PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT

Title: 94.2 MW BUNDLED WIND ENERGY PROJECT BY GIRIRAJ ENTERPRISES

Version 1.0

Date 08/03/2022

First CoU Issuance Period: 08 Years and 03 Months

Date: 01/01/2014 to 31/03/2022

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

Title of the project activity	94.20 BUNDLED MW WIND ENERGY PROJECT BY GIRIRAJ ENTERPRISES
Scale of the project activity	Large Scale
Completion date of the PCN	08/03/2022
Project participants	M/s. Giriraj Enterprises
Host Party	India
Applied methodologies and standardized baselines	ACM0002: Grid-connected electricity generation from renewable sources --- Version 20.0[1]
Sectoral scopes	01 Energy industries (Renewable/Non-renewable Sources)
Estimated amount of total GHG emission reductions	11,651,49 tCO2e/ (i.e. 11,651,49 CoUs)

[1] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

SECTION A. Description of project activity

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

The project 94.20 Bundled MW Wind Energy Project By Giriraj Enterprises is located in Village Shirgaon, Rajeche kurle. Tehsil Shahuwadi, Khatav,. District Kolhapur, Satara, State Maharashtra, Country India.
Village Kordi & Sandla, Tehsil Bhainsdehi & Ratlam, District Betul & Ratlam, State Madhya Pradesh, Country India.

The details of the 94.2 MW bundled project are as follows:

1. 29.4 Wind Power Project by M/s. Giriraj Enterprises at Sandla, Madhya Pradesh
2. 6 Wind Power Project by M/s. Giriraj Enterprises at Shirgaon, Maharashtra
3. 28 Wind Power Project by M/s. Giriraj Enterprises at Betul. Madhya Pradesh
4. 30.8 Wind Power Project by M/s. Giriraj Enterprises at Khatav, Maharashtra

Purpose of the project activity:
The main purpose of the project activity is the implementation and operation of 94.2 MW wind farms to generate electricity in Maharashtra and Madhya Pradesh. M/s. Giriraj Enterprises is the promoter of these wind farms. The project activity consists of 45 wind electric generators (WEGs) installed in three phases at various locations within Maharashtra and Madhya Pradesh. The generated electricity from WEGs is connected to state electric utility namely Maharashtra State Electricity Board (MSEB) and Madhya Pradesh Electricity Regulatory Commission (MPERC) transmitted through state electric grid.

The project implementation schedule is placed below:

Capacity	WTG No	WTG Make	Location	Date of Commissioning
2.00	AM- 01	Kenersys	Ameni -Maharashtra	31-03-2015
2.00	AM- 02	Kenersys	Ameni -Maharashtra	20-03-2016
2.00	AM- 03	Kenersys	Ameni -Maharashtra	31-03-2017
2.00	KKT- 01	INOX	Kukru -Madhyapradesh	10-12-2014
2.00	KKT- 02	INOX	Kukru -Madhyapradesh	10-12-2014
2.00	KKT- 07	INOX	Kukru -Madhyapradesh	01-10-2014
2.00	KKT- 09	INOX	Kukru -Madhyapradesh	01-10-2014
2.00	KKT- 10	INOX	Kukru -Madhyapradesh	01-10-2014
2.00	KKT- 11	INOX	Kukru -Madhyapradesh	10-12-2014
2.00	KKT- 12	INOX	Kukru -Madhyapradesh	10-12-2014
2.00	KKT- 13	INOX	Kukru -Madhyapradesh	10-12-2014
2.00	KKT- 14	INOX	Kukru -Madhyapradesh	01-10-2014
2.00	KKT- 15	INOX	Kukru -Madhyapradesh	01-10-2014
2.00	KKT- 16	INOX	Kukru -Madhyapradesh	01-10-2014
2.00	KKT- 19	INOX	Kukru -Madhyapradesh	31-12-2014
2.00	KKT- 24	INOX	Kukru -Madhya Pradesh	31-12-2014

2.00	KKT- 27	INOX	Kukru -Madhyapradesh	31-12-2014
2.10	SDL- 003	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 004	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 006	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.10	SDL- 007	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 008	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 010	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 011	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 014	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.10	SDL- 016	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.10	SDL- 019	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.10	SDL- 021	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.10	SDL- 024	Suzlon	Sandla -Madhyapradesh	27-02-2015
2.10	SDL- 025	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.10	SDL- 028	Suzlon	Sandla -Madhyapradesh	13-03-2015
2.00	GSW 37	Kenersys	Girijashankarwadi – Maharashtra	31-03-2014
2.00	GSW 31	Kenersys	Girijashankarwadi – Maharashtra	15-08-2014
2.00	GSW 32	Kenersys	Girijashankarwadi – Maharashtra	15-08-2014
2.00	GSW 33	Kenersys	Girijashankarwadi – Maharashtra	15-08-2014
2.00	GSW 34	Kenersys	Girijashankarwadi – Maharashtra	15-08-2014
2.00	GSW 35	Kenersys	Girijashankarwadi – Maharashtra	15-08-2014
2.00	GSW 36	Kenersys	Girijashankarwadi – Maharashtra	15-08-2014
2.40	GSW 24	Kenersys	Girijashankarwadi – Maharashtra	08-11-2014
2.40	GSW 25	Kenersys	Girijashankarwadi – Maharashtra	26-09-2014
2.40	GSW 26	Kenersys	Girijashankarwadi – Maharashtra	26-09-2014
2.40	GSW 27	Kenersys	Girijashankarwadi – Maharashtra	08-11-2014
2.40	GSW 28	Kenersys	Girijashankarwadi – Maharashtra	08-11-2014
2.40	GSW 29	Kenersys	Girijashankarwadi – Maharashtra	26-09-2014
2.40	GSW 30	Kenersys	Girijashankarwadi – Maharashtra	26-09-2014

