



MONITORING REPORT

CARBON OFFSET UNIT (CoU) PROJECT



Title	: 8.4 MW Bundled Small Scale Wind Power Project in Kutch, Gujarat
Version	: 2.0
MR Date	: 23/01/2026
First CoU Issuance Period	: 07 Years and 04 Months
First Monitoring Duration	: 28/09/2017 to 31/12/2024



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

BASIC INFORMATION

Title of the project activity	8.4 MW Bundled Small Scale Wind Power Project in Kutch, Gujarat
UCR Project Registration Number	566
Version	2.0
Completion date of the MR	23/01/2026
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: 07 Years and 04 Months (First and last days included (28/09/2017 to 31/12/2024))
Project participants	M/s. Creduce Technologies Private Limited (Aggregator) M/s. Meghmani Dyes and Intermediates LLP (Project Owner) M/s Navratan Specialty Chemicals LLP (Project Owner) M/s, Uniworth Enterprises LLP (Project Owner)
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I. D: "Grid connected renewable electricity generation", version 18
Sectoral Scope	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of GHG emission reductions for this monitoring period	2017 : 2,289 CoUs (2,289 tCO2e) 2018 : 15,857 CoUs (15,857 tCO2e) 2019 : 28,829 CoUs (28,829 tCO2e) 2020 : 22,512 CoUs (22,512 tCO2e) 2021 : 24,360 CoUs (24,360 tCO2e) 2022 : 22,771 CoUs (22,771 tCO2e)

	2023 : 21,805 CoUs (21,805 tCO2e)
	2024 : 16,211 CoUs (16,211 tCO2e)
Total:	1,54,634 CoUs (1,54,634 tCO2e)

SECTION - A -Description of project activity

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

The proposed project activity with title under UCR “8.4 MW Bundled Small Scale Wind Power Project in Kutch, Gujarat” is a grid-connected renewable power generation activity which incorporates installation and operation of four Wind Turbine Generators (WTGs) having individual capacity of 2.1 MW and aggregated installed capacity of 8.4 MW, manufactured and supplied by Suzlon global Energy Limited in the district Kutch of the state of Gujarat in India. The project is an operational activity with continuous reduction of GHG, currently being applied under “Universal Carbon Registry” (UCR).

A.1.1 Purpose of the project activity:

The project activity aims to harness the kinetic energy of wind (a renewable source) to generate electricity. This project has been promoted by M/s Meghmani Dyes and Intermediates LLP, M/s Navratan Specialty Chemicals, and M/s Uniworth Enterprises (Herein after called as project proponent ‘PP’). The net generated electricity from the project activity is used for captive consumption. A wheeling agreement is signed between PPs and state discom. Currently, the NEWNE grid is connected to large numbers of fossil fuel-based power plants. Hence, project activity is displacing the gross electricity generation i.e., 1,53,807 MWh from the NEWNE grid, which otherwise would have been imported from the NEWNE grid. The WTGs under the project activity were commissioned by the Gujarat Energy Development Agency (GEDA).

The project activity doesn’t involve any GHG emission sources. The annual and total CO₂e emission reduction by the project activity over the defined monitoring period is as per **Annexure I**.

A.1.2 Description of the installed technology and equipment:

The project activity involves four WTGs having aggregated installed capacity of 8.4 MW, manufactured and supplied by Suzlon global Energy Limited. The average life of the generator is around 20 years as per the equipment supplier’s specification. The other salient features of the technology are:

The wind turbine is used to produce electricity using the kinetic energy of the wind. This is transformed into electrical energy using wind turbines or wind energy conversion systems. Wind first hits a turbine’s blades, causing them to rotate and turn the turbine connected to them. That changes the kinetic energy to rotational energy, by moving a shaft which is connected to a generator, and thereby producing electrical energy through electromagnetism.

Below is a description of the different components of Wind Turbine Generators.

1. **Main Tower:** The main support tower is made of steel, finished in a number of layers of protective paint to shield it against the elements. The tower is tall enough to ensure the rotor blade does not interfere with normal day-to-day operations at ground level.
2. **Rotor Blades:** The rotor blades are the three (usually three) long thin blades that attach to the hub of the nacelle. These blades are designed to capture the kinetic energy in the wind as it passes, and convert it into rotational energy.

