Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



Title: Vaayu India Wind Power Project in Jaisalmer, Rajasthan

Version 1.1

Date 05/07/2025

First CoU Issuance Period: 03 Years, 03 Months

Date: 01/10/2021 to 31/12/2024

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Monitoring Report (MR)
CARBON OFFSET UNIT (CoU) PROJECT

Monitoring Report	
Title of the project activity	Vaayu India Wind Power Project in Jaisalmer, Rajasthan
UCR Project Registration Number	501
Version	1.1
Completion date of the MR	05/07/2025
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 1 Duration of this monitoring Period: (first and last days included (01/10/2021 to 31/12/2024)
Project participants	Vaayu India Power Corporation Pvt Ltd
Host Party	India
Applied methodologies and standardized baselines	ACM0002-Consolidated baseline methodology for grid-connected electricity generation from renewable sources -Version 22.0
Sectoral scopes	01 Energy industries (Renewable/Non-renewable Sources)
Actual amount of GHG emission reductions for this monitoring period in the registered PCN	2021: 12,132 CoUs (12132 tCO2eq)
	2022: 74910 CoUs (74910 tCO2eq)
	2023: 80,842 CoUs (80842 tCO2eq)
	2024: 52,268 CoUs (52268 tCO2eq)
Total:	**220,152** CoUs

SECTION A. Description of project activity

A.1. Purpose and general description of project activity >>

The project activity includes development, design, engineering, procurement, finance, construction, operation and maintenance of Vaayu India Power Corporation Pvt Ltd's 50.4 MW wind power project ("Project") in the Indian state of Rajasthan to provide reliable, renewable power to the Rajasthan state electricity grid which is part of the India electricity grid. The Project leads to reduce greenhouse gas emissions because it displaces electricity from grid connected fossil fuel-based electricity generation plants.
The project activity involves supply, erection, commissioning and operation of 63 machines of rated capacity 800 kW each. The machines are Enercon E-53 make. The project is owned by Vaayu India Power Corporation Pvt Ltd (hereinafter referred to as the Project Proponent or PP).

a) Purpose of the project activity and the measures taken for GHG emission reductions >>

The purpose of the project activity is to generate emission free and environment friendly electricity from the wind energy potential available in the region. The project is expected to generate and supply approximately 94481.86MWh of electricity annually to the Indian grid. The project thus addresses the demand–supply gap in the state of Rajasthan and will assist the sustainable growth, conservation of resources and reduction of greenhouse gas emissions by using renewable energy source like wind energy. The project activity will contribute towards reduction of greenhouse gas (GHG) emission from the atmosphere, which is estimated to 75,576 tCO2e per year, by displacing an equivalent amount of electricity generation through the operation of existing fuel mix in the grid comprising mainly of fossil fuel-based power plants. Thus, the project does not only reduce the demand-supply gap of the respective grid, but also helps in reducing other pollutants like SOx, NOx, etc. from the atmosphere. In the absence of the project activity the equivalent amount of electricity would have been generated from the connected/ new power plants in the Indian grid, which are/ will be predominantly based on fossil fuels.
During the current monitoring period i.e. 01/10/2021 to 31/12/2024, the project activity produced 2,55,611 MWh of clean electricity thereby displacing 2,20,152 tCO2e of GHG emissions.

b) Brief description of the installed technology and equipment>>

Vaayu (India) Power Corporation Private Limited (VIPCPL) has installed 50.4 MW wind farm in the state of Rajasthan in India. Wind World (India) Limited ("Wind World") is the equipment supplier and the operations and maintenance contractor for the Project. There are 63 Wind Energy Convertors ("WEC's") of with rated capacity 800 KW each. The generated electricity is supplied to Electricity Distribution Company (DISCOM), Jaipur Vidyut Vitran Nigam Limited, under a long-term power purchase agreement (PPA) signed between Vaayu (India) Power Corporation Private Limited (VIPCPL) and Jaipur Vidyut Vitran Nigam Limited. The expected operational lifetime of the project is for 20 years. The project being a renewable energy generation activity, leads to reduction in fossil fuel dominated electricity generation from the Indian grid.

c) Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)>>

The first WEC under the project activity was commissioned on 14/05/2011 and the last WEC under the project activity was commissioned on 14/07/2011. The expected operational lifetime of the project is for 20 years.