The project replaces anthropogenic emissions of greenhouse gases (GHGs) estimated to be approximately 141,195 tCO2e per annum there on displacing 156,884 MWh/ year amount of electricity from the generation mix of power plants connected to the Indian electricity grid, which is mainly dominated by the thermal / fossil fuel-based power plant.

The project activity is the installation of a new grid connected renewable power plant/unit. The scenario existing prior to the implementation of the project activity 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. Baseline scenario and scenario existing prior to the implementation of the project activity are both same.

Contribution of project activity to sustainable development:
The Government of India has stipulated following indicators for sustainable development in the interim approval guidelines for such projects which are contributing to GHG mitigations. The Ministry of Environment, Forests & Climate Change, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. It has been envisaged that the project shall contribute to sustainable development using the following ways:

Social well being:

- Social well being is assessed by contribution by the project activity towards improvement in living standards of the local community.
- The project activity has resulted in increased job opportunities for the local population on temporary and permanent basis.
- Manpower was required both during erection and operation of the wind farms. This has resulted in poverty alleviation of the local community and development of basic infrastructure leading to improvement in living standards of the local population.

Economic well being

- The project activity has created direct and indirect job opportunities to the local community during installation and operation of the WEGs.
- The investment for the project activity has increased the economic activity of the local area.
- The project activity also contributes in economic well being of the nation's economy by reducing import of fossil fuel for electricity generation in hard currency.

Environmental well being

- The project utilizes wind energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions.
- As wind power projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power.
- 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.

Technological well being

- There is continuous research and development on the geometry of the wind blades, height of towers, diameters of towers, etc., which augurs well for the technological well being in the development of wind energy to produce clean electricity.
- The generated electricity from the project activity is connected to the grid. The project activity improves the supply of electricity with clean, renewable wind power while contributing to the regional/local economic development.
- Wind energy plants provide local distributed generation, and provide site-specific reliability and transmission and distribution benefits including:
    - improved power quality
    - Reactive power control
    - Mitigation of transmission and distribution congestion

All the above are the contributions of the project activity to sustainable development.

A.2 Do no harm or Impact test of the project activity>>
There are social, environmental, economic and technological benefits which contribute to sustainable development.

There are social, environmental, economic and technological benefits which contribute to sustainable development.