3. **Nacelle:** The nacelle is the ‘head’ of the wind turbine, and it is mounted on top of the support tower. The rotor blade assembly is attached to the front of the nacelle. It contains all the major parts of the WEG.
4. **Hub:** The hub of the wind turbine is the component that connects the blades to the main shaft and ultimately to the rest of the tower. The hub transmits and withstands all the loads generated by the blades.
5. **Main Shaft:** It is a piece of metal in the form of a tube that constitutes the most important spinning constituent since it conveys the energy from the wind turbine blades to the other parts of the wind turbine.
6. **Gear Box:** A gearbox is often used in a wind turbine to increase the rotational speed from a low-speed main shaft to a high-speed shaft connecting with an electrical generator. Gears in wind turbine gearboxes are subjected to severe cyclic loading due to variable wind loads that are stochastic in nature.
7. **Brake:** A wind turbine rotor brake is a brake placed next to the gearbox that reduces the rotational speed of the blade assembly, fixes the blade so that it does not rotate in the case of power transmission maintenance or power generator rest, and in an emergency.
8. **Turbine generator:** The turbine generator is the component that turns the rotational energy in the high-speed output shaft from the gearbox into an electrical current. The electrical principle of electromagnetic induction shows that while a magnet is moving past a coil of wire, an electric current is created (or “induced”) in the wire.

A.1.3 Relevant dates for the project activity (e.g., construction, commissioning, continued operation periods, etc.)

The duration of the crediting period corresponding to the monitoring period is covered in this monitoring report.

UCR Project ID : **566**
 Start Date of Crediting Period : **28/09/2017**
 The project was commissioned on : **28/09/2017**

The wind turbines are commissioned as per the table below:

Project Owner	Location No.	WTG Capacity	WTG NO.	Commissioning Date
M/s Navratan Specialty Chemicals LLP	ROH - 133	2.1 MW	SEL/2100/17-18/4873	28/09/2017
M/s, Uniworth Enterprises LLP	ROH - 167	2.1 MW	SEL/2100/17-18/4933	28/09/2017
M/s. Meghmani Dyes and Intermediates LLP (Nandesari Unit)	ROH - 132	2.1 MW	SEL/2100/18-19/5021	29/09/2018
M/s. Meghmani Dyes and Intermediates LLP (Vatva Unit)	ROH - 174	2.1 MW	SEL/2100/18-19/5057	30/09/2018

A.1.4 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 are as follows:

Summary of the project activity and ERs generated for the monitoring period	
Start date of this Monitoring Period	28/09/2017
Carbon credits claimed up to	31/12/2024
Total ERs generated (tCO ₂ e)	1,54,634 tCO ₂ e
Leakage Emission	0
Project Emission	0

A.1.5 Baseline Scenario

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: **“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”.**