UCR Project ID or Date of Authorization: 501
Start Date of Crediting Period: 01/10/2021
Project Commissioned: Details given below

S. No.	WEG S.C. NO	No. & Capacity	Commissioning Date (dd/mm/yyyy)
1	2	1 X 800 kW	30-06-2011
2	3	1 X 800 kW	14-05-2011
3	4	1 X 800 kW	14-05-2011
4	5	1 X 800 kW	14-05-2011
5	6	1 X 800 kW	14-05-2011
6	7	1 X 800 kW	14-05-2011
7	8	1 X 800 kW	14-05-2011
8	9	1 X 800 kW	14-05-2011
9	10	1 X 800 kW	30-06-2011
10	13	1 X 800 kW	14-05-2011
11	14	1 X 800 kW	14-05-2011
12	15	1 X 800 kW	14-05-2011
13	16	1 X 800 kW	14-05-2011
14	17	1 X 800 kW	14-05-2011
15	23	1 X 800 kW	14-05-2011
16	24	1 X 800 kW	14-05-2011
17	25	1 X 800 kW	14-05-2011
18	29	1 X 800 kW	14-05-2011
19	30	1 X 800 kW	14-05-2011
20	32	1 X 800 kW	14-05-2011
21	33	1 X 800 kW	14-05-2011
22	38	1 X 800 kW	14-07-2011
23	39	1 X 800 kW	14-07-2011
24	40	1 X 800 kW	14-07-2011
25	72	1 X 800 kW	14-07-2011
26	79	1 X 800 kW	14-05-2011
27	80	1 X 800 kW	14-05-2011
28	87	1 X 800 kW	14-05-2011
29	88	1 X 800 kW	14-05-2011
30	93	1 X 800 kW	30-06-2011
31	99	1 X 800 kW	15-05-2011
32	101	1 X 800 kW	14-07-2011
33	102	1 X 800 kW	14-07-2011
34	103	1 X 800 kW	15-05-2011
35	106	1 X 800 kW	15-05-2011
36	107	1 X 800 kW	15-05-2011
37	110	1 X 800 kW	15-05-2011

38	114	1 X 800 kW	15-05-2011
39	115	1 X 800 kW	15-05-2011
40	117	1 X 800 kW	15-05-2011
41	118	1 X 800 kW	15-05-2011
42	123	1 X 800 kW	15-05-2011
43	124	1 X 800 kW	15-05-2011
44	125	1 X 800 kW	15-05-2011
45	144	1 X 800 kW	14-05-2011
46	148	1 X 800 kW	14-05-2011
47	150	1 X 800 kW	14-05-2011
48	151	1 X 800 kW	30-06-2011
49	152	1 X 800 kW	14-05-2011
50	157	1 X 800 kW	14-07-2011
51	158	1 X 800 kW	30-06-2011
52	159	1 X 800 kW	30-06-2011
53	503	1 X 800 kW	15-05-2011
54	504	1 X 800 kW	15-05-2011
55	505	1 X 800 kW	15-05-2011
56	507	1 X 800 kW	14-05-2011
57	508	1 X 800 kW	14-05-2011
58	512	1 X 800 kW	30-06-2011
59	513	1 X 800 kW	30-06-2011
60	514	1 X 800 kW	14-07-2011
61	520	1 X 800 kW	15-05-2011
62	521	1 X 800 kW	15-05-2011
63	525	1 X 800 kW	15-05-2011

d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period>>

The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	01/10/2021
Carbon credits claimed up to	31/12/2024
Total ERs generated (tCO_{2eq})	**2,20,152** tCO2eq
Leakage	0