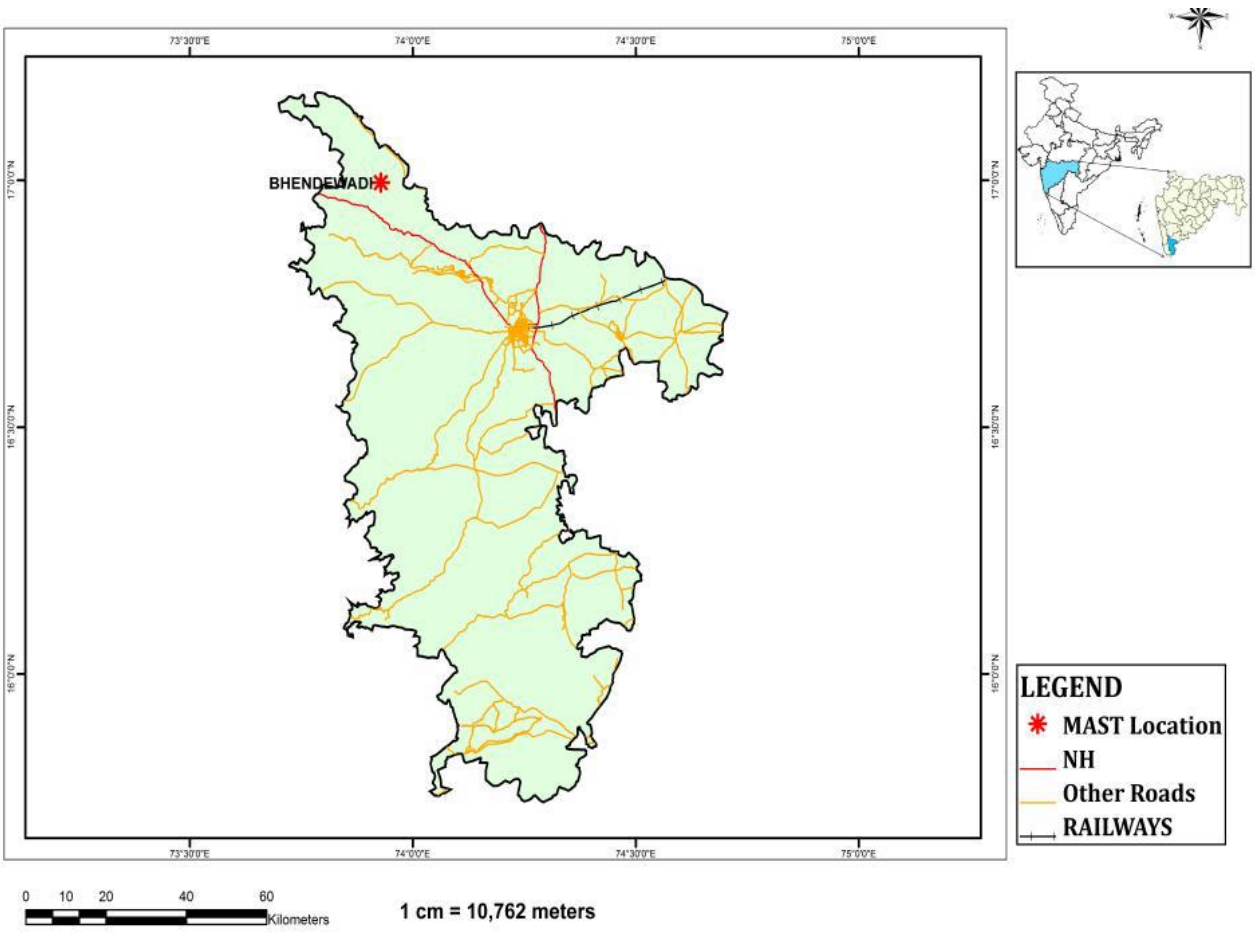
Rational: As per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016)[2], it has been declared that wind project activity falls under the "White category". White Category projects/industries do not require any Environmental Clearance such as 'Consent to Operate' from PCB as such project does not lead to any negative environmental impacts. Additionally, as per Indian Regulation, Environmental and Social Impact Assessment is not required for Wind Projects.

There are social, environmental, economic and technological benefits which contribute to sustainable development. The key details have been discussed in the previous section.

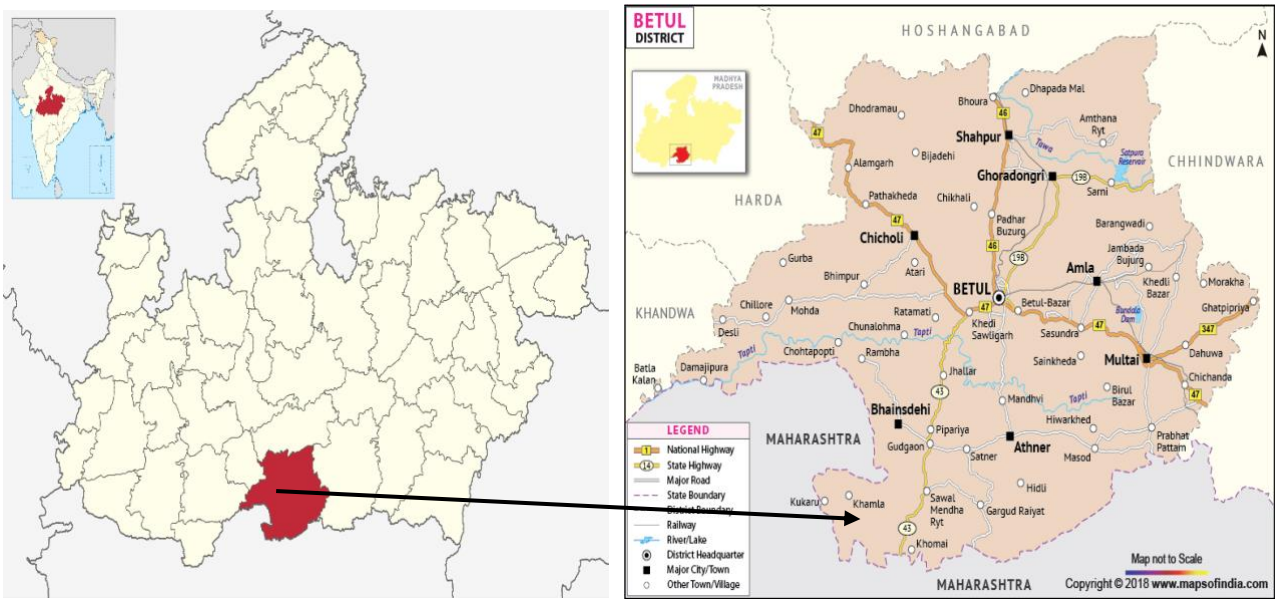
A.3. Location of project activity >>
Country: India
Village: Shirgaon, Rajeche kurle
Tehsil: Shahuwadi, Khatav
District: Kolhapur,Satara
State: Maharashtra