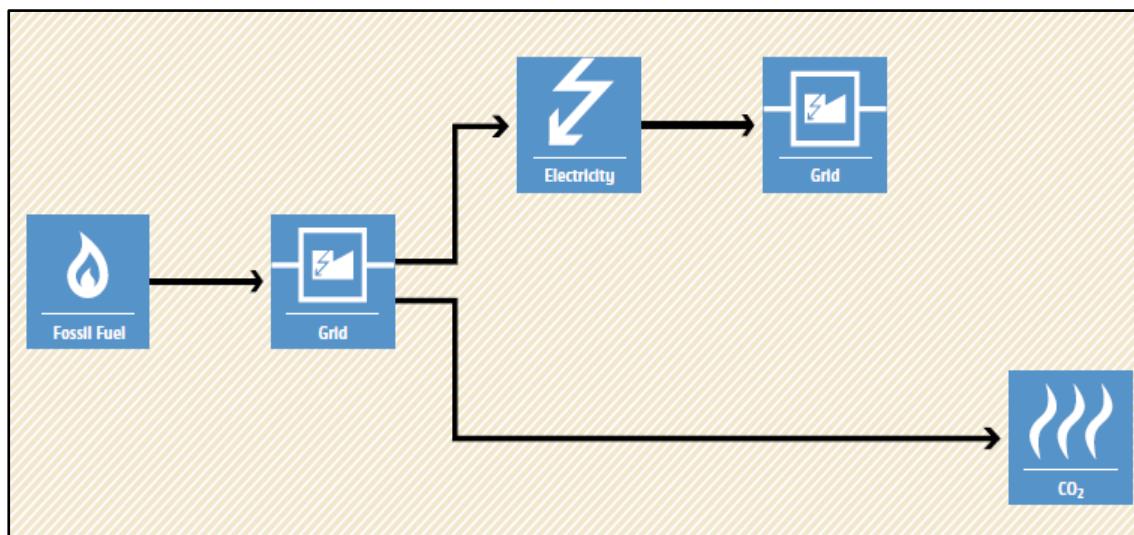


Figure 1 Baseline Scenario

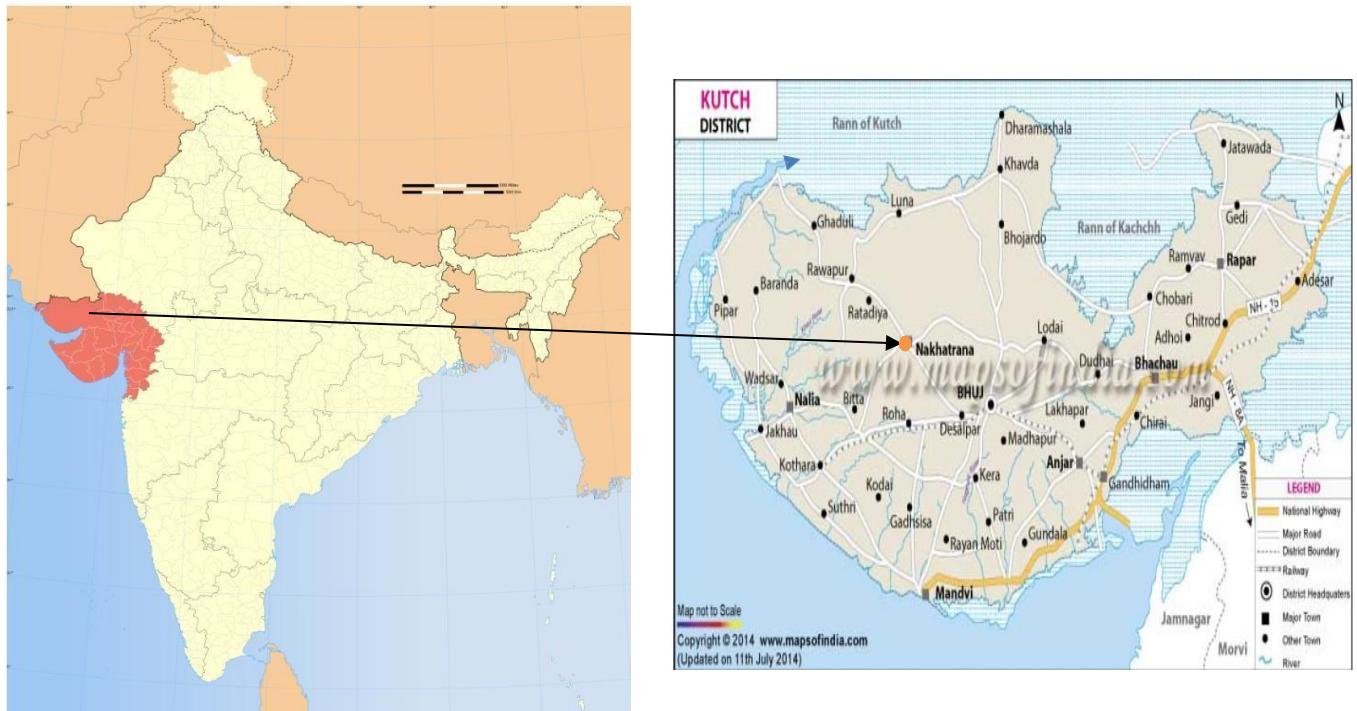
A.2 Location of Project Activity

The project location is situated in Kutch district in the state of Gujarat. The nearest airports are in Kutch. The project sites are well connected by district and village roads to the nearest town. The geographic co-ordinates of the project locations have been provided below.

Location	WTG ID	Latitude and Longitude	Village	Taluka	District
ROH - 133	SEL/2100/17-18/4873	23°16'44.2"N, 69°16'31.4"E	Sangnara	Nakhatrana	Kutch
ROH - 167	SEL/2100/17-18/4933	23°16'04.9"N, 69°18'24.3"E	Sukhsan	Nakhatrana	Kutch
ROH - 132	SEL/2100/18-19/5021	23°15'34.6"N, 69°16'29.1"E	Sangnara	Nakhatrana	Kutch
ROH - 174	SEL/2100/18-19/5057	23°14'22.1"N, 69°18'13.7"E	Gangon	Nakhatrana	Kutch

The representative location map is included below:

Figure-1- Location of the project activity (courtesy: google images and www.mapofindia.com)



