Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT

Title: Wind Energy Project in Gujarat

Version 04

Date 05/06/2025

First CoU Issuance Period: 2 years, 3 months

Monitoring Period: 01/10/2022 to 31/12/2024

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

Monitoring Report	
Title of the project activity	Wind Energy Project in Gujarat.
UCR Project Registration Number	496
Version	04
Completion date of the MR	05/06/2025
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: (first and last days included (01/10/2022 to 31/12/2024)
Project participants	Vish Wind Infrastructure LLP (Private entity)
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)
Amount of GHG emission reductions for this monitoring period in the registered PCN	2022: 7,922 CoUs 7,992_ tCO2eq)
	2023: 70,208 CoUs (70,208 tCO2eq)
	2024: 51,107CoUs (51,107 tCO2eq)
Total:	1,29,238 CoUs (1,29,238 tCO2eq)

SECTION A. Description of project activity

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

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

The project "Wind Energy Project in Gujarat is located" in Kutch and Lalpur sites of Kutch and Jamnagar districts respectively, in the state of Gujarat in India. The project consists of 63 machines of Enercon make E-53 type Wind Energy Converters (WECs) each of capacity 800 KW.

The WEGs generates 3-phase power at 400V, which is stepped up to 33 kV and further transmitted to WWIL Sub-station (previously known as Enercon Substation). From WWIL substation, electricity is further evacuated to the Gujarat regional electricity grid which is part of the NEWNE grid in India. The clean and green electricity supplied by the project will aide in sustainable growth in the region.

The purpose of the project activity is to utilize renewable wind energy for generation of electricity. Project activity is the installation of green field energy production using wind as a source of power generation. In the absence of the project activity the equivalent amount of electricity would have been generated from the connected/ new power plants in the NEWNE grid, which is predominantly based on fossil fuels. Whereas the operation of Wind Energy Convertors (WEGs) is emission free and no emissions occur during the lifetime of the project activity.

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

The first machine under the project activity was commissioned on 2nd October 2011 and last machine under the project activity was commissioned on 31st March 2012. The expected operational lifetime of the project is for 20 years.

Total GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period:

The total emission reductions achieved under this current monitoring period (i.e. 01/10/2022 to 31/12/2024, including both the dates) is 1,29,238 tCO2e.

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

The project activity involves 63 numbers 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 life time 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	52.9 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.

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

UCR Project ID :496
Start Date of Crediting Period: 01/10/2022
Project Commissioned: The first machine under the project activity was commissioned on 2nd October 2011 and last machine under the project activity was commissioned on 31st March 2012.

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	01/10/2022
Carbon credits claimed up to	31/12/2024
Total ERs generated (tCO_{2eq})	1,29,238 tCO2eq
Leakage	0