e) Baseline Scenario>>

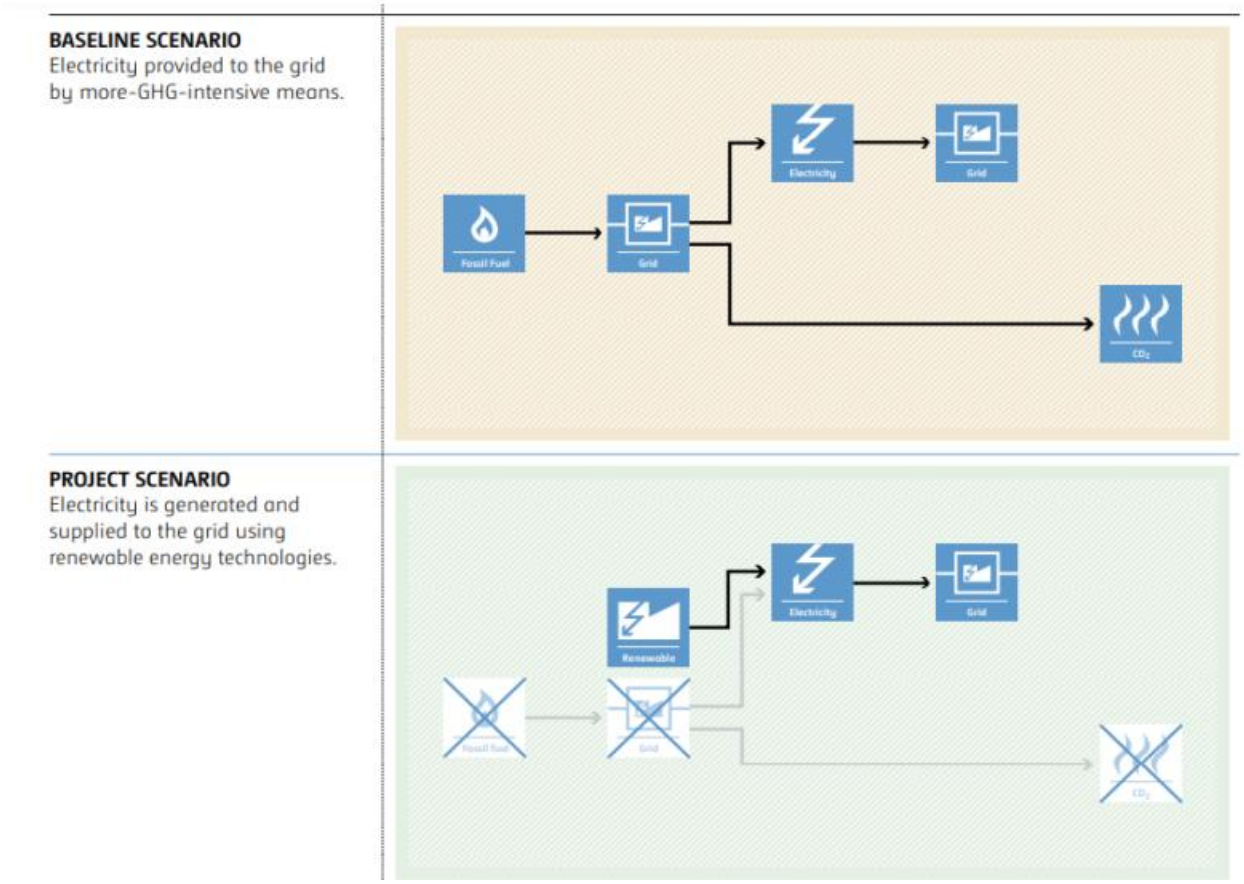
The baseline scenario identified at the PCN stage of the project activity is:

The scenario existing prior to the implementation of the project activity, is electricity delivered to the facility by the project activity that would have otherwise been generated by the operation of grid

connected power plants and by the addition of new generation sources. This is a green field project activity. There was no activity at the site of the project participant prior to the implementation of this project activity. Hence pre-project scenario and baseline scenario are the same.

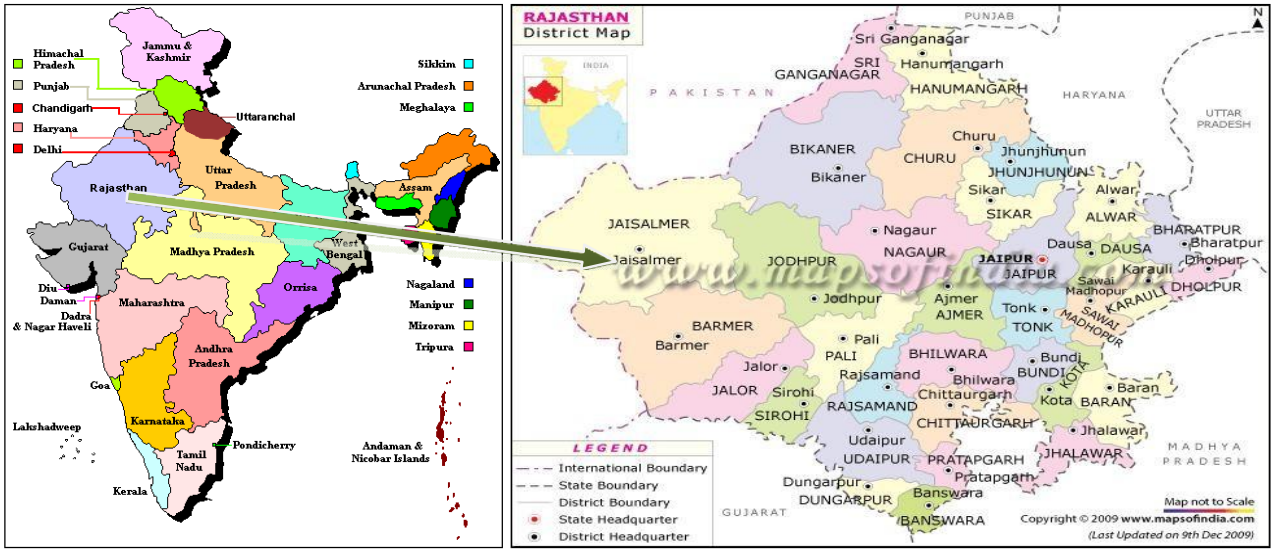
As per the approved consolidated methodology ACM0002 Version 22, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following: "If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity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

The Schematic diagram showing the baseline scenario:



A.2. Location of project activity>>

The Project is spread across Sipla, Pithla, Kotri, Senag, Barna and Khuri villages of Jaisalmer District of Rajasthan State in India.



The detailed individual WECs location numbers and coordinates of project activity are provided below.