Village: Kordi & Sandla
Tehsil: Bhainsdehi & Ratlam
District: Betul & Ratlam
State: Madhya Pradesh

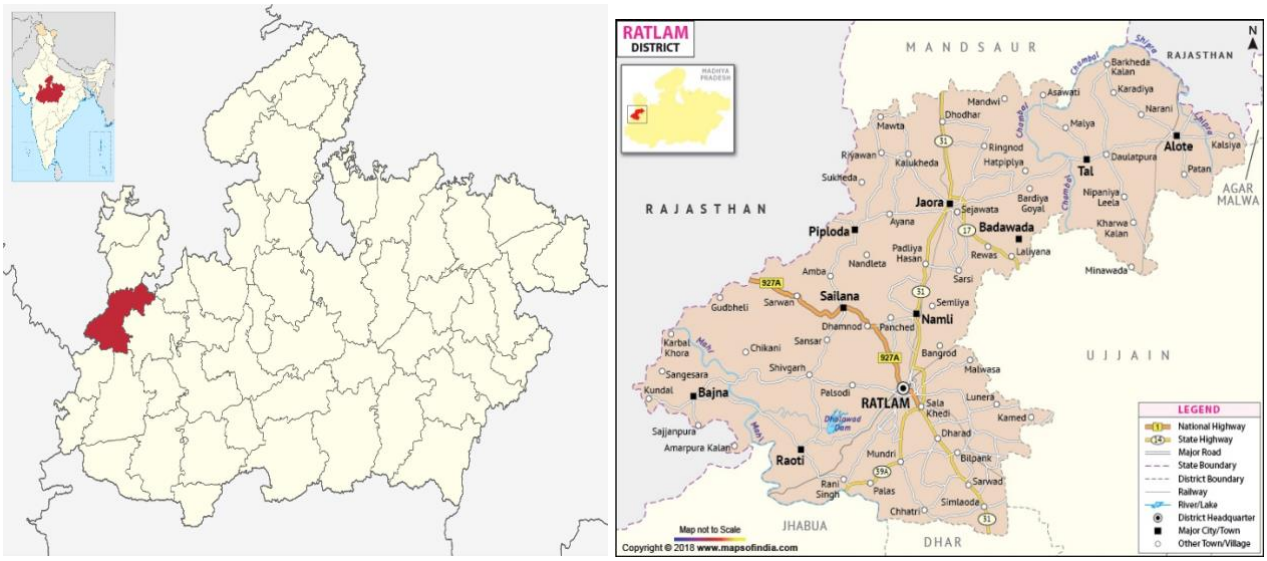
[2] http://moef.gov.in/wp-content/uploads/2017/07/Latest_118_Final_Directions.pdf