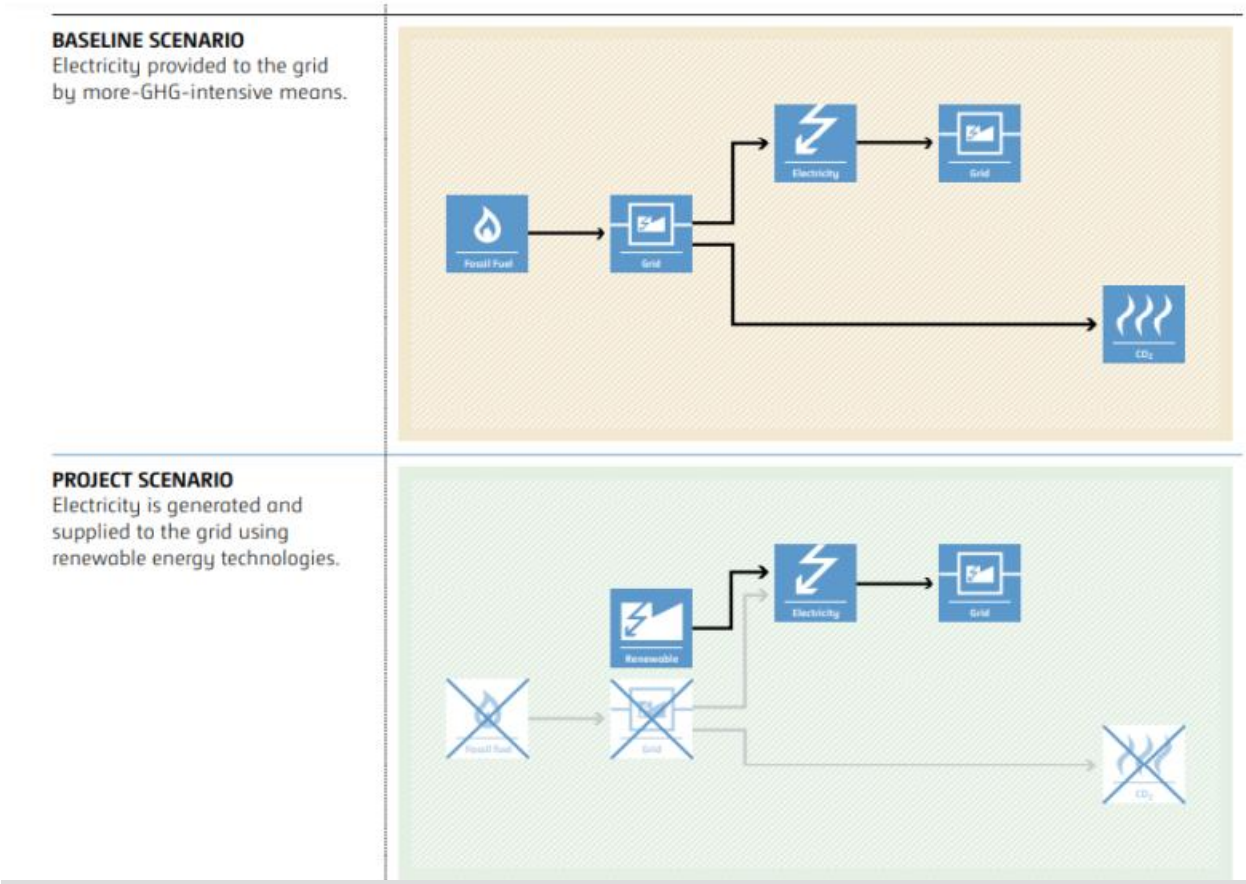
e) Baseline Scenario>>

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 activity is located at Kutch and Lalpur site in Kutch & Jamnagar district respectively, in the state of Gujarat, India. The nearest railway station and airport for Kutch site is Rajkot and the nearest railway station and airport for Lalpur site is Jamnagar. The latitude and longitude details along of each WEGs is provided given below:

Details of Latitude &Longitude for Kutch Site (District Kutch, State- Gujarat):-

S. No.	WEG ID NO	Village	Taluka	Latitude (N)	Longitude (E)
1	EIL/800/11-12/2469	KhombhadiNani	Nakhatrana	23.41978	69.13057
2	EIL/800/11-12/2470	KhombhadiNani	Nakhatrana	23.41771	69.13119
3	EIL/800/11-12/2471	KhombhadiNani	Nakhatrana	23.41545	69.13154
4	EIL/800/11-12/2472	KhombhadiNani	Nakhatrana	23.41463	69.13608
5	EIL/800/11-12/2475	KhombhadiNani	Nakhatrana	23.42289	69.13727
6	EIL/800/11-12/2476	KhombhadiNani	Nakhatrana	23.43353	69.13148
7	EIL/800/11-12/2473	KhombhadiNani	Nakhatrana	23.43568	69.13101
8	EIL/800/11-12/2474	KhombhadiNani	Nakhatrana	23.43891	69.13204
9	EIL/800/11-12/2477	KhombhadiNani	Nakhatrana	23.44566	69.11901
10	EIL/800/11-12/2478	KhombhadiNani	Nakhatrana	23.44863	69.11686

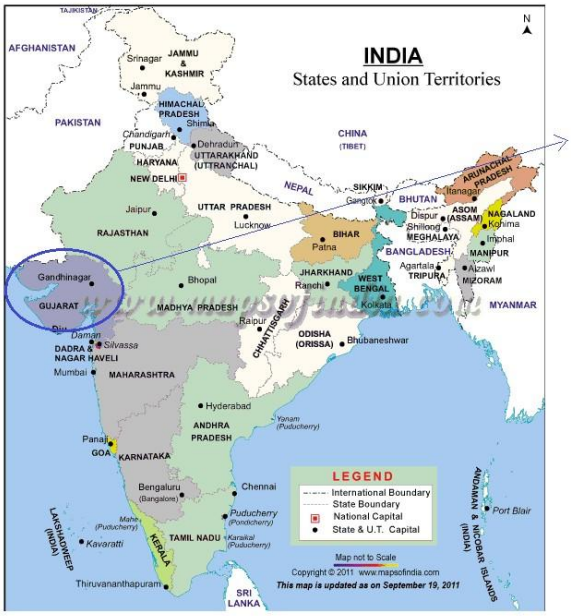
11	EIL/800/11-12/2479	KhombhadiNani	Nakhatrana	23.45061	69.11676
12	EIL/800/11-12/2483	Vigodi	Nakhatrana	23.47575	69.10385
13	EIL/800/11-12/2587	RamparSarva	Nakhatrana	23.46789	69.08344
14	EIL/800/11-12/2494	RamparSarva	Nakhatrana	23.46995	69.08482
15	EIL/800/11-12/2484	Vigodi	Nakhatrana	23.47102	69.08219
16	EIL/800/11-12/2485	Vigodi	Nakhatrana	23.47334	69.08353
17	EIL/800/11-12/2486	Vigodi	Nakhatrana	23.47239	69.08706
18	EIL/800/11-12/2487	Vigodi	Nakhatrana	23.47539	69.08330
19	EIL/800/11-12/2488	Vigodi	Nakhatrana	23.47627	69.08049
20	EIL/800/11-12/2489	Vigodi	Nakhatrana	23.47745	69.08687
21	EIL/800/11-12/2490	Vigodi	Nakhatrana	23.47913	69.08449
22	EIL/800/11-12/2491	Vigodi	Nakhatrana	23.48041	69.07762
23	EIL/800/11-12/2492	Vigodi	Nakhatrana	23.48258	69.06526
24	EIL/800/11-12/2493	Vigodi	Nakhatrana	23.48057	69.06784
25	EIL/800/11-12/2590	Khirsara (Netra)	Nakhatrana	23.47881	69.06922
26	EIL/800/11-12/2591	Khirsara (Netra)	Nakhatrana	23.47680	69.07072
27	EIL/800/11-12/2589	RamparSarva	Nakhatrana	23.44230	69.07665
28	EIL/800/11-12/2495	RamparSarva	Nakhatrana	23.44020	69.07735
29	EIL/800/11-12/2496	RamparSarva	Nakhatrana	23.43439	69.08006
30	EIL/800/11-12/2497	Bandiya	Abdasa	23.41617	69.02001
31	EIL/800/11-12/2480	KhombhadiNani	Nakhatrana	23.43155	69.13112
32	EIL/800/11-12/2481	KhombhadiNani	Nakhatrana	23.42959	69.13235
33	EIL/800/11-12/2482	KhombhadiNani	Nakhatrana	23.44340	69.11945