Sr.No	Loc.No.	Village	Latitude			Longitude		
			Deg.	Minute	Second	Deg.	Minute	Second
1	2	Khuhri	26	40	25.4	70	44	21.9
2	3	Barna	26	40	33.2	70	44	18.6
3	4	Barna	26	40	33.8	70	44	11.2
4	5	Barna	26	40	27.2	70	43	58
5	6	Barna	26	40	39.7	70	43	57.1
6	7	Barna	26	40	35.8	70	43	47.2
7	8	Barna	26	40	35.5	70	43	39.6
8	9	Barna	26	40	58	70	44	3.5
9	10	Sipla	26	41	14.8	70	44	27.3
10	110	Senag	26	42	0.7	70	48	28.8
11	13	Barna	26	41	48.8	70	44	20.1
12	14	Barna	26	41	49.3	70	44	11.2
13	15	Barna	26	40	45.6	70	43	31.6
14	16	Barna	26	40	43.6	70	43	24.2
15	17	Barna	26	41	0.4	70	43	26.1
16	23	Barna	26	41	37	70	42	50.3
17	24	Barna	26	41	44.7	70	42	44.7
18	25	Barna	26	41	49.2	70	42	37.1
19	29	Barna	26	42	5.7	70	42	27.3
20	30	Barna	26	42	9.7	70	42	37.7
21	32	Barna	26	42	18.6	70	42	52.6
22	33	Barna	26	42	18.7	70	43	10.8
23	38	Sipla	26	42	24.6	70	43	28.8
24	39	Sipla	26	42	23.7	70	43	36.8

25	40	Sipla	26	42	22.9	70	43	44.9
26	72	Khuhri	26	41	53.3	70	45	50.8
27	79	Pithla	26	42	40.3	70	46	11.5
28	80	Pithla	26	42	44.6	70	46	3.2
29	87	Pithla	26	42	53.1	70	46	24.9
30	88	Kotri	26	42	43.1	70	46	31.3
31	93	Senag	26	42	18.4	70	46	55.6
32	99	Senag	26	42	0.9	70	47	39
33	101	Senag	26	42	27.4	70	47	39
34	102	Senag	26	42	33.1	70	47	30.8
35	103	Kotri	26	42	22.5	70	47	49.1
36	106	Kotri	26	42	25.4	70	48	15.2
37	107	Kotri	26	42	16.8	70	48	22
38	114	Senag	26	41	39	70	48	6.1
39	115	Kotri	26	41	42.2	70	48	16.2
40	117	Kotri	26	41	35.3	70	48	31
41	118	Senag	26	41	36.4	70	48	39.1
42	123	Pithla	26	42	19.5	70	49	11.2
43	124	Pithla	26	42	2	70	49	10.1
44	125	Pithla	26	41	54.2	70	49	15.6
45	144	Pithla	26	43	43.5	70	45	56.4
46	148	Pithla	26	44	3.9	70	46	3.1
47	150	Pithla	26	44	21	70	46	8.5
48	151	Pithla	26	44	20.9	70	45	59
49	152	Pithla	26	44	32.9	70	46	22.6
50	157	Pithla	26	44	48.7	70	46	4.5
51	158	Pithla	26	44	36	70	45	52
52	159	Pithla	26	44	40.9	70	45	46.8
53	503(S)	Pithla	26	41	11.5	70	48	38.9
54	504(S)	Pithla	26	41	19.3	70	48	35
55	505(S)	Kotri	26	41	19.3	70	48	27.4
56	507(S)	Kotri	26	42	20.7	70	46	34.8
57	508(S)	Kotri	26	42	22.8	70	46	27.1
58	512(S)	Kotri	26	42	40.8	70	47	1.9
59	513(S)	Kotri	26	42	35.2	70	47	9
60	514(S)	Kotri	26	42	32	70	47	21.9
61	520(S)	Senag	26	42	44.3	70	48	7.3
62	521(S)	Senag	26	42	38.2	70	48	19.2
63	525(S)	Senag	26	41	50.6	70	49	23.5

A.3. Parties and project participants >>

Party (Host)	Participants
India (Host)	Vaayu India Power Corporation Pvt Ltd

A.4. References to methodologies and standardized baselines >>

SECTORAL SCOPE –01 Energy industries (Renewable/Non-renewable sources)

TYPE **- Renewable Energy Projects**

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

A.5. Crediting period of project activity >>

Duration of the crediting period corresponding to this monitoring period: 01/10/2021 to 31/12/2024
Length of the crediting period corresponding to this monitoring period: 03 years 03 Months

A.6. Contact information of responsible persons/entities >>

Contact Person- Lokesh Jain
Email- lokesh.jain@viviidgreen.com
Phone no- 91 89208 56146
Address- Sri Krishna Complex, New Link Road, Opp. Laxmi Industrial Estate, Andheri (West), Mumbai - 400053