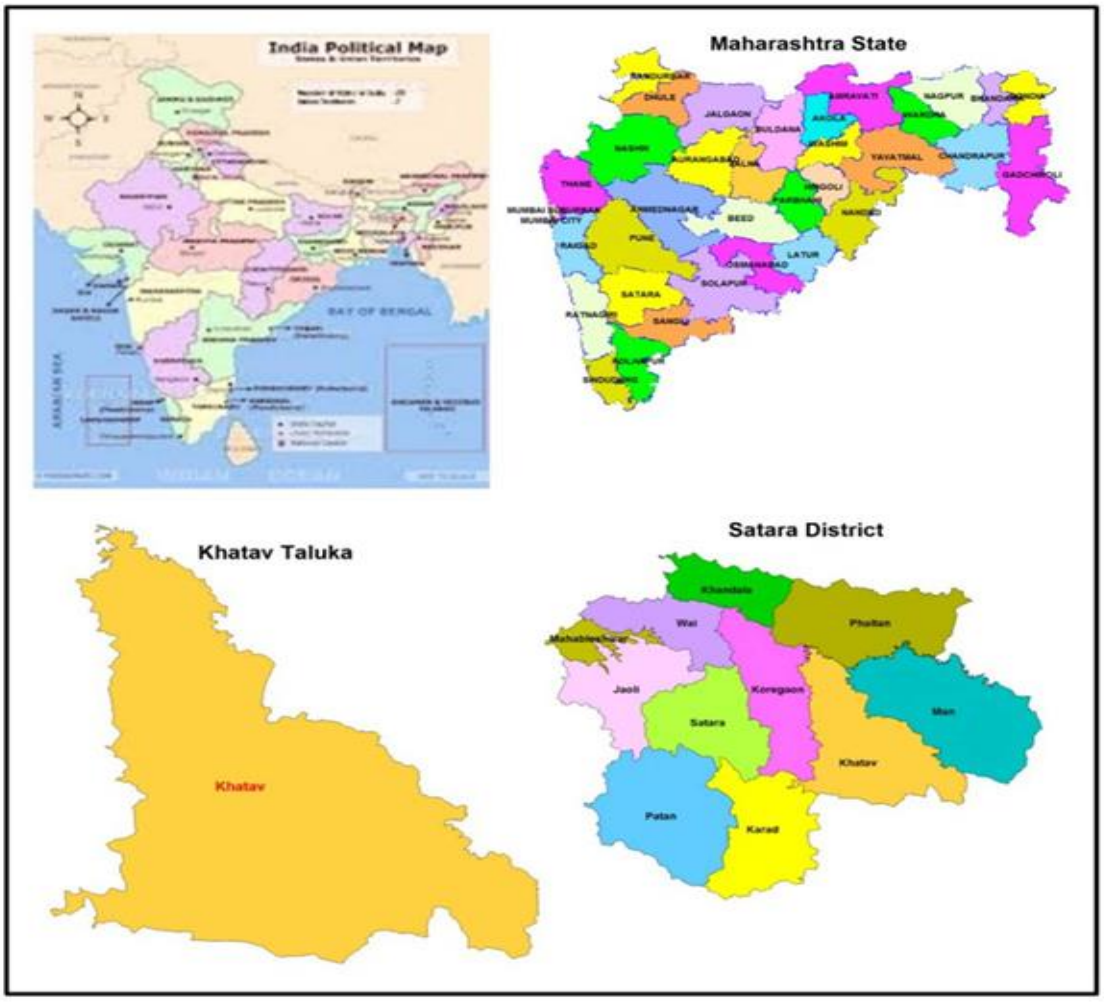
Ameni



Kukru (Betul)



Sandla (ratlam)



Khatav (Satara)

WM No.	Location	Latitude	Longitude
AM- 01	Ameni -Maharashtra	16.954551,	73.952657
AM- 02	Ameni -Maharashtra	16.950022,	73.956465
AM- 03	Ameni -Maharashtra	16.952234,	73.953711
KKT- 01	Kukru -Madhyapradesh	21.51392456	77.61038921
KKT- 02	Kukru -Madhyapradesh	21.51987257	77.60240045
KKT- 07	Kukru -Madhyapradesh	21.50573208	77.58161851
KKT- 09	Kukru -Madhyapradesh	21.50979336	77.57001623
KKT- 10	Kukru -Madhyapradesh	21.51479148	77.58719123
KKT- 11	Kukru -Madhyapradesh	21.52063258	77.58953317
KKT- 12	Kukru -Madhyapradesh	21.52331642	77.59228241
KKT- 13	Kukru -Madhyapradesh	21.51594801	77.59875104
KKT- 14	Kukru -Madhyapradesh	21.51358782	77.59551554
KKT- 15	Kukru -Madhyapradesh	21.51206153	77.58973821
KKT- 16	Kukru -Madhyapradesh	21.49851628	77.57357073
KKT- 19	Kukru -Madhyapradesh	21.55539967	77.64929957
KKT- 24	Kukru -Madhyapradesh	21.49735116	77.57184268
KKT- 27	Kukru -Madhyapradesh	21.51384531	77.58066195
SDL- 003	Sandla -Madhyapradesh	23.2551649	75.23286193
SDL- 004	Sandla -Madhyapradesh	23.2568152	75.22859251
SDL- 006	Sandla -Madhyapradesh	23.26288384	75.22343091
SDL- 007	Sandla -Madhyapradesh	23.26316644	75.23405883
SDL- 008	Sandla -Madhyapradesh	23.26974134	75.22245484
SDL- 010	Sandla -Madhyapradesh	23.27533653	75.21327304
SDL- 011	Sandla -Madhyapradesh	23.27950607	75.21601754
SDL- 014	Sandla -Madhyapradesh	23.2893255	75.20899266
SDL- 016	Sandla -Madhyapradesh	23.29394436	75.21350804
SDL- 019	Sandla -Madhyapradesh	23.28335194	75.23028055
SDL- 021	Sandla -Madhyapradesh	23.26300471	75.24533125
SDL- 024	Sandla -Madhyapradesh	23.25394622	75.23835403
SDL- 025	Sandla -Madhyapradesh	23.28335194	75.23028055
SDL- 028	Sandla -Madhyapradesh	23.26300471	75.24533125
GSW 37	Girijashankarwadi -Maharashtra	23.25394622	75.23835403
GSW 31	Girijashankarwadi -Maharashtra	17.43688	74.24790994
GSW 32	Girijashankarwadi -Maharashtra	17.43560273	74.24955356
GSW 33	Girijashankarwadi -Maharashtra	17.43413486	74.25099079
GSW 34	Girijashankarwadi -Maharashtra	17.43271238	74.2524843
GSW 35	Girijashankarwadi -Maharashtra	17.4315257	74.2541934
GSW 36	Girijashankarwadi -Maharashtra	17.44758676	74.23034169
GSW 24	Girijashankarwadi -Maharashtra	17.4570509	74.24471957
GSW 25	Girijashankarwadi -Maharashtra	17.45418824	74.24539055
GSW 26	Girijashankarwadi -Maharashtra	17.45154514	74.24675745
GSW 27	Girijashankarwadi -Maharashtra	17.44871066	74.24771077
GSW 28	Girijashankarwadi -Maharashtra	17.44631313	74.24949092
GSW 29	Girijashankarwadi -Maharashtra	17.44333249	74.25003985
GSW 30	Girijashankarwadi -Maharashtra	17.43952131	74.25085581

