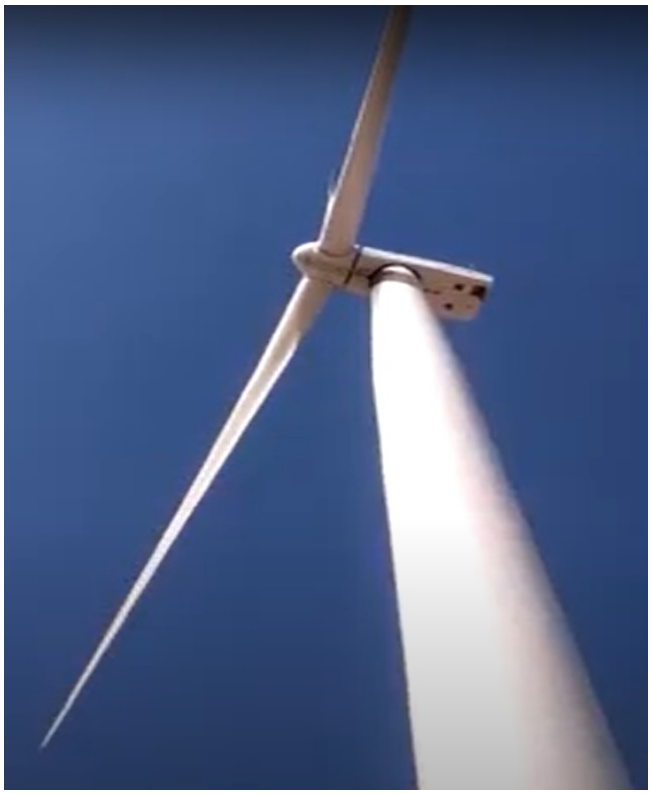
PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT



Title: 14.75 MW bundled Wind Power project by Vivek Pharmachem

Version 1.0

Date 14/10/2022

First CoU Issuance Period: 08 years, 00 months

Date: 01/01/2013 to 31/12/2021

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

BASIC INFORMATION	
Title of the project activity	14.75 MW bundled Wind Power project by Vivek Pharmachem
Scale of the project activity	Small Scale
Completion date of the PCN	14/10/2022
Project participants	Vivek Pharmachem India Limited
Host Party	India
Applied methodologies and standardized baselines	AMS-I.D.: Grid connected renewable electricity generation --- Version 18.0
Sectoral scopes	01 Energy industries (Renewable/NonRenewable Sources)
Estimated amount of total GHG emission reductions	25,584 CoUs (25,584 tCO_2eq)

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SECTION A. Description of project activity

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

The project "14.75 MW bundled Wind Power project by Vivek Pharmachem", is located in the states of Rajasthan, Gujarat, Madhya Pradesh, Karnataka and Tamil Nadu, India. The project is operational and contributes to continuous reduction of carbon emissions, and is currently being applied under, "Universal Carbon Registry".

Table 1: Geographical location of the project activity

Sr. No	Village	District	State
1	Kita	Jailsalmer	Rajasthan
2	Padavala	Rajkot	Gujarat
3	Lakkihalli	Chitradurga	Karnataka
4	Thob	Jodhpur	Rajasthan
5	Rajlani	Jodhpur	Rajasthan
6	Garoda	Mandsaur	Madhya Pradesh
7	Katlar	Mandsaur	Madhya Pradesh
8	Nagri	Mandsaur	Madhya Pradesh
9	Lamgari	Mandsaur	Madhya Pradesh
10	Belwa Ranaji	Jodhpur	Rajasthan
11	Vellavipudhur	Tirupur	Tamil Nadu

Purpose of the project activity:

The project activity consists of electricity generation from wind power. It's a bundled project comprising of 11 Wind Turbine Generators (WTGs) of a total capacity 14.75 MW installed in various locations in the states of Rajasthan, Gujarat, Karnataka, Madhya Pradesh and Tamil Nadu. This project activity is promoted by Vivek Pharmachem India Limited.