Details of Latitude &Longitude for Lalpur Site (District Jamnagar, State- Gujarat):-

S. No.	WEG ID NO	Village	Taluka	Latitude (N)	Longitude (E)
1	EIL/800/11-12/2161	NaviPipar	Lalpur	22.15478	69.92386
2	EIL/800/11-12/2162	NaviPipar	Lalpur	22.13751	69.91985
3	EIL/800/11-12/2163	NaviPipar	Lalpur	22.13990	69.92042
4	EIL/800/11-12/2164	NaviPipar	Lalpur	22.15693	69.90534
5	EIL/800/11-12/2165	NaviPipar	Lalpur	22.15503	69.90582
6	EIL/800/11-12/2166	Govana	Lalpur	22.13969	69.89579
7	EIL/800/11-12/2167	Govana	Lalpur	22.14332	69.89474
8	EIL/800/11-12/2168	Govana	Lalpur	22.14399	69.89261

9	EIL/800/11-12/2169	Govana	Lalpur	22.14398	69.88783
10	EIL/800/11-12/2170	Govana	Lalpur	22.13915	69.87166
11	EIL/800/11-12/2171	Govana	Lalpur	22.15328	69.87057
12	EIL/800/11-12/2172	Govana	Lalpur	22.15533	69.87030
13	EIL/800/11-12/2173	Govana	Lalpur	22.15732	69.86990
14	EIL/800/11-12/2174	Govana	Lalpur	22.15861	69.86971
15	EIL/800/11-12/2175	Govana	Lalpur	22.16658	69.86708
16	EIL/800/11-12/2176	Govana	Lalpur	22.16880	69.86664
17	EIL/800/11-12/2177	NaniRafudad	Lalpur	22.18928	69.84754
18	EIL/800/11-12/2178	NaniRafudad	Lalpur	22.19097	69.84445
19	EIL/800/11-12/2179	KanVirdi	Lalpur	22.19205	69.84194
20	EIL/800/11-12/2180	KanVirdi	Lalpur	22.19757	69.84555
21	EIL/800/11-12/2181	Babarzar	Lalpur	22.17319	69.82554
22	EIL/800/11-12/2186	Sanosari	Lalpur	22.06414	69.88709
23	EIL/800/11-12/2187	Sanosari	Lalpur	22.06724	69.89168
24	EIL/800/11-12/2188	Sanosari	Lalpur	22.07579	69.89075
25	EIL/800/11-12/2182	Dharampur	Lalpur	22.12138	69.89119
26	EIL/800/11-12/2183	Dharampur	Lalpur	22.12647	69.89537
27	EIL/800/11-12/2185	Bhangor	Bhanvad	22.12911	69.89381
28	EIL/800/11-12/2184	Dharampur	Lalpur	22.13197	69.90297
29	EIL/800/11-12/2189	Sanosari	Lalpur	22.09688	69.90079
30	EIL/800/11-12/2190	Sanosari	Lalpur	22.09475	69.90079

The location of the project site has been shown below:


INDIA
States and Union Territories
LEGEND
International Boundary
State Boundary
National Capital
State & U.T. Capital
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GUJARAT
DISTRICT MAP
LEGEND
International Boundary
State Boundary
District Boundary
State Capital
District Headquarter
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(Last Updated on 15th April 2011)


The Site


The Site

A.3. Parties and project participants >>

Party (Host)	Participants
India (Host)	Vish Wind Infrastructure LLP (Private entity)

