	CO ₂	No.	No CO ₂ is emitted from the project
		CH ₄	No.	Project activity does not emit CH ₄
		N ₂ O	No.	Project activity does not emit N ₂ O

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

Baseline Emissions:

As per paragraph 22 of AMS.I.D. Version 18.0, “Baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:”

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

Where:

BE_y	=	Baseline emissions in year y (t 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)
$EF_{grid,y}$	=	Combined margin CO ₂ emission factor for grid connected power generation in year y

Project Emissions:

As per the methodology AMS-I.D. (Version 18.0) para 39, for most renewable energy project activities
PE_y = 0.

As the project activity is the installation of a new grid-connected wind power generation that supplies electricity to designated entity via wheeling and does not involve any project emissions thus,

$$PE_y = 0 \text{ tCO}_2/\text{year}$$

Leakage Emissions:

As per methodology AMS-I.D (version 18.0) para 42, leakage for the project activity is not considered as the project involves grid connected wind power generation. Therefore, there is no leakage emission from the project activity.

$$\text{Hence, } LE_y = 0 \text{ tCO}_2/\text{year}$$

Estimated Annual or Total baseline emission reductions (BE_y) = 5,340 CoUs /year (5,340 tCO₂eq/yr)

B.6. Prior History>>

The project activity has not applied to any other GHG program for registration or issuance of credits for the said crediting period. This is a green field project and has never got registered, de-registered or rejected in any other GHG emission reduction programme before. Also, the project has never been a part of any large scale project activity or a PoA.

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: 10 years, 0 months – 01/01/2013 to 31/12/2022

B.8. Monitoring plan>>

The following parameter(s) shall be fixed ex-ante for calculation purposes:

Data/Parameter	EF _{Grid,y}
Data unit	t CO 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. UCR recommends an emission factor of 0.9 tCO ₂ /MWh for the 2013-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Emission factors for the post 2020 period is to be selected as the most conservative estimate between the national electricity/power authority published data set and UCR default of 0.9 tCO ₂ /MWh.
Source of data Value(s) applied	UCR Standard (version 6)
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of data	For the calculation of Emission Factor of the grid

The following parameter(s) shall be monitored:

Data / Parameter:	EG _{PJ,y}
Data unit:	MWh
Description:	Net electricity supplied to the designated consumer the project activity.
Source of data:	Energy Meter records and/or generation statement
Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Archiving Policy: Paper & Electronic Calibration Frequency: Once in 5 years (as per CEA India provision).
Monitoring frequency:	Monthly
QA/QC procedures:	--
Purpose of data	The data is required to calculate baseline emission
Any comment:	-