Table 2: Details of the bundled project activity

Description	Comissioning Date/Year	MW	Make	Address	Model No.
Kita 800KW	22-Apr-10	0.8	Enercon 0.8MW	Village Kita, District Jaisalmer, Rajasthan	E-53
Rajkot 800KW	29-Mar-10	0.8	Enercon 0.8MW	Village Padavala, District Rajkot	E-53
GIM-II 800KW	30-Sep-05	0.8	Enercon 0.8MW	Lakkihalli Village (Sy. No. 170) Hiriyur Taluk Chitradurga District Karnataka	E-48
Osiyan 1.5MW	31-Dec-11	1.5	Suzlon 1.5MW	Village Thob, District Jodhpur	S-82 Suzlon
Rathikuria 1.25MW	31-Mar-12	1.25	Suzlon 1.25MW	Village Rajlani District Jodhpur	S-66 Suzlon
M P-Suzlon Wind Mill 1.5MW (GRA-42)	4-Sep-14	1.5	Suzlon 1.5MW	GRA-42, Near Garoda Village, Daloda Tehsil, Mandsaur	S-82 Suzlon

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M P-Suzlon Wind Mill 1.5MW (GRA-43)	30-Sep-14	1.5	Suzlon 1.5MW	GRA-43, Katlar Village, Daloda Tehsil, Mandsaur	S-82 Suzlon
M P -Regen Wind Mill 1.5MW (RH16)	3-Dec-15	1.5	Regen 1.5MW	Loc. No. RH16,Near Village Nagri Tehsil Daloda, District Mandsaur	VENSYS 87
M P -Regen Wind Mill 1.5MW (RH17)	29-Dec-15	1.5	Regen 1.5MW	Loc. No. RH17,Near Village Lamgari Tehsil Mandsaur, District Mandsaur	VENSYS 87
Ratan Ka Bass 2.1MW	11-Aug-17	2.1	Suzlon 2MW	Village Belwa Ranaji, Tehsil Shergarh District Jodhpur	S-88 Suzlon
Tamilnadu 1.5MW	29-Jun-18	1.5	Regen 1.5MW	SF No. 2075/1(P) of Vellavipudhur Village Dharapuram Taluk, Tirupur District of Tamil Nadu	VENSYS 87

The project activity will utilise wind energy to generate approximately 28,426 MWh of clean energy annually thereby displacing equivalent amount of grid electricity resulting in emission reduction of 25,584 tCO_2 per annum. The actual emission reduction achieved during the first CoU period shall be submitted as part of first monitoring and verification. As the project activity utilizes wind energy, a clean and renewable energy source to generate electricity it will not have any negative impact on the environment and will therefore contribute to climate change mitigation efforts.

Project's contribution towards the sustainable development goals of the host country

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, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. It has been envisaged that the project activity shall contribute to sustainable development using the following ways:

Social well-being:

- The project activity will contribute towards GHG emission reduction associated with fossil fired power generation thereby improving the living conditions of the local people.
- It will improve the infrastructural development in the areas around the WTG with proper roads and accessibility
- Throughout the lifecycle of the project activity, it will result in several temporary and permanent jobs to the local thereby resulting in additional income and livelihood improvement.

Economic well-being:

- Setting up of wind farms requires a large area and results in the appreciation of value of the land which would otherwise command extremely low prices due to low productivity of these lands.
- 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.

Technological well-being:

- The project activity demonstrates the usage of clean technology in the country
- This will further demonstrate the use of technology in harnessing the renewable energy and promote the further percolation of the technology.
- The electricity generated from the project activity is supplied to the grid which will improve the availability of electricity to the grid.

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Environmental well-being:

- Generation of electricity by WTGs does not result in any type of GHG emissions and thus ensures a cleaner environment and contributes to reduction in GHG emissions and other pollutants such as Sox, NOx and SPM associated with the conventional thermal power generation facilities.
- The project activity does not result in any form of air, water and soil pollution
- The project activity does not result in solid waste (fly ash), which otherwise would have been generated from a coal fired thermal facility.

Thus, the project activity has no negative impact on the surrounding environment and consequently contributes to sustainable development.