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

SECTORAL SCOPE: 01, Energy industries (Renewable/Non-renewable sources)
TYPE : I - Renewable Energy Projects
CATEGORY: ACM0002: Grid-connected electricity generation from renewable sources - Version 22.0

A.5. Crediting period of project activity >>

Length of the crediting period corresponding to this monitoring period:2 years 03 Months– 01/10/2022 -31/12/2024 (Both dates are inclusive)

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

Contact Person: Lokesh Jain
Mobile: +91-8920856146
Email: lokesh.jain@viviidgreen.com
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 project activity consists of 63 machines (800 kW) of Enercon make E-53. The first machine under the project activity was commissioned on 02 Oct 2011 and last machine under the project activity was commissioned on 31 Mar 2012. The commissioning dates for all the machines included in the project activity are given in the table below:-

Sr. No.	WEG ID NO	Village	Taluka	Date of commissioning
1	EIL/800/11-12/2469	KhambhadiNani	Nakhatrana	31/03/2012
2	EIL/800/11-12/2470	KhambhadiNani	Nakhatrana	31/03/2012
3	EIL/800/11-12/2471	KhambhadiNani	Nakhatrana	31/03/2012
4	EIL/800/11-12/2472	KhambhadiNani	Nakhatrana	31/03/2012
5	EIL/800/11-12/2475	KhambhadiNani	Nakhatrana	31/03/2012
6	EIL/800/11-12/2476	KhambhadiNani	Nakhatrana	31/03/2012
7	EIL/800/11-12/2473	KhambhadiNani	Nakhatrana	31/03/2012
8	EIL/800/11-12/2474	KhambhadiNani	Nakhatrana	31/03/2012
9	EIL/800/11-12/2477	KhambhadiNani	Nakhatrana	31/03/2012
10	EIL/800/11-12/2478	KhambhadiNani	Nakhatrana	31/03/2012
11	EIL/800/11-12/2479	KhambhadiNani	Nakhatrana	31/03/2012
12	EIL/800/11-12/2483	Vigodi	Nakhatrana	31/03/2012
13	EIL/800/11-12/2587	RamparSarva	Nakhatrana	31/03/2012
14	EIL/800/11-12/2494	RamparSarva	Nakhatrana	31/03/2012
15	EIL/800/11-12/2484	Vigodi	Nakhatrana	31/03/2012
16	EIL/800/11-12/2485	Vigodi	Nakhatrana	31/03/2012
17	EIL/800/11-12/2486	Vigodi	Nakhatrana	31/03/2012
18	EIL/800/11-12/2487	Vigodi	Nakhatrana	31/03/2012
19	EIL/800/11-12/2488	Vigodi	Nakhatrana	31/03/2012
20	EIL/800/11-12/2489	Vigodi	Nakhatrana	31/03/2012
21	EIL/800/11-12/2490	Vigodi	Nakhatrana	31/03/2012
22	EIL/800/11-12/2491	Vigodi	Nakhatrana	31/03/2012
23	EIL/800/11-12/2492	Vigodi	Nakhatrana	31/03/2012
24	EIL/800/11-12/2493	Vigodi	Nakhatrana	31/03/2012
25	EIL/800/11-12/2590	Khirsara (Netra)	Nakhatrana	31/03/2012
26	EIL/800/11-12/2591	Khirsara (Netra)	Nakhatrana	31/03/2012
27	EIL/800/11-12/2589	RamparSarva	Nakhatrana	31/03/2012
28	EIL/800/11-12/2495	RamparSarva	Nakhatrana	31/03/2012
29	EIL/800/11-12/2496	RamparSarva	Nakhatrana	31/03/2012

30	EIL/800/11-12/2497	Bandiya	Abdasa	31/03/2012
31	EIL/800/11-12/2480	KhambhadiNani	Nakhatrana	31/03/2012
32	EIL/800/11-12/2481	KhambhadiNani	Nakhatrana	31/03/2012
33	EIL/800/11-12/2482	KhambhadiNani	Nakhatrana	31/03/2012

Commissioning details for Lalpur Site (District Jamnagar, State- Gujarat):