A.3 Parties and project participants

Party (Host)	Participants
India	<p>Creduce Technologies Private Limited (Aggregator)</p> <p>Contact person : Shailendra Singh Rao Mobile :+91 9016850742, 9601378723 Address : 2-O-13,14 Housing Board Colony, Banswara, Rajasthan - 327001, India</p>
	<p>M/s Meghmani Dyes and Intermediates LLP (Developer) Address: Plot no.97, phase-II, G.I.D.C. Estate, Vatva, Ahmedabad – 382445, Gujarat - India.</p> <p>M/s Navratan Specialty Chemicals LLP. (Developer) Address: 802, Sidhhi Vuinayak Tower, B/h. DCP office, Near Katariya Motors, Makarba, Ahmedabad - 380051, Gujarat - India</p> <p>M/s Uniworth Enterprises LLP, (Developer) Address: 804, Sidhhi Vuinayak Tower, B/h. DCP office, Near Katariya Motors, Makarba, Ahmedabad - 380051, Gujarat – India</p>

A.4 Methodologies and standardized baselines

Sectoral Scope	:	01 Energy industries (Renewable/Non-Renewable Sources)
Type	:	Renewable energy projects
Category	:	AMS-I. D: “Grid connected renewable electricity generation”, Version 18

A.5 Crediting period of project activity

Start date of the crediting period: 28/09/2017

Crediting period corresponding to this monitoring period 07 Years and 03 Month
(28/09/2017 to 31/12/2024)
(Both dates are inclusive)

A.6 Contact information of responsible persons/entities

Contact person : Shailendra Singh Rao
Mobile : +91 9016850742, 9601378723
Address : 2-O-13,14 Housing Board Colony,
Banswara, Rajasthan -327001, India

SECTION - B - Implementation of project activity

B.1 Description of implemented registered project activity

B.1.1 Provide information on the implementation status of the project activity during this monitoring period in accordance with UCR PCN

The project consists of 4 WTGs of 2.1 MW each and aggregated installed capacity of 8.4 MW, which was commissioned by the Gujarat Energy Development Agency (GEDA), Government of Gujarat at District Kutch, Gujarat. The project generates clean energy by utilizing the kinetic energy of the wind.

B.1.2 For the description of the installed technology, technical process, and equipment, include diagrams, where appropriate

The project activity involves four WTGs which are manufactured and supplied by Suzlon global Energy Limited with an installed capacity of 2.1 MW each. The connectivity of the WTGs are to a central Monitoring Station (CMS) through a high-speed WLAN modem or fiber optic cable which helps in providing real-time status of the turbine at CMS with easy GUI (Graphical User Interface) and the ability to monitor the functioning of the turbine from CMS. The life of the WTGs is 20 years as per manufacturer specifications.

Technical details for the turbine installed at Kutch with a capacity of 8.4 MW manufactured by Suzlon global Energy Limited are as follows:

Product No.		S111_DFIG_2.1 MW_50 Hz
Main Data	Turbine type	Horizontal axis Wind Turbine
	Rated Power	2.1 MW
	Hub Height	120 m 140 m
	Tower height	118.10 m 138.10 m
	Rotational Speed Range	7.8 – 14.4 rpm
	Rotor Diameter	111.8 m
	Tower Type	Hybrid Lattice Tower (HLT)
Main Frame	Frame type	Cast frame
	Material	S355
Rotor	No of Blades	3
	Blade Type	SB54
	Blade Length	54.6 m
	Rotor Cone Angle	3.5°
	Main Shaft Tilt Angle	5°
	Power Regulation	Electric blade pitch control
	Rotor orientation	Upwind
	Material	Glass-reinforced Epoxy, vacuum-infused
Tower	Material	S355
	Access Method	Ladder-Guided Climber
Operational Parameters	Cut-in Wind Speed	3.0 m/s
	Rated Wind Speed	12.5 m/s

	Cut-out Wind Speed	22.0 m/s
Operational Parameters	Restart Wind Speed	18.0 m/s
Grid Connection	Voltage Range (Operation)	90 to 110%
	Frequency Range (Operation)	47 Hz ≤ f ≤ 52.5 Hz
	LVRT/HVRT	LVRT applicable; HVRT optional
Environmental	Ambient Temp Range (Operation)	0°C to +45°C
	Ambient Temp Range (Survival)	0°C to +50°C
	Altitude	Max. 2000 m
	Relative Humidity	0 to 100%
	Corrosion Protection	C4 High, Anti-corrosion paint
Generator	Frequency	50 Hz
	Type	Slip ring asynchronous generator
	Number of Poles / Synchronous Speed	6 / 1000 rpm
	Cooling	IC616 as per IEC 60034
	Power Factor with Compensation	0.90 cap. to 0.90 ind.
	Protection Class	IP54 (Slip ring IP23)
	Thermal Classification	Class H (stator & rotor)
Pitch System	Pitch Type	Electric
	Drive	Electric motor with gearbox & brake for each blade
Hub	Hub Type	Cast spherical hub
Blades	Type	SB54
	Quantity	3
	Length	54.6 m
	Material	Glass- reinforced Epoxy, vacuum-infused
	Type of aerodynamic brake	Pitch/full blade
	Profiles	Risø C2
Main Bearing	Bearing Type	Spherical roller bearing

B.2 Do no harm or impact test of the project activity.