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:

Environmental criteria may include a company's energy use, waste, pollution, natural resource conservation, and treatment of animals etc. For the project proponent, energy use pattern is now based on renewable energy due to the project and it also contributes to GHG emission reduction and conservation of depleting energy sources associated with the project baseline. Also, the criteria can be further evaluated on the basis of any environmental risks which the company might face and how those risks are being managed by the company. Here, as the power generation will be based on wind power, the risk of environmental concerns associated with non-renewable power generation and risk related to increasing cost of power etc. are now mitigated. Hence, project contributes to ESG credentials.

Under Social:

Social criteria reflect on the company's business relationships, qualitative employment, working conditions with regard to its employees' health and safety, interests of other stakeholders' etc. With respect to this project, the Project Proponent has robust policies in place to ensure equitable employment, health & safety measures, local jobs creation etc. Also, the organizational CSR activities directly support local stakeholders to ensure social sustainability. Thus, the project contributes to ESG credentials.

Under Governance:

Governance criteria relates to overall operational practices and accounting procedure of the organization. With respect to this project, 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 a wind power project owned and managed by the proponent for which all required NOCs and approvals are received. The electricity generated from the project can be accurately monitored, recorded and further verified under the existing management practice of the company. Thus, the project and the proponent ensure good credentials under ESG.

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

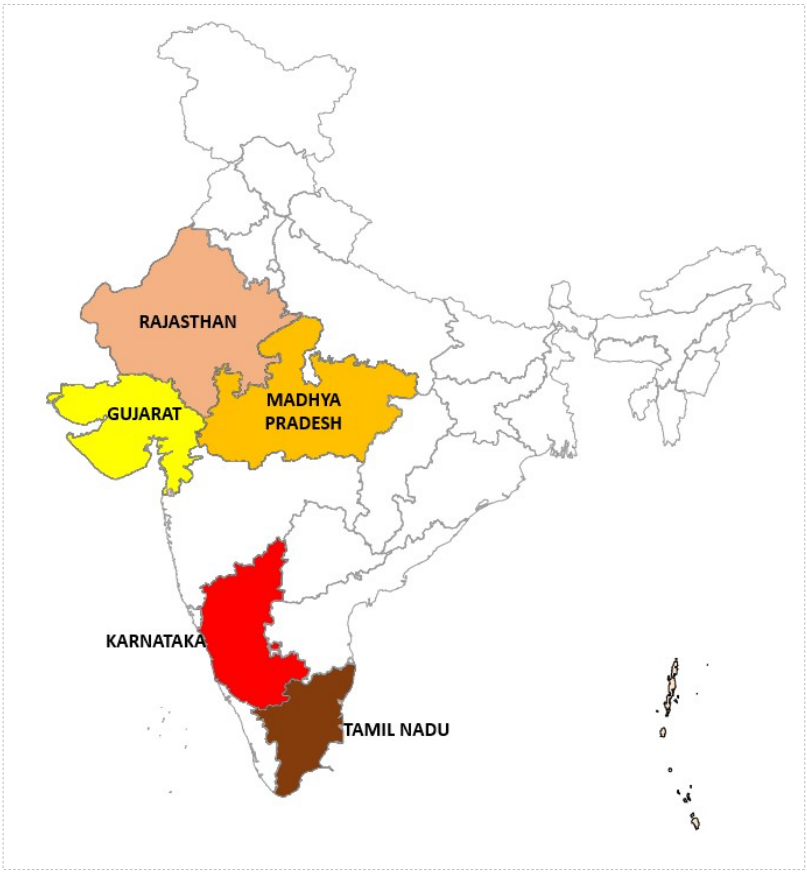
There was no harm identified form the project and hence no mitigations measures are applicable.

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), it has been declared that 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 >>

This project activity being a bundled wind power project has WTGs in various locations in the states of Rajasthan, Gujrat, Karnataka, Madhya Pradesh and Tamil Nadu.