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity >>

a) Provide information on the implementation status of the project activity during this monitoring period in accordance with UCR PCN>>

The Vaayu India Wind Power Project, located in Jaisalmer, Rajasthan, has been fully implemented and operational throughout the monitoring period from 01/10/2021 to 31/12/2024. The project comprises 63 Wind Energy Converters (WECs) of 800 kW each, with a total installed capacity of 50.4 MW. All WECs are of Enercon E-53 make, supplied and maintained by Wind World (India) Ltd. The turbines were commissioned between 14/05/2011 and 14/07/2011 and are spread across multiple villages including Sipla, Pithla, Kotri, Senag, Barna, and Khuri. These machines generate electricity that is stepped up from 400 V to 33 kV and fed into the Rajasthan state electricity grid, which is part of the interconnected Indian grid. During the current monitoring period, the project continued to operate as intended, consistently generating and supplying clean, renewable electricity under a long-term Power Purchase Agreement (PPA) with the DISCOM. No significant deviations or interruptions occurred during this period. The project has thus remained fully functional, contributing to emission reductions by displacing fossil fuel-based grid electricity in accordance with the approved UCR Project Concept Note (PCN) and project design.

b) For the description of the installed technology(ies), technical process and equipment, include diagrams, where appropriate>>

The project activity involves 63 numbers of wind energy converters (WECs) of Enercon make (800 KW, E53) with internal electrical lines connecting the project activity with local evacuation facility. The WECs generate 3-phase power at 400V, which is stepped up to 33 KV. The project activity can operate in the frequency range of 48.5–51.5 Hz and in the voltage range of 400 V ± 12.5%. The average lifetime of the WEC is around 20 years as per the equipment supplier specifications. The other salient features of the state-of-art-technology are:

Turbine model	Enercon (E- 53)
Rated power	800 KW
Rotor diameter	53 m
Hub height	75 m (Concrete)
Turbine Type	Direct driven, horizontal axis wind turbine with variable rotor speed
Power regulation	Independent pitch system for each blade.
Cut in wind speed	2.5 *m/s*
Rated wind speed	12 *m/s*
Cutout Wind speed	28-34 m/s
Extreme Wind Speed	59.5 *m/s*
Rated rotational speed	29 rpm

Operating range rot. speed	12-29 rpm
Orientation	Upwind
No of Blades	3
Blade Material	Glass Fiber Epoxy reinforced
Gear box type	Gear less
Generator type	Synchronous generator
Braking	Aerodynamic
Output Voltage	400 V
Yaw System	Active yawing with 4 electric yaw drives with brake motor
Tower	74 m (concrete)

The project activity is new 50.4 MW wind power project, which consists of 63 machines of Enercon make E-53 type Wind Energy Converters (WECs) of 800 KW capacities each. In the absence of the project activity the equivalent amount of electricity would have been generated from the connected/ new power plants in the Indian grid, which are/ will be predominantly based on fossil fuels, hence baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

Since the project activity involves power generation from wind, it does not involve any GHG emissions for generating electricity.

E-53 Diagram (Cross sectional drawing of nacelle E-53 / 800 kW)



Main component of the windmill is explained below:

Main Tower:
This is a very tall structure with a door and inside ladder at the bottom. The door is used to enter into the tower for operation and maintenance.

Blades:
The windmills are provided with three blades. The blades are self-supporting in nature made up of Fibre Reinforced Polyester. The blades are mounted on the hub.

Nacelle:
The Nacelle is the one which contains all the major parts of a windmill. The nacelle is made up of thick rugged steel and mounted on a heavy slewing ring. Under normal operating conditions, the nacelle would be facing the upstream wind direction.

Hub:
The Hub is an intermediate assembly between the wing and the main shaft of the wind turbine. Inside the hub, a system to actuate the aerodynamic brake is fitted. The hub is covered with nose cone.

Main Shaft:
The shaft connects the gear box and the hub. Solid high carbon steel bars or cylinders are used as main shaft. The shaft is supported by two bearings.

B.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 project activity will lead to the development of supporting infrastructure such as road network etc., in the wind park location, the access to which is also provided to the local population.
- The project activity will lead to alleviation of poverty by establishing direct and indirect benefits through employment generation and improved economic activities by strengthening of local grid of the state electricity utility.
- Use of a renewable source of energy reduces the dependence on imported fossil fuels and associated price variation thereby leading to increased energy security.

Environmental benefits:

- The project activity employs renewable energy sources for electricity generation instead of fossil fuel-based electricity generation which would have emitted gaseous, liquid and/or solid effluents/wastes.
- Being a renewable resource, using wind energy to generate electricity contributes to resource conservation. Thus, the project causes no negative impact on the surrounding environment and contributes to environmental well-being.