Sl. No.	WTG ID No.	Village	Taluka	Date of Commissioning
1	EIL/800/11-12/2161	NaviPipar	Lalpur	02/10/2011
2	EIL/800/11-12/2162	NaviPipar	Lalpur	02/10/2011
3	EIL/800/11-12/2163	NaviPipar	Lalpur	02/10/2011
4	EIL/800/11-12/2164	NaviPipar	Lalpur	02/10/2011
5	EIL/800/11-12/2165	NaviPipar	Lalpur	02/10/2011
6	EIL/800/11-12/2166	Govana	Lalpur	02/10/2011
7	EIL/800/11-12/2167	Govana	Lalpur	02/10/2011
8	EIL/800/11-12/2168	Govana	Lalpur	02/10/2011
9	EIL/800/11-12/2169	Govana	Lalpur	02/10/2011
10	EIL/800/11-12/2170	Govana	Lalpur	02/10/2011
11	EIL/800/11-12/2171	Govana	Lalpur	02/10/2011
12	EIL/800/11-12/2172	Govana	Lalpur	02/10/2011
13	EIL/800/11-12/2173	Govana	Lalpur	02/10/2011
14	EIL/800/11-12/2174	Govana	Lalpur	02/10/2011
15	EIL/800/11-12/2175	Govana	Lalpur	02/10/2011
16	EIL/800/11-12/2176	Govana	Lalpur	03/10/2011
17	EIL/800/11-12/2177	NaniRafudad	Lalpur	03/10/2011
18	EIL/800/11-12/2178	NaniRafudad	Lalpur	03/10/2011
19	EIL/800/11-12/2179	KanVirdi	Lalpur	03/10/2011
20	EIL/800/11-12/2180	KanVirdi	Lalpur	03/10/2011
21	EIL/800/11-12/2181	Babarzar	Lalpur	03/10/2011
22	EIL/800/11-12/2182	Dharampur	Lalpur	02/10/2011
23	EIL/800/11-12/2183	Dharampur	Lalpur	02/10/2011
24	EIL/800/11-12/2184	Dharampur	Lalpur	02/10/2011
25	EIL/800/11-12/2185	Bhangor	Bhanvad	03/10/2011
26	EIL/800/11-12/2186	Sanosari	Lalpur	02/10/2011
27	EIL/800/11-12/2187	Sanosari	Lalpur	02/10/2011
28	EIL/800/11-12/2188	Sanosari	Lalpur	02/10/2011
29	EIL/800/11-12/2189	Sanosari	Lalpur	02/10/2011
30	EIL/800/11-12/2190	Sanosari	Lalpur	02/10/2011

Wind World (India) Ltd (erstwhile known as Enercon (India) Ltd., herein after also referred as WWIL) conducts operation and maintenance activities, which are ISO 9001:2008 certified. Referring to the available data, it can be inferred that there have not been any major special events for any of the machines that are included in the project activity. As a part of regular maintenance,

the machines are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly. Further, the consolidated performance report of project WEGs during the monitoring period including the down time, machine availability, grid availability, etc. has been submitted to DOE. During the monitoring period, there were no events or situations occurred, which may impact the applicability of the methodology.

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

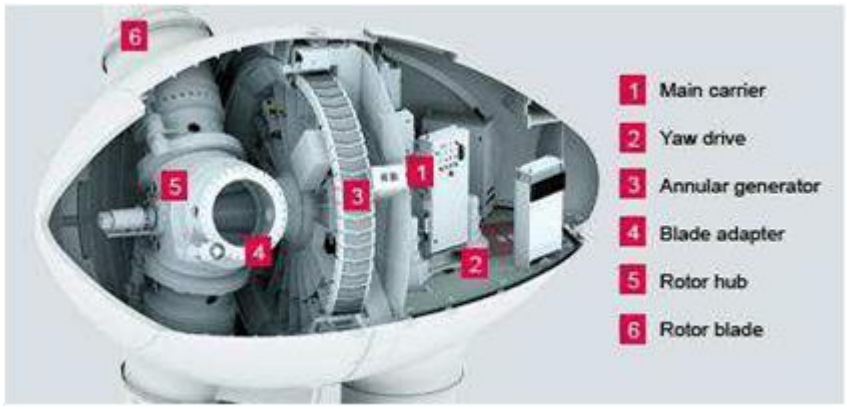
The project activity consists of 63 WEGs of Enercon make E-53 and each machine capacity is of 800 kW (E-53) totaling to the capacity of 50.4 MW. The WEGs generates 3-phase power at 400V, which is stepped up to 33 kV and connected to 33kV metering points. From 33 kV metering point‟s electricity transmitted to WWIL Sub-station. At sub-station, electricity is step-up to 132 kV. From WWIL substation, electricity is further evacuated to the state electricity grid at 132kV. The Project can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V ± 12.5%

The other salient features of the state-of art technology are:-

- Gearless Construction - Rotor & Generator Mounted on same shaft eliminating the Gearbox.
- Variable speed function – has the speed range of 18 to 33 RPM thereby ensuring optimum efficiency at all times.
- Variable Pitch functions ensuring maximum energy capture.
- Near Unity Power Factor at all times.
- Minimum drawl (less than 1% of kWh generated) of Reactive Power from the grid.
- No voltage peaks at any time.
- Operating range of the WEG with voltage fluctuation of -20 to +20%.
- Less Wear & Tear since the system eliminates mechanical brake, which are not needed due to low speed generator which runs at maximum speed of 33 rpm and uses Air Brakes.
- Three Independent Braking System.
- Generator achieving rated output at only 33 rpm.
- Incorporates lightning protection system, which includes blades.
- Starts generation of power at wind speed of 3 m/s

WWIL has secured and facilitated the technology transfer for wind based renewable energy generation from Enercon GmbH, has established a manufacturing plant at Daman in India, where along with other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured.