Country: India
District: Jaisalmer, Jodhpur
Village: Kita, Thob, Rajlani, Belwa Ranaji
Tehsil: Fategarh, Baltora, Bhopalgarh, Balesar
State: Rajasthan

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District: Rajkot
Village: Padavala
Tehsil: Gondal
State: Gujarat



District: Chitradurga
Village: Lakkihalli
Tehsil: Hosdurga
State: Karnataka

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District: Mandsaur
Village: Garoda, Katlar, Nagri and Lamgari
Tehsil: Daloda
State: Madhya Pradesh



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District: Tirupur
Village:Vellavipudhur
Tehsil: Dharapuram
State: Tamil Nadu



Geographical coordinates of the WTGs are given below:

Description	Latitude	Longitude
Kita 800KW	26° 40' 45.9372" N	71° 0' 45.5652" E
Rajkot 800KW	21° 56' 00.9" N	70° 14' 39.9" E
GIM-II 800KW	13° 58' 20.388" N	76° 28' 26.489" E
Osiyan 1.5MW	26° 46' 28.2" N	73° 22' 7.9" E
Rathikuria 1.25MW	26° 39' 05.73" N	73° 35' 44.63" E
M P-Suzlon Wind Mill 1.5MW (GRA-42)	23° 53' 6.389" N	74° 56' 6.77" E
M P-Suzlon Wind Mill 1.5MW (GRA-43)	23°52'51.6" N	74°57'56.7" E
M P -Regen Wind Mill 1.5MW (RH16)	23° 51' 34.704" N	75° 9' 30.582" E
M P -Regen Wind Mill 1.5MW (RH17)	23° 52' 6.103" N	75° 10' 22.987" E
Ratan Ka Bass 2.1MW	26° 29' 00.0" N	72° 30' 07.9" E
Tamilnadu 1.5MW	10°44'06.5"N	77°40'03.1"E

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A.4. Technologies/measures >>

The proposed project activity is installation and operation of a Wind Turbine Generators (WTGs) manufactured and supplied by Suzlon Energy Ltd. with an installed capacity of 14.75 MW in the state of Rajasthan, Gujarat, Madhya Pradesh, Karnataka and Tamil Nadu, India.

Technical details of 14.75 MW WTG is given below:

Parameters	E-53	E-48	S-82	S-66	S-88	VENSYS 87
Make	Enercon	Enercon	Suzlon	Suzlon	Suzlon	Regen
Model	E-53	E-48	S-82	S-66	S-88	VENSYS 87
Rating in kW	800	800	1,500	1,250	2,100	1,500
Rotor Diameter	52.9 m	48 m	82 m	66 m	88 m	86.6 m
Hub Height	75m	75m	76.8 m	74.5 m	80 m	85m
Type of Tower	Steel tube	Steel tube	Steel tube	Steel tube	Steel tube	Steel tube
No.of Blades	3	3	3	3	3	3
Type of Generator	Synchronous	Synchronous	Asynchronous	Asynchronous	Asynchronous	Synchronous
Rated Voltage	690.0 V	690.0 V	690.0 V	690.0 V	690.0 V	690.0 V
Geared/Gearless	Without,direct drive	Without,direct drive	Geared	Geared	Geared	Geared
Cut-in Wind Speed	3 m/s	3 m/s	4 m/s	4 m/s	4 m/s	3 m/s
Rated Wind Speed	12 m/s	12 m/s	12 m/s	12 m/s	14 m/s	12.5 m/s
Cut-out Wind Speed	34 m/s	34 m/s	20 m/s	20 m/s	25 m/s	22 m/s