Economic benefits:

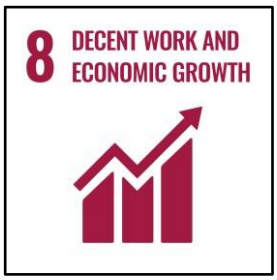
- The project activity requires temporary and permanent, skilled and semi-skilled manpower at the wind park; this will create additional employment opportunities in the region.
- The generated electricity will be fed into the NEWNE now known as INDIA's regional grid through local grid, thereby improving the grid frequency and availability of electricity to the local consumers (villagers & sub-urban habitants) which will provide new opportunities for industries and economic activities to be set up in the area thereby resulting in greater local employment, ultimately leading to overall development.

Technical benefits:

- Increased interest in wind energy projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future.

The project activity contributes to the following SDGs:

Goal 7 	➢ The project activity will generate clean energy, which with increased share will increase the affordability at a cheaper rate to end user. The project activity will utilize energy (renewal resource) to generate power. The project activity will increase the share of renewable resource-based electricity to global mix of energy consumption

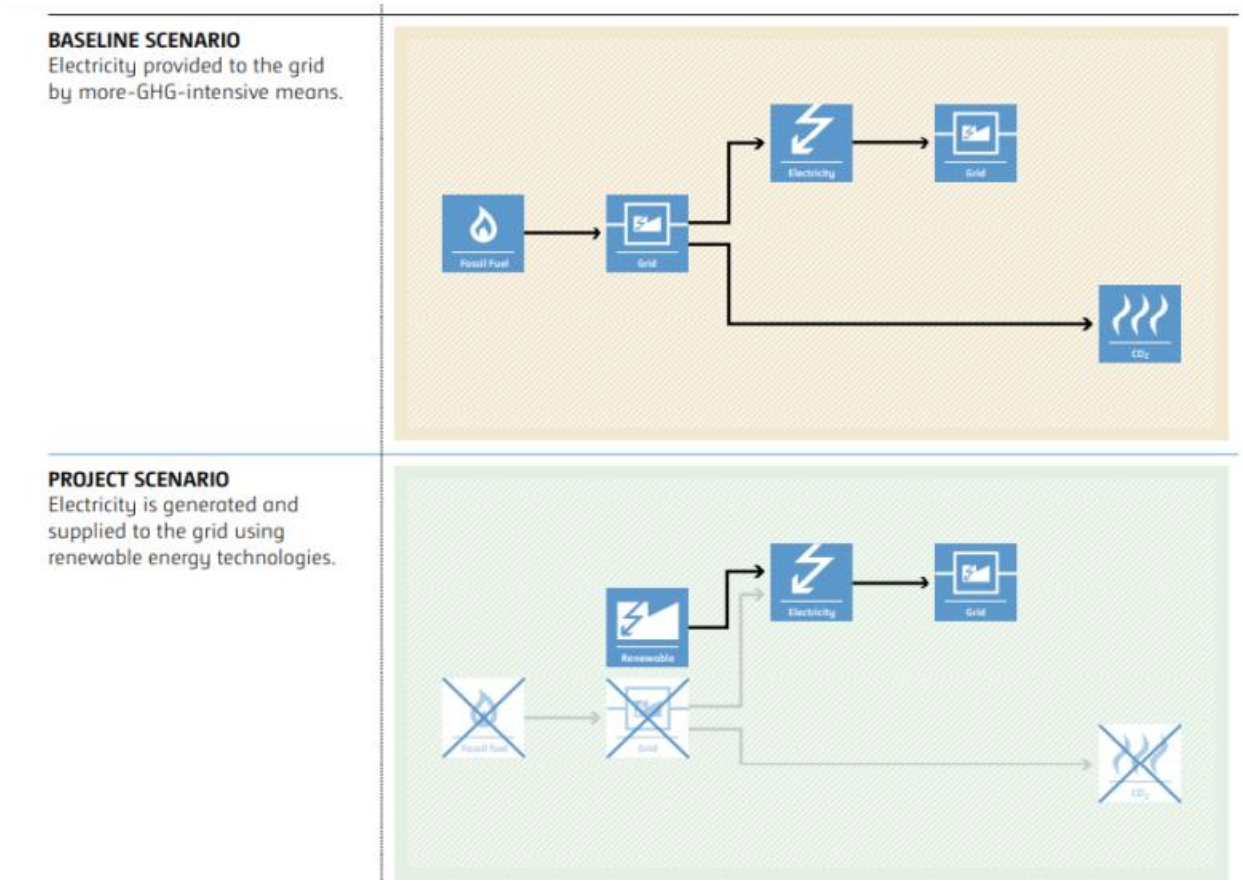
Goal 8 	➢ Decent work and economic growth. This project generates additional employment for skilled and unskilled people, also the project situated in remote areas will provide employment opportunities to unskilled people from villages. The training on various aspects including safety, operational issues and developing a skill set will also be provided to employees ➢ This project will achieve full and productive employment and decent work.
Goal 13 	➢ This 50.4MW Wind power project meets the SDG 13 goal by saving fossil fuel and producing clean energy. This project is expected to reduce **220,152 tCO_2** ➢ In a Greenfield project, electricity delivered to the grid by the project would have otherwise been generated by the operation of grid connected power plants. Thereby the project activity reduces the dependence on fossil fuel-based generation units and as there are no emissions associated with this project it contributes to the reduction of greenhouse gases (GHG) emissions.