A.4. Technologies/measures >>

All the 45 machines are made of Inox, Suzlon and Kenersys .The primary driver for the development of the turbines commitment to make wind energy more accessible - in terms of technology, yield and cost.

In wind energy generation, kinetic energy of wind is converted into mechanical energy and subsequently into electrical energy. Wind has considerable amount of kinetic energy when blowing at high speeds. This kinetic energy when passes through the blades of the WEG is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected generator also rotates, thereby producing electricity. The technology is a clean technology since there are no GHG emissions associated with the electricity generation.

The important parts of a windmill are:

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 WEGs are provided with three blades. The blades are self-supporting in nature made up of Fiber Reinforced Polyester. The blades are mounted on the hub.

Nacelle
The Nacelle is the one which contains all the major parts of a WEG. 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 is to connect 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.

Gear Box, Bearing and Housing
The gearbox is used to increase the speed ratio so that the rotor speed is increased to the rated generator speed. Oil cooling is employed to control the heating of the gearbox. Gearboxes are mounted over dampers to minimize vibration. The main bearings are placed inside housing.

Brake
Brake is employed in the WEGs to stop the wind turbine mainly for maintenance check. Brakes are also applied during over speed conditions of the wind turbine. The brakes are placed on the high-speed shaft.

Generator

The generator uses induction type of generator. The generators are provided with monitoring sensors in each phase winding to prevent damage to the generators.

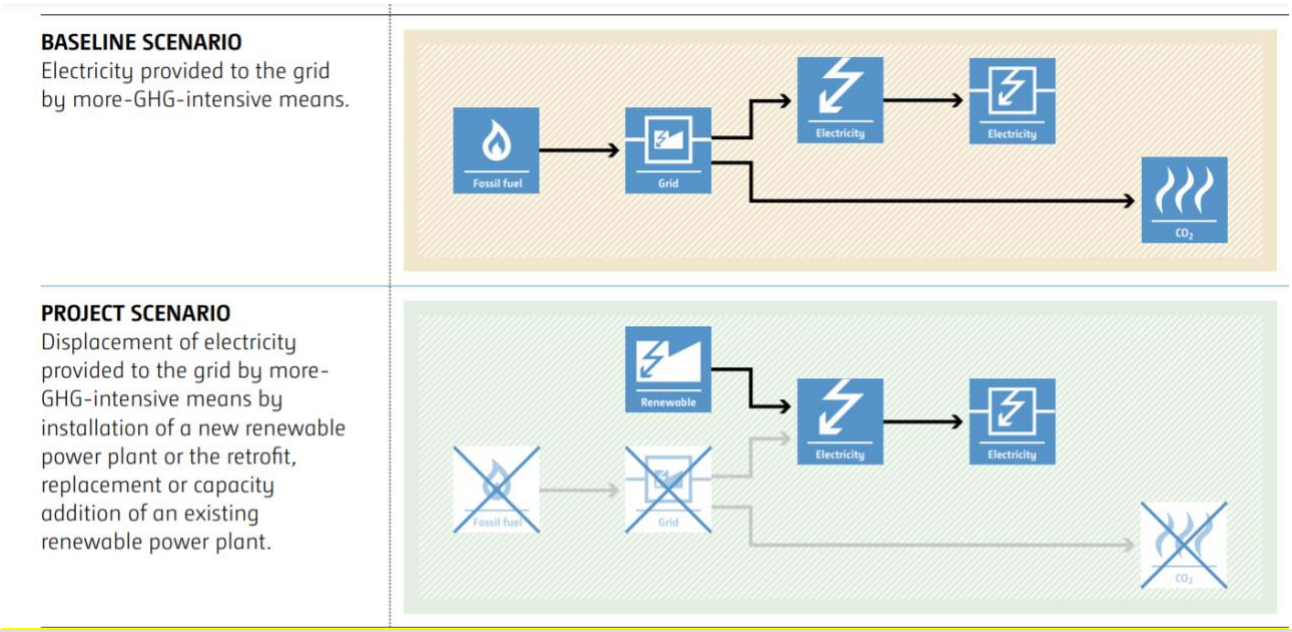
Item	K-82, 2000 kW	K-110, 2400 kW
Make	Kenersys	Kenersys
Model	K-82	K-110
Rating in kW	2000 kW	2400 kW
Rotor Diameter	82 m	110 m
Hub height	80 m	85 m
Type of Tower	Tubular	Tubular
No. of Blades	Three	Three
Power Regulation	Pitch	Pitch
Type of Generator	Synchronous	Synchronous
Rated Voltage	600 V	600 V
Single/Dual/Variable Speed	Variable Speed	Variable Speed
Geared/Gearless	Geared	Geared
Cut-in Wind speed	3.0 m/s	3.0 m/s
Rated Wind speed	19 m/s	12 m/s
Cut-out Wind speed	25 m/s	20m/s