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


6
5
3
1
4
2
1 Main carrier
2 Yaw drive
3 Annular generator
4 Blade adapter
5 Rotor hub
6 Rotor blade

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 contribute to socio-economic development through improving the infrastructure for road network and other mode of communications in the remote part of the state during both the construction and operational period.
- The project activity will utilize renewable energy source for electricity generation instead of fossil fuel based electricity generation which would have emitted gaseous, liquid and/or solid effluents/wastes. Thus, the project causes no negative impact on the surrounding environment and contributes to environmental well-being.
- The project activity will contribute towards reduction of the GHG emissions as well as emission of pollutants like SOx, Suspended Particulate Matters (SPMs) etc. by avoiding equivalent amount of power generation from fossil fuel based power plants.

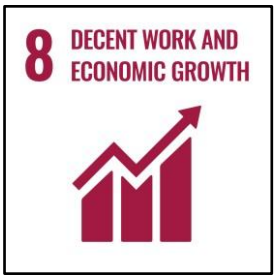
Environmental benefits:

- Utilizing wind energy instead of burning fossil fuels for electricity generation significantly decreases the emission of harmful pollutants, fostering cleaner air, water, and soil.
- Leveraging wind energy aids in preserving natural resources and minimizing detrimental impacts on the environment, contributing to overall ecological well-being.
- Moreover, harnessing wind energy offers a sustainable alternative to burning fossil fuels, which not only mitigates pollution but also conserves natural habitats and biodiversity, supporting healthier ecosystems and enhancing environmental resilience.

Economic benefits:

- The project will generate electricity utilizing renewable source like wind, thus will increase the contribution of renewable based power generation in the region and will also help in reducing the demand - supply gap of the respective grid.
- The project activity involves substantial amount of investment, thus will contribute towards generation of direct and indirect employment opportunities as per the requirement of the skilled and semi-skilled manpower.
- Use of a renewable source of energy reduces the dependence on imported fossil fuels and associated price variation, thereby leading to increased energy security.

Goal 7 	➢ The project activity will generate clean energy, which with increased shared will increase the affordability at a cheaper rate to end user. The project activity will utilize wind 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 activity generates additional employment for skilled and unskilled, also the project situated in remote area will provide employment opportunities to unskilled people from villages. The training on various aspect including safety, operational issues and developing 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 meet the SDG 13 goal by saving fossil fuel and produce clean energy. This project will reduce 1,29,238 tCO2 for this monitoring period. ➢ 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.