B.3. Baseline Emissions>>

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

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

The Schematic diagram showing the baseline scenario:



B.4. Debundling>>

This Project is not a debundled component of a larger project activity.

SECTION C. Application of methodologies and standardized baselines

C.1. References to methodologies and standardized baselines >>

SECTORAL SCOPE –01 Energy industries (Renewable/Non-renewable sources)

TYPE **- Renewable Energy Projects**

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

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

The project activity is wind based renewable energy source, zero emission power project connected to the Rajasthan state grid, which forms part of the Indian grid. The project activity will displace fossil fuel-based electricity generation that would have otherwise been provided by the operation and expansion of the fossil fuel-based power plants in Indian grid.
The approved consolidated baseline and monitoring methodology ACM0002., Consolidated baseline methodology for grid-connected electricity generation from renewable sources -Version 22.0 is the choice of the baseline and monitoring methodology, and it is applicable because:

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

(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 7(a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g., by referring to feasibility studies or investment decision documents); (d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies2 may the BESS be charged with electricity from the grid or a fossil fuel electricity generator. In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 below. The charging using the grid or using fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g., week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period. (e) In case the project activity involves PSP, the PSP shall utilize the electricity generated from the renewable energy power plant(s) that is operating in coordination with the PSP during pumping mode	without integrating a Battery Energy Storage System (BESS). Thus, the mentioned criterion does not apply
4)In case of hydro power plants, one of the following conditions shall apply: a)The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or b)The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (7) is greater than 4 W/m2; or c)The project activity results in new single or multiple reservoirs and the power density calculate equation (7), is greater than 4 W/m2. d)The project activity is an integrated hydro power project	The proposed project involves the installation of wind power plants/units. Hence, the mentioned criterion is not applicable.

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

of the project activity and undertaking business as usual maintenance	

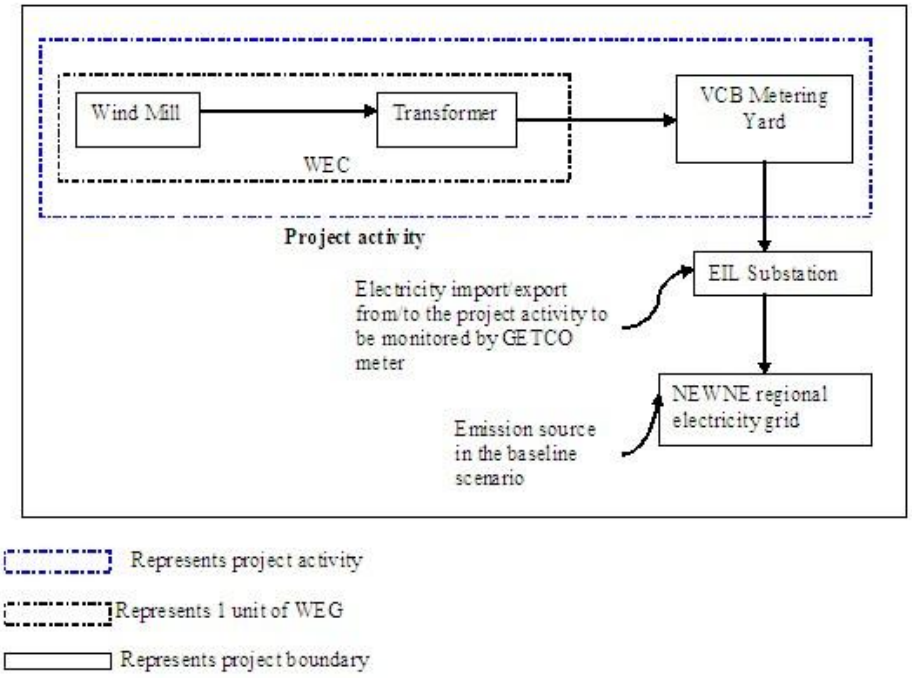
C.3 Applicability of double counting emission reductions >>

The project activity is registered under Clean Development Mechanism (CDM) project with registration number 5186[i], as well as Gold Standard (GS) with reference number 5013[ii]. The crediting period of this project under CDM & GS was 01/10/2011-30/09/2021. PP seeks verification under UCR from 01/10/2021 onwards. Hence, there is no double counting for the said project.

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

According to the applicable methodology, the spatial extent of this project activity includes the project site, and all the power plants connected physically to the electricity system (grid) that the power project is connected to. Therefore, the project boundary includes all the 63 WECs of VWIL along with the WECs of the other customers connected to the sub-station and the metering points. The project activity is further connected to the network of state transmission utility which falls under the network of Indian grid. Thus, the project boundary also includes all the power plants physically connected to the Indian grid.