There was no harm identified from the project and hence no mitigation measures are applicable.

Rational: as per ‘Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)’, the final document on the revised classification of Industrial Sectors under Red, Orange, Green, and White Categories (11/07/2024), 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 Regulations, Environmental, and Social Impact Assessment is not required for wind projects.

The Government of India has stipulated the 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, environmental, and technological well-being as the four indicators of sustainable development. It has been envisaged that the project shall contribute to sustainable development using the following ways:

Social well-being: The project would help in generating direct and indirect employment benefits accruing out of ancillary units for manufacturing towers for the erection of the Wind Turbine Generators and for maintenance during the operation of the project activity. It will lead to the development of infrastructure around the project area in terms of improved road network etc. and will also directly contribute to the development of renewable infrastructure in the region.

Environmental well-being: The project utilizes wind energy for generating electricity which is a clean source of energy. The project activity will not generate any air pollution, wind pollution, or solid waste to the environment which otherwise would have been generated through fossil fuels. Also, it will contribute to the reduction of GHG emissions. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well-being.

Economic well-being: Being a renewable resource, using wind energy to generate electricity contributes to the conservation of precious natural resources. The project contributes to economic sustainability through the promotion of decentralization of economic power, leading to the diversification of the national energy supply, which is dominated by conventional fuel-based generating units. Locally, improvement in infrastructure will provide new opportunities for industries and economic activities to be set up in the area. Apart from getting better employment opportunities, the local people will get better prices for their land, thereby resulting in overall economic development.

Technological well-being: The project activity leads to the promotion of 2.1 MW WTGs in the region and will promote practice for small-scale industries to reduce the dependence on carbon-intensive grid supply to meet the captive requirement of electrical energy and also increase energy availability and improve quality of power under the service area. Hence, the project leads to technological well-being.

The project activity contributes to the following SDGs.

SDG	Description
Goal 7	➤ The project activity has generated 1,53,807 MWh of clean energy, which with increased shared will increase the affordability at a cheaper rate to end user.

<p>7 AFFORDABLE AND CLEAN ENERGY</p> 	<ul style="list-style-type: none"> ➤ The project activity will utilize Wind energy (renewal resource) to generate power. The project activity will increase the share of renewable resource-based electricity in global mix of energy consumption.
<p>Goal 8</p> <p>8 DECENT WORK AND ECONOMIC GROWTH</p> 	<ul style="list-style-type: none"> ➤ Decent work and economic growth. The project activity generates additional employment for skilled and unskilled, also the project situated in a remote area will provide employment opportunities to unskilled people from villages. Training on various aspects including safety, operational issues, and developing skill sets will also be provided to employees.
<p>Goal 13</p> <p>13 CLIMATE ACTION</p> 	<ul style="list-style-type: none"> ➤ This 8.4 MW wind power project meets the SDG 13 goal by saving fossil fuel and producing clean energy. ➤ This project has avoided 1,54,634 tons of CO₂ emissions during this monitoring period. ➤ SDG 13 on clean energy is closely related and complementary. ➤ 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 associated emissions with this project it contributes to the reduction of greenhouse gases (GHG) emissions.