A.5. Parties and project participants >>

Party (Host)	Participants
India	Vivek Pharmachem India Limited

A.6. Baseline Emissions>>

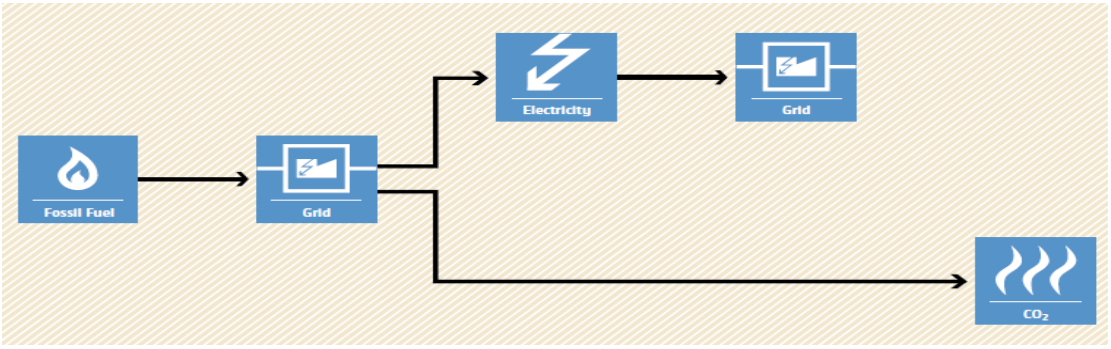
The baseline scenario identified at the PCN stage of the project activity is:

- Grid

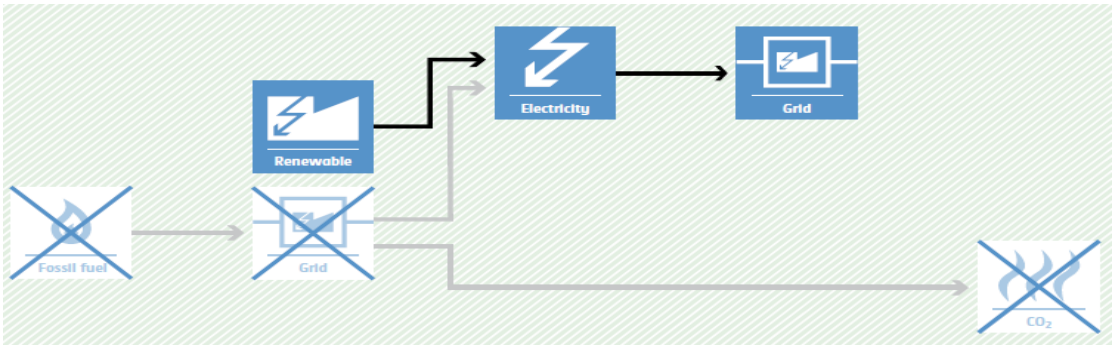
In the absence of the project activity, the equivalent amount of electricity would have been imported from the regional grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to predominantly sourced from fossil fuel-based power plants. Hence, baseline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

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Baseline Scenario:



Project Scenario:



A.7. Debundling >>

This project activity 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:
AMS. I.D. (Title: "Grid connected renewable electricity generation", version 18)

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

The project activity involves generation of grid connected electricity from the construction and operation of a new wind power-based power project. The project activity has installed capacity of 14.75 MW which will qualify for a small-scale project activity under Type-I of the Small-Scale methodology. The project status is corresponding to the methodology AMS-I.D., version 18 and applicability of methodology is discussed below:

Applicability Criterion	Project Case
1. 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.	The project activity is a Renewable Energy Project i.e., wind power project which falls under applicability criteria option 1 (a) i.e., "Supplying electricity to a national or a regional grid"
2. 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).	The option (a) of applicability criteria 2 is applicable as project is a Greenfield plant /unit. Hence the project activity meets the given applicability criterion.

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3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or (b) The project activity is implemented in existing reservoir, where the volume of the reservoir(s) is increased and the power density as per definitions given in the project emissions section, is greater than 4 W/m^2. (c) (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	The project activity involves installation of Wind Turbine Generators (WTGs); hence, this criterion is not applicable.
4. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable	The proposed project is 14.75 MW Wind power project, i.e., only component is renewable power project below 15MW, thus the criterion is not applicable to this
component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	project activity.
5. Combined heat and power (co-generation) systems are not eligible under this category	The project is wind power project and thus the criterion is not applicable to this project activity.
6. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct1 from the existing units.	The proposed project is a greenfield 14.75 MW wind power project, i.e., only component is renewable power project below 15 MW, thus the criterion is not applicable to this project activity.
7. 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.	The proposed project is a greenfield 14.75 MW wind power project, i.e., only component is renewable power project below 15 MW, thus the criterion is not applicable to this project activity.
8. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without	The proposed project is a greenfield 14.75 MW wind power project; hence, this criterion is not applicable to this project activity.