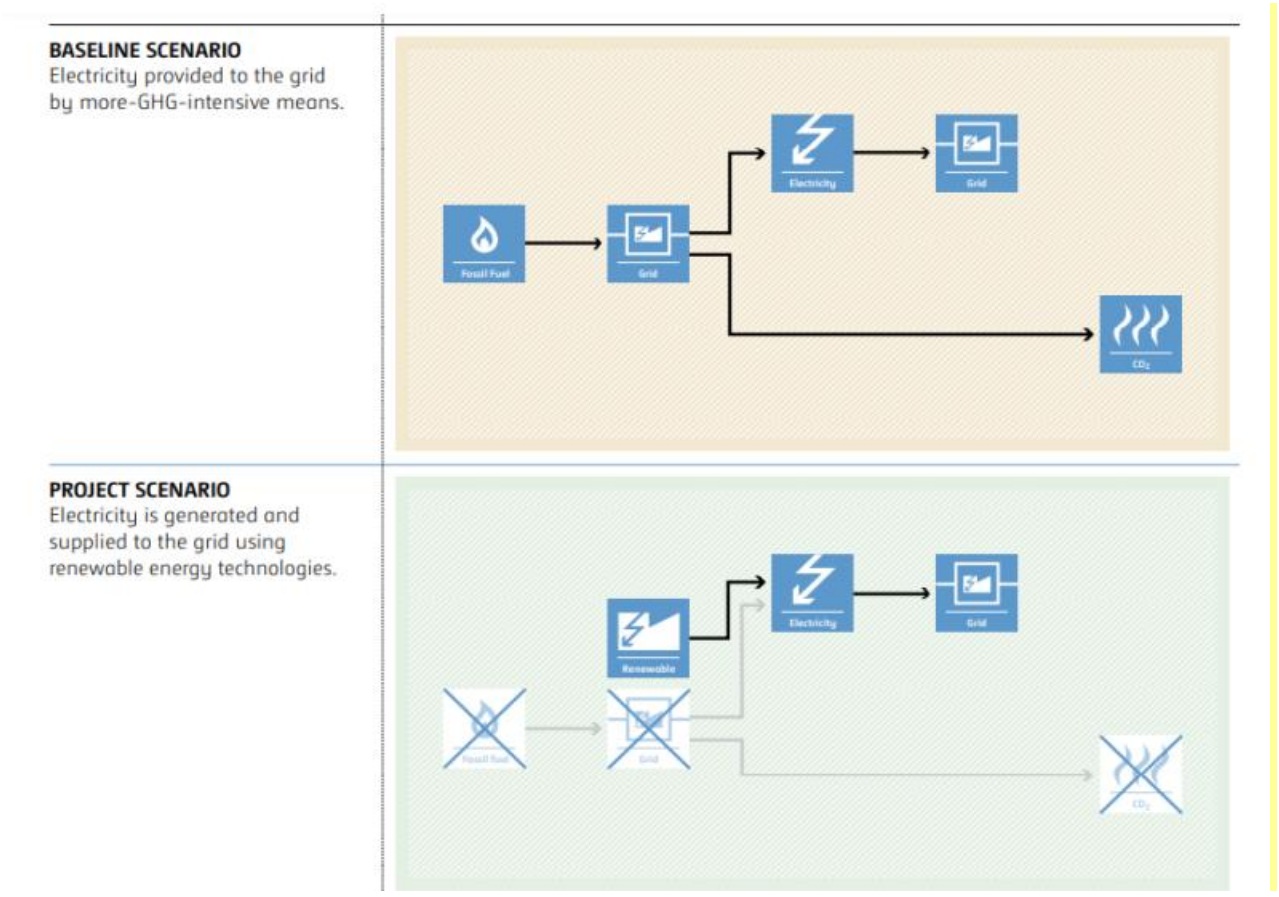
B.3. Baseline Emissions>>

The baseline scenario identified at the 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:



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 >>

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: (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	The proposed project involves installing new wind power plants without integrating a Battery Energy Storage System (BESS). Thus, the mentioned criterion does not apply

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	
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 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	The proposed project involves the installation of wind power plants/units. Hence, the mentioned criterion is not applicable.

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 of the project activity and undertaking business as usual maintenance	The proposed project activity involves installing wind power plants/units. Therefore, the specified criteria are not applicable.

C.3 Applicability of double counting emission reductions >>

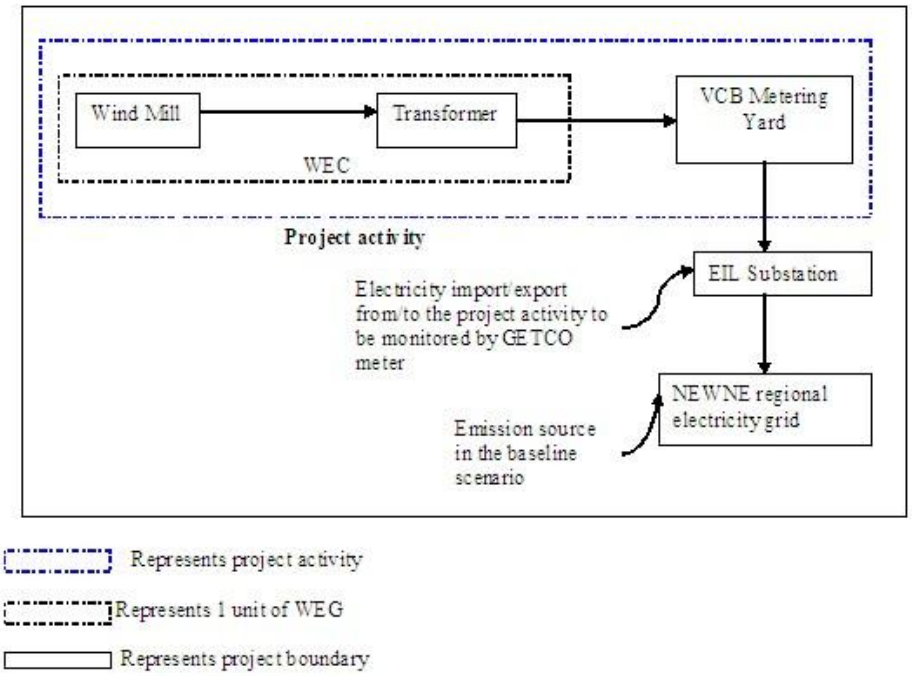
The project activity is registered under Clean Development Mechanism (CDM) project with

registration number 6484,[1] as well as Gold Standard (GS) with reference number 4426[2]. The crediting period of this project under CDM & GS is 01/12/2012 to 30/09/2022. PP seeks verification under UCR from 01/10/2022 onwards, i.e., crediting period for UCR starts from 01/10/2022. Hence, there is no double counting for said projects.

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 CO_2 emissions from the conventional power generating systems. Other emissions are that of CH_4 and N_2O but both emissions have been excluded for simplification. The project activity generates.