A.5. Parties and project participants >>

Party (Host)	Participants
India	M/s. Giriraj Enterprises

A.6. Baseline Emissions>>

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



A.7. Debundling>>

This "94.20 Bundled MW Wind Energy Project By Giriraj Enterprises" project is not a debundled component of a larger project activity.

SECTION B. Application of methodologies and standardized baselines

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

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

TYPE I - Renewable Energy Projects

CATEGORY- ACM0002 Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources Version 20.0[3]

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

The project activity involves generation of grid connected electricity from the construction and operation of a new wind power-based power project for supply to grid. The project activity has installed capacity of 94.2 MW which qualifies for a large-scale project activity. The project status is corresponding to the methodology ACM0002 version 20.0 and applicability of methodology is discussed below:

[3] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

Applicability Criterion	Project Case
4. 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 project activity is a Renewable Energy Project i.e., Wind Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". Hence the project activity meets the given applicability criterion.
5. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir; ACM0002 Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources Version 20.0 Sectoral scope(s): 01. The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater 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 .	The project is installation of new wind-based electricity generation plants (not a hydro power plant). Hence this criterion is not applicable.
6. 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 Large-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.	The project is wind power project and thus the criterion is not applicable to this project activity.
7. Combined heat and power (co-generation) systems are not eligible under this category	The project is wind power project and thus the criterion is not applicable to this project activity.
8. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct1 from the existing units	The project is a greenfield wind power project and does not involve in capacity addition and thus the criterion is not applicable to this project activity.
9. In the case of retrofit, rehabilitation or replacement, to qualify as a Large-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is Greenfield and there is no switching of fossil fuel to renewable energy. Hence the criteria is not applicable to the project activity
10. 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	This project is a wind power project and hence the criteria is not applicable.

component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	
11. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The project is not a biomass fired power plant. Hence the criteria is not applicable to the project activity.

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

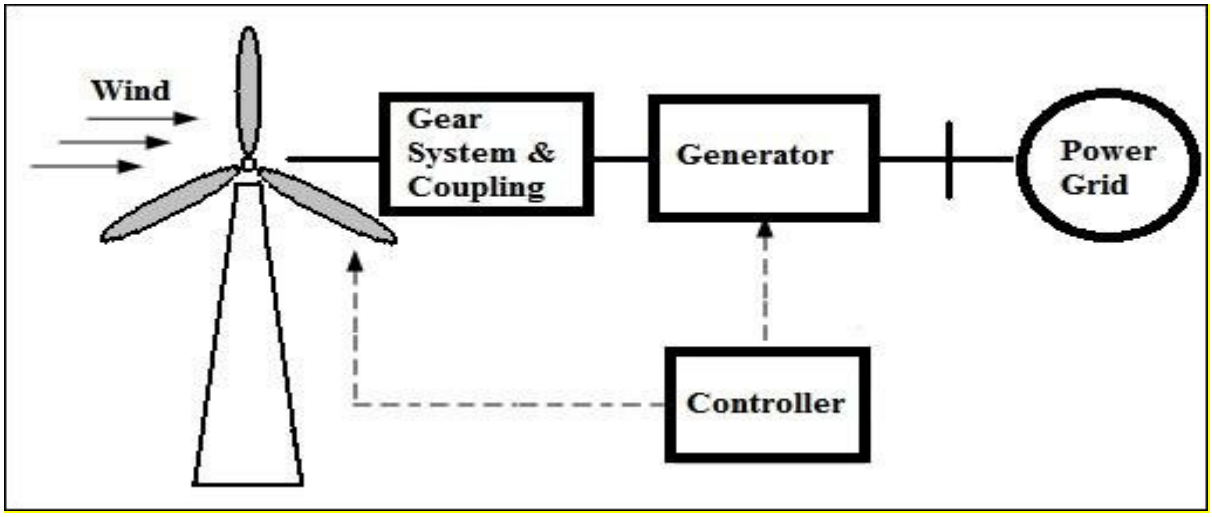
PP will request for issuance of carbon offsets in UCR for the post completion of the fixed crediting period (01/01/2014 – 31/03/2022) i.e., crediting period will start from 01/01/2014. The project is not registered with any other voluntary market (National or International). Hence, the criteria for double counting are not applicable for the project.