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electricity" shall be explored.	
9. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	No biomass is involved, the project is only a 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:

- 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

It shall also be noted that the

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

As per applicable methodology AMS-I.D. Version 18, "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to."

Thus, the project boundary includes the Wind Turbine Generators (WTGs) and the Indian grid system

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	**CO_2**	**Yes**	**Main emission source**
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield Wind Power Project Activity	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	No other emissions are emitted from the project

B.5. Establishment and description of baseline scenario >>

This section provides details of emission displacement rates/coefficients/factors established by the applicable methodology selected for the project.

As per the approved consolidated methodology AMS-I.D. Version 18, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

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"The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid".

The project activity involves setting up of a new wind power plant to harness the green power from wind energy. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants. The power produced at grid from the other conventional sources which are predominantly fossil fuel based. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

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 fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021, the combined margin emission factor calculated from CEA database in India results into higher emission than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.

Net GHG Emission Reductions and Removals:

Thus, $ER_y = BE_y - PE_y - LE_y$

Where,

ER_y=Emission reductions in year y(tCO_2/y)

BE_y= Baseline Emissions in year y(tCO_2/y)

PE_y= Project emissions in year y (tCO_2/y)

LE_y= Leakage emissions in year y (tCO_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:

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

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 factor of 0.9 tCO_2/MWh has been considered. (Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

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Project Emissions

As per paragraph 39 of AMS-I.D., for most renewable energy project activities emission is zero. Since the project activity is a wind power project, project emission for renewable energy plant is nil.

Thus, PEy = 0

Leakage:

As per paragraph 42 of AMS-I.D. version-18, 'If the energy generating equipment is transferred from another activity, leakage is to be considered.' In the project activity, there is no transfer of energy generating equipment and therefore the leakage from the project activity is considered as zero.

Hence, LEy = 0

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

Estimated annual baseline emission reductions (BEy)

= 28,426.2 MWh/year *0.9 tCO_2/MWh

= 25,584 tCO_2/year (i.e., 25,585 CoUs/year)

B.6. Prior History >>

The project activity has never been registered in any of the carbon mechanism standards, hence there is no case of double accounting.

It shall be noted that the 1 WTG of Vivek Pharmachem is part of a registered project under VCS Standard (VCS ID 381). However, that WTG is not included in this project. Hence, there is not double counting involved.

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

The crediting period under UCR has been considered from 01/01/2013

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

Not applicable.

B.9. Monitoring period number and duration >>

First Issuance Period: 08 Years 00 Months

Date: 01/01/2013 to 31/12/2021 (inclusive of both dates).

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B.9. 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 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 fairly conservative estimate for Indian projects not previously verified under any GHG program. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.
Source of data	https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRS tandardJan2022updatedVer3_180222035328721166.pdf
Value applied	0.9
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 combined margin emission factor as per CEA database (current version 16, Year 2021) results into higher emission factor. Hence for 2021 vintage UCR default emission factor remains conservative.

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

Data / Parameter	$EG_{PJ,facility,y}$
Data unit	MWh
Description	Net electricity supplied to national grid facility by the project activity
Source of data	Joint metering Report issued by the respective DISCOM
Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Archiving Policy: Electronic Calibration frequency: Once in 5 years (considered as per provision of CEA India). The net electricity generated by the project activity will be calculated from net electricity supplied to grid from the JMR/ share certificate issued by the respective state utilities on monthly basis for respective WTGs. The amount of energy supplied by the WTGs are continuously monitored and recorded once a month. The same can be cross-checked from the State utility website which is publicly available.
Measurement Frequency:	Monthly
Value applied:	28,426 (Ex-ante estimate)

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QA/QC procedures applied:	Continuous monitoring, hourly measurement monthly recording. Tri-vector (TVM)/ABT energy meters with accuracy class 0.2s.
Purpose of data:	The Data/Parameter is required to calculate the baseline emission.
Any comment:	Data will be archived electronically for a period of 36 months beyond the end of crediting period.

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