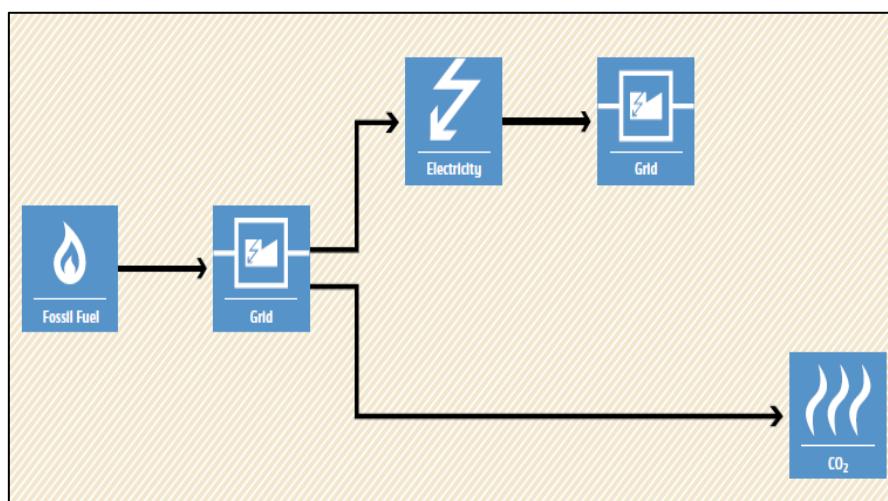
B.3 Baseline Emissions

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

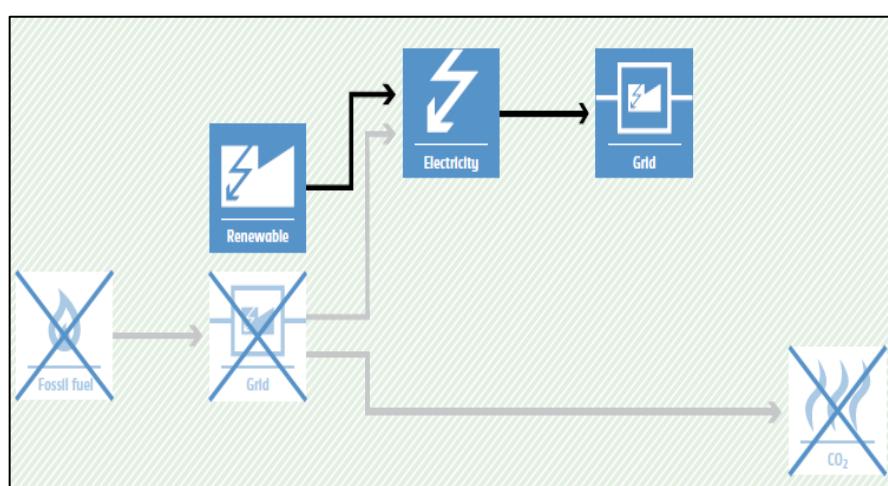
In the absence of the project activity, the equivalent amount of electricity would have been imported from the grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to being predominantly sourced from fossil fuel-based power plants. Hence, the baseline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

Schematic diagram showing the baseline scenario:

Baseline Scenario:



Project Scenario:



Thus, this project activity is a voluntary investment that replaced an equivalent amount of electricity from the Indian grid. The project proponent was not bound to incur this investment as it was not mandatory by national and sectoral policies. Thus, the continued operation of the project activity would

continue to replace fossil fuel-based power plants and fight against the impacts of climate change. The PP hopes that revenues from the carbon credits generated will help repay the loans and help in the continued maintenance of this project activity.

B.4. De-bundling

This project activity is not a bundled 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 : I-Renewable energy projects

Category : AMS. I.D. (“Grid connected renewable electricity generation”, version 18)

C.2 Applicability of methodologies and standardized baselines

The project activity involves the generation of grid-connected electricity from the construction and operation of a new wind power-based project for captive consumption. A wheeling agreement is signed between PPs and state utility.

The project activity has an installed capacity of 8.4 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 the applicability of the 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., a wind power project which falls under applicability criteria option 1 (b). i.e., Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.
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.

<p>3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> a) The project activity is implemented in the existing reservoir, with no change in the volume of the reservoir; or b) The project activity is implemented in the 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/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. 	<p>The project activity involves the installation of 8.4 MW WTGs; hence, this criterion is not applicable.</p>
<p>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 component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.</p>	<p>The proposed project is a 8.4 MW wind power project, i.e., the only component is a renewable power project below 15MW, thus the criterion is not applicable to this project activity.</p>
<p>5. Combined heat and power (co-generation) systems are not eligible under this category.</p>	<p>The project is a wind power project and thus, the criterion is not applicable to this project activity.</p>
<p>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 distinct from the existing units.</p>	<p>The proposed project is a greenfield 8.4 MW wind power project, i.e., the only component is a renewable power project below 15 MW, thus the criterion is not applicable to this project activity.</p>
<p>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.</p>	<p>The proposed project is a greenfield 8.4 MW wind power project, i.e., the only component is a renewable power project below 15 MW, thus the criterion is not applicable to this project activity.</p>
<p>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</p>	<p>The proposed project is a greenfield 8.4 MW wind power project; hence, this criterion is not applicable to this project activity.</p>

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.	
9. In case biomass is sourced from dedicate 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.