Project boundary:



The baseline study of the Indian grid shows that the main sources of GHG emissions under the baseline scenario are CO2 emissions from the conventional power generating systems. Other emissions are that of CH4 and N2O but both emissions have been excluded for simplification. The project activity generates

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Grid connected electricity generation	CO_2	Yes	In the baseline scenario, the electricity would have been sourced from the Indian grid which in turn would be connected to fossil fuel fired power plants which emit CO_2.
		CH_4	No	No methane is expected to be emitted.
		N_2O	No	No nitrous oxide is expected to be emitted.
Project Scenario	Greenfield wind energy conversion system	CO_2	No	The project activity does not emit any emissions.
		CH_4	No	No methane is expected to be emitted.
		N_2O	No	No nitrous oxide is expected to be emitted.

C.5. Establishment and description of baseline scenario (UCR Protocol) >>

As per the approved consolidated methodology ACM0002. version - 22, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

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

The project activity involves setting up of a new grid connected 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.

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

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

$ER_y = BE_y - PE_y$ **(Eq. 1)**

Where,
ER_y = Emissions reductions in year y (t CO2)
BEy = Baseline emissions in year y (t CO2)
PE_y = Project emissions in year y (t CO2)

Baseline Emissions

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

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

$BE\ y = EG_{PJ,Y} * EF\ grid$

Where:

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

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

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

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

EGPJ,y = EGfacility,y

Where:

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

EGfacility,y= Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y* (MWh/yr)

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

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

Leakage Emission:

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

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

Sr. No.	Month & Year	Net Generation	Emission Factor	Baseline Emissions	Emission Reductions
		MWh	(tCO2e/MWh)	(tCO_2e)	tCO2e
1	01/10/2021 to 31/12/2021	13482.196	0.9	12132	12132
2	01/01/2022 to 31/12/2022	83241.344	0.9	74910	74910
3	01/01/2023 to 31/12/2023	89831.826	0.9	80842	80842
4	01/01/2024 to 31/12/2024	69055.733	0.757	52268	52268
Total Emissions Reductions		**255611.099**			**2,20,152**

C.6. Prior History>>

The project activity is registered under Clean Development Mechanism (CDM) project with registration number 5186, as well as Gold Standard (GS) with reference number 5013. The crediting period of this project under CDM & GS was 01/10/2011-30/09/2021. PP seeks verification under UCR from 01/10/2021 onwards, i.e., crediting period for UCR starts from 01/10/2021.

C.7. Monitoring period number and duration>>

First Issuance Period: – 03 years, 03 months (Inclusive of both the date) 01/10/2021 to 31/12/2024

C.8. Changes to start date of crediting period >>

The start date of the crediting period under UCR is considered from 01/10/2021

C.9. 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.

C.10. Monitoring plan>>

Ex-ante Parameter

Data / Parameter:	$EF_{Grid,y}$

Data unit:	tCO2 /MWh
Description:	A "grid emission factor" refers to a CO2 emission factor (tCO2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO2/MWh for the for the 2013 - 2020 years and 0.757 tCO2/MWh for year 2024 as a fairly conservative estimate for Indian projects.
Source of data:	UCR CoU Standard Update: 2024 Vintage UCR Indian Grid Emission Factor Announced | by Universal Carbon Registry | Jan, 2025 | Medium
Measurement procedures (if any):	-
Monitoring frequency:	Ex-ante fixed parameter
QA/QC procedures:	For the calculation of Emission Factor of the grid
Any comment:	

Parameter that is bring monitor (ex-post)

Data/Parameter	EG pj, y net
Data unit	MWh
Description	Net electricity generation supplied to the grid by the Project activity.
Measurement methods and procedures	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 [3] India). The net electricity generated by the project activity will be calculated.
Value Applied	255611.099
Monitoring frequency	The electricity generation is monitored continuously and recorded on a monthly basis. Monthly meter readings are used for emission reduction calculations, and the values are cross verified with invoices. This approach ensures consistent and accurate monitoring in line with the UCR methodology.
Purpose of data	For baseline emission calculations

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

Annexure 1- Meter Details

Meter Type	Meter Sr. No.	Sub-station	Accuracy class	Make	Calibration Details	Calibration Validity
Main Meter	13194980	Akal	0.5	L & T	19-02-2021	18-02-2026
Backup Meter	15624836	Akal	0.5	L & T		

There is no calibration delay for the current monitoring period i.e. 01/10/2021 to 31/12/2024. The meters were calibrated on 19/02/2021 and it is valid till 18/02/2026.

[i] https://cdm.unfccc.int/Projects/DB/DNV-CUK1315481394.7/view
[ii] https://registry.goldstandard.org/projects/details/878