Source	GHGs	Included?	Justification/Explanation

[1] https://cdm.unfccc.int/Projects/DB/DNV-CUK1340349635.01

[2] https://registry.goldstandard.org/projects/details/783

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 :

$$ER_y = BE_y - PE_y \quad \textbf{(Eq. 1)}$$

Where,

ER_y = Emissions reductions in year y (t CO2)

BEy = Baseline emissions in year y (t CO2)
PEy = Project emissions in year y (t CO2)

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:

$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$

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)

$EF_{grid,CM,y}$= Combined margin CO_2 emission factor for grid connected power generation in year *y* (tCO2/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 :

$EG_{PJ,y} = EG_{facility,y}$

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[3] from 2013 to 2023 and Emission Factor 0.757 tCO2/MWh and as a cautious estimate for Indian projects not previously verified under any GHG program. Similarly, for the vintage 2021-22, the combined margin emission factor obtained from the CEA database in India corresponds with the default value. Consequently, the same emission factor is utilized for

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

computing emission reductions
.

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:

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).

While the actual emission reduction achieved during the initial crediting period will be submitted during the first monitoring and verification, an ex-ante estimation is provided for reference.

ERy = BEy – PEy
= (EGfacility, y * EFgrid, CM, y) – PEy

Vintage Year	Net Generation in MWh	Grid Emission Factor	Emission Reduction(tCO_2)
01/10/2022 to 31/12/2022	8,802.498	0.9	7,922
01/01/2023 to 31/12/2023	78,009.947	0.9	70,208
01/01/2024 to 31/12/2024	67,513.006	0.757	51,107
Total	1,54,325		1,29,238

C.6. Prior History>>

The project activity is registered under Clean Development Mechanism (CDM) project with registration number 6484, as well as Gold Standard (GS) with reference number 4426. The crediting period of this project under CDM & GS is 01/12/2012 to 30/09/2022.

C.7. Monitoring period number and duration>>

First Issuance Period: 2 years, 3 months – 01/10/2022 to 31/12/2024.

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

There is no change in the start date of crediting period.

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>>

Data and Parameters to be monitored (Ex-Post Monitoring Values)::

Data/Parameter	$EG_{pj,y}$
Data unit	MWh
Description	'Certificate for Share of Electricity Generated by Wind farm' prepared & issued by SLDC/GETCO (Gujarat Energy Transmission Corporation
Measurement methods and procedures	- All the cluster meters and sub-station meters (main & check meters) are electronic and two-way (bi-directional) meters that measure both export and import of electricity and provide net electricity exported to the grid. -All the cluster meters and sub-station meters (main & check meters) measure the electricity (export & Import) on continuous basis and are recorded by state utility on monthly basis. Further all the reading of export & import recorded at all the cluster meters and sub-station meters (main & check meter) are available exclusively with GETCO officials and based on these reading, GETCO provides 'Certificate for Share of Electricity Generated by Wind farm' to PP, which provides quantity of net electricity generation supplied by the project activity to the grid In addition to above there is a possibility for the PP to record the values of EGCluster, Export & EGCluster, Import. However, it would be impossible for the PP to collect information of EGCluster, WF, Export & EGCluster, WF, Import.which is exclusively available with GETCO. Thus even if EGCluster, Export and EGCluster, Import is monitored, it has no value if the values EG Cluster, WF, Export and EG Cluster, WF , Import are not monitored. Hence only quantity of net electricity generation supplied by the project activity to the grid (EGfacility, y) could be monitored by the PP and this value will be sourced from 'Certificate for Share of Electricity Generated by Wind farm' prepared & issued by SLDC/GETCO. Data Type: Measured Monitoring equipment: Energy Meters are used for

	monitoring Archiving Policy: Electronic Calibration frequency: Once in 5 years 4(considered as per provision of CEA India). The net electricity generated by the project activity will be calculated
Value Applied	1,54,325 MWh
Monitoring frequency	Monitoring frequency: Continuous Measurement frequency: Hourly Recording frequency: Monthly
Purpose of data	For baseline emission calculations

Data and Parameters (Ex-ante):

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 - 2023 years and 0.757 tCO2/MWh for year 2024 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/UCRStandardAug2024updatedVer7_020824191534797526.pdf 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:	

[4] meter_reg.pdf (cea.nic.in)

Appendix 1:<Calibration details>

Site	WWIL Sub-station	Line No/	Meter Type	Meter No	Calibration Date	Calibration validity
Lalpur	220kV Tebhda (Dharampur)	Line 1	Main	GJ-0950A	18 /12/2020	17/12/2025
			Check	GJU62418	13/06/2021	12/06/2026
		Line 2	Main	GJ-0947A	18/12/2020	17/12/2025
			Check	GJU62417	13/06/2021	12/06/2026
Kutch	33/66 kV Rasaliya (Kotda Jadoar)	Line 1	Main	GJ-0978-A	25/05/2021	24/05/2026
			Check	GJU63159	25/05/2021	24/05/2026
		Line 2	Main	GJ-0979-A	26/05/2021	25/05/2026
			Check	GJU63158	26/05/2021	25/05/2026