C.3 Applicability of double counting emission reductions

The project was not applied under any other GHG mechanism. Hence the project will not cause double accounting of carbon credits (i.e., CoUs).

C.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.” Thus, the project boundary includes the Wind Turbine Generators 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 ₂ O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield Electric 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 ₂ O	No	Project activity does not emit N ₂ O
		Other	No	No other emissions are emitted from the project

C.5 Establishment and description of the baseline scenario

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:

“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 4 WTGs to harness the wind energy and use it for captive consumption i.e., the Indian grid system through wheeling and banking arrangement. In the absence of the project activity, the equivalent amount of power would have been generated by the operation of grid-connected fossil fuel-based power plants and by the addition of new fossil fuel-based generation sources into the grid. The power produced from 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 CO₂ emission factor (tCO₂/MWh) that 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 2013 - 2020 years as a conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2024, the combined margin emission factor of 0.757 tCO₂/MWh, calculated from the CEA database in India, results in higher emissions than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under a conservative approach.

$$\text{Net GHG Emission Reductions and Removals}$$

$$\text{Thus, } \text{ER}_y = \text{BE}_y - \text{PE}_y - \text{LE}_y$$

Where:

- ER_y = Emission reductions in year y (tCO₂/y)
- BE_y = Baseline Emissions in year y (tCO₂/y)
- PE_y = Project emissions in year y (tCO₂/y)
- LE_y = Leakage emissions in year y (tCO₂/y)

• **Baseline Emissions**

Baseline emissions include only CO₂ emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

- $\text{BE}_y = \text{EG}_{PJ,y} \times \text{EF}_{grid,y}$
- $\text{BE}_y = \text{Baseline emissions in year y (tCO}_2\text{)}$
- $\text{EG}_{PJ,y} = \text{Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)}$
- $\text{EF}_{grid,y} = \text{UCR recommended emission factor of 0.9 tCO}_2\text{/MWh has been considered.}$
(Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

Hence

Baseline Emissions Calculation				
Sr. No.	Year	EGpy (MWh)	EFgrid,y	BEy
1	2017	2,543.49	0.9	2,289
2	2018	17,619.58	0.9	15,857
3	2019	32,032.35	0.9	28,829
4	2020	25,014.27	0.9	22,512
5	2021	27,066.98	0.9	24,360
6	2022	25,301.69	0.9	22,771
7	2023	24,228.83	0.9	21,805
8	2024	21,415.69	0.757	16,211
9	BE (tCO ₂ e) for the period of 2017 to 2024			1,54,634

- **Project Emissions**

As per Paragraph 39 of AMS-I.D. version-18, only emissions associated with fossil fuel combustion, emissions from the operation of geothermal power plants due to the release of non-condensable gases, and emissions from a water reservoir of hydro should be accounted for the project emission. Since the project activity is a wind energy project, project emission for renewable energy plants is nil.

Thus, PE = 0

- **Leakage Emission**

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 zero.

Hence, LE = 0

The actual emission reduction achieved during the first CoU period is calculated below:

Hence Net GHG emission reduction, = 1,54,634-0-0 = 1,54,634 tCO₂/year (i.e., 1,54,634 CoUs/year)

C.6 Prior History

The project was not applied under any other GHG mechanism. Hence the project will not cause double accounting of carbon credits (i.e., CoUs).

C.7 Changes to the start date of crediting

The crediting period under UCR has been considered from the date of the generation of electricity. There is no change in the start date of crediting period.

C.8 Permanent changes from MR monitoring plan, applied methodology, or applied standardized baseline

Not applicable.

C.9 Monitoring period number and duration

Total Monitoring Period: 07 Years and 04 Months

Date: 28/09/2017 to 31/12/2024 (inclusive of both dates).

C.10 Monitoring Plan

The project activity essentially involves the generation of electricity from wind, the employed WTGs only converts wind energy into electrical energy and does not use any other input fuel for electricity generation, thus no special ways and means are required to monitor leakage from the project activity. The recording of the electricity fed to the state utility grid is carried out jointly at the incoming feeder of the state power utility (GETCO).