The project of Wind Power Project By M/S. Giriraj Enterprises At Sandla, Madhya Pradesh 29.4 MW located at Villages: Sandla, Jhar, Lunera & Dhanesara, Tehsil & District: Ratlam, State: Madhya Pradesh, INDIA. Are also in pipeline with Gold standard having GS ID 4505[4]. The current status of project activity is "Listed", and not yet registered. PP will provide undertaking for no double accounting for the same monitoring period during verification stage and will ensure that there will not be any double accounting for same project location.

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

As per applicable methodology ACM0002 version 20.0, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the UCR project power plants are connected. Thus, the project boundary includes the Wind Turbine Generators (WTGs) and the Indian grid system.

The project boundary includes the physical, geographical site(s) of:



[4] https://registry.goldstandard.org/projects/details/796

	Source	GHG	Included?	Justification/Explanation
	Grid connected electricity generation	CO2	Yes	Main source of emission
		CH4	Excluded	Minor source of emission
		N2O	Excluded	Minor emission source
	Greenfield Wind Power Project Activity	CO2	Excluded	No CO2 emission are emitted from the project
		CH4	Excluded	CH4
		N2O	Excluded	No other emissions are emitted from the project

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

As per the approved methodology ACM0002 version 20.0, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2014- 2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021 and 2022, the combined margin emission factor calculated from CEA database in India results into higher emission than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.

Net GHG Emission Reductions and Removals:

Thus, $ER_y = BE_y – PE_y – LE_y$
Where:
ER_y = Emission reductions in year y (tCO_2/y)
BE_y = Baseline Emissions in year y ($t CO_2/y$)
PE_y = Project emissions in year y (tCO_2/y)
LE_y = Leakage emissions in year y (tCO_2/y)

Baseline emissions

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

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

Where:
BE_y = Baseline emissions in year y ($t CO_2/yr$)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the UCR 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 calculated using the latest version of "TOOL07: Tool to calculate the emission factor for an electricity system" (t CO_2/MWh)

Project Emissions
As per ACM0002 version 20.0, only emission associated with the fossil fuel combustion, emission from operation of geo-thermal power plants due to release of non-condensable gases, emission from water reservoir of Hydro should be accounted for the project emission. Since the project activity is a wind power project, project emission for renewable energy plant is nil. Thus, PE_y =0.

Leakage
As per ACM0002 version 20.0, 'If the energy generating equipment is transferred from another activity, leakage is to be considered.' In the project activity, there is no transfer of energy generating equipment and therefore the leakage from the project activity is considered as zero. Hence, LE_y= 0

The actual emission reduction achieved during the first crediting period shall be submitted as a part of first monitoring and verification. However, for the purpose of an ex-ante estimation, following calculation has been submitted: Estimated annual baseline emission reductions (BE_y) = 156,884 MWh/year *0.9 tCO2/MWh = 141,195 tCO2e/year (i.e. 141,195 CoUs /year)

B.6. Prior History>>
The project activity is not having prior history of any registration with any other mechanism.

B.7. Changes to start date of crediting period >>
There is no change in the start date of crediting period.

B.8. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>
There are no permanent changes from registered PCN monitoring plan and applied methodology

B.9. Monitoring period number and duration>>

First Issuance Period: 08 years, 03 months – 01/01/2014 to 31/03/2022

B.8. Monitoring plan>>

The project activity essentially involves generation of electricity from wind, the employed WEG can only convert wind energy into electrical energy and cannot 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.
The joint measurement is carried out once in a month in presence of both parties (the developer's representative and officials of the state power utility). Both parties sign the recorded reading.

Data/Parameter	$EG_{PJ,y}$

Data unit	MWh/yr.
Description	Quantity of net electricity supplied to the grid in year y
Source of data Value(s) applied	Joint meter reading issued State electricity board for project proponent
Measurement methods and procedures	Monitoring of Generation with the help of inbuilt control panel meters: This generation data will be measured continuously with the help of inbuilt control panel meters located at individual WEGs. The Technicians will record the generation data at CMS. Monitoring of Net export of electricity to grid from WTG's connected to Common Meters: The reading from State electricity board meter will be recorded every month by State electricity board personnel in the presence of site Engineer. The State electricity board will apply the apportioning logic and issues the JMR which provided the "Net export of electricity by each WTG" or "Net export of electricity by each project promoter" accordingly the PP raises invoices.
Monitoring frequency	Monitoring continuously and recording monthly. The accuracy of the main meter and check meter can be verified by comparing with each other. The calibration of the common meters (main & check meter) will be done by state utility normally once in five years.
Purpose of data	To calculate baseline emission