Data and Parameters available:

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 0.757 tCO ₂ /MWh for the 2024 vintage 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://cea.nic.in/wp-content/uploads/baseline/2023/01/Approved_report_emission _2021_22.pdf
Value applied for the year 2017 - 2023	0.9
Value applied for the year 2023 - 2024	0.757
Measurement methods and procedures	-
Monitoring frequency	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 2024, December 2024) results into higher emission factor. Hence for 2024 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 the NEWNE grid facility by the project activity between 28/09/2017 to 31/12/2024.																									
Source of data	SLDC Certificate/Energy Generation Report/Monthly Energy Invoices																									
Measurement procedures (if any):	<p>Data Type: Measured</p> <p>Monitoring equipment: Energy Meters are used for monitoring</p> <p>Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually</p> <p>Archiving Policy: Paper & Electronic</p> <p>Calibration frequency: 5 years (as per CEA provision)</p> <p>The Net electricity generation by the WTGs are recorded at the sub-station. At the end of every month, SLDC Certificate is generated based on the total monthly electricity exported to the grid.</p> <p>Energy meter details:</p> <table border="1"> <thead> <tr> <th>Location</th> <th>Energy Meter No.</th> <th>Make</th> <th>Accuracy</th> <th>Calibration Date</th> </tr> </thead> <tbody> <tr> <td>ROH - 133</td> <td>GJ3907B</td> <td>EDMI</td> <td>0.2</td> <td>08/04/2023</td> </tr> <tr> <td>ROH - 167</td> <td>GJ3908B</td> <td>EDMI</td> <td>0.2</td> <td>08/04/2023</td> </tr> <tr> <td>ROH - 132</td> <td>GJ4025B</td> <td>EDMI</td> <td>0.2</td> <td>08/04/2023</td> </tr> <tr> <td>ROH - 174</td> <td>GJ4795B</td> <td>SECURE</td> <td>0.2</td> <td>08/04/2023</td> </tr> </tbody> </table>	Location	Energy Meter No.	Make	Accuracy	Calibration Date	ROH - 133	GJ3907B	EDMI	0.2	08/04/2023	ROH - 167	GJ3908B	EDMI	0.2	08/04/2023	ROH - 132	GJ4025B	EDMI	0.2	08/04/2023	ROH - 174	GJ4795B	SECURE	0.2	08/04/2023
Location	Energy Meter No.	Make	Accuracy	Calibration Date																						
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ROH - 132	GJ4025B	EDMI	0.2	08/04/2023																						
ROH - 174	GJ4795B	SECURE	0.2	08/04/2023																						
Measurement Frequency:	Monthly																									
Value applied:	1,53,807 (Ex-post estimate)																									
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.																									

ANNEXURE I (Emission Reduction Calculation)

8.4 MW Bundled Small Scale Wind Power Project in Kutch, Gujarat

Month - Wise Energy Delivered to Grid (in kWh)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	-	-	-	-	-	-	-	-	43,422	6,73,973	6,22,306	12,03,796
2018	6,41,492	5,98,899	11,32,868	14,13,250	21,35,345	20,59,128	21,73,597	19,44,315	14,35,607	11,36,755	10,23,676	19,24,651
2019	18,44,991	20,94,727	20,42,345	31,36,434	43,26,344	39,14,091	45,45,123	32,48,239	13,56,083	11,27,759	18,01,130	25,95,084
2020	22,82,804	17,13,088	20,00,171	23,92,843	41,24,409	22,34,926	24,60,653	23,60,618	11,51,202	10,26,553	15,40,832	17,26,176
2021	22,42,432	11,00,873	18,08,046	19,65,429	35,75,224	34,61,816	40,43,549	32,56,113	14,51,531	12,18,790	11,76,680	17,66,502
2022	17,06,011	14,18,185	16,04,011	25,37,125	43,84,829	33,67,636	28,41,464	25,71,599	19,08,156	8,45,479	5,96,546	15,20,655
2023	23,66,239	12,56,832	12,88,227	17,27,281	34,57,527	16,54,888	17,42,996	48,47,645	22,35,611	9,34,195	10,15,799	17,01,598
2024	13,24,881	15,89,156	16,21,196	19,53,444	29,36,465	27,81,912	22,66,392	26,76,580	10,27,105	7,61,659	3,71,010	21,05,894

Year-Wise Emission reduction calculation for the project activity

Year	Total No. of Electricity delivered in kWh	Recommended emission factor tCO2/MWh	Total CoUs generated
2017	25,43,497	0.9	2,289
2018	1,76,19,583	0.9	15,857
2019	3,20,32,350	0.9	28,829
2020	2,50,14,275	0.9	22,512
2021	2,70,66,985	0.9	24,360
2022	2,53,01,696	0.9	22,771
2023	2,42,28,838	0.9	21,805
2024	2,14,15,694	0.757	16,211

Total CoUs to be issued for the first monitoring period (28/09/2017 to 31/12/2024)

1,54,634