Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT

Title: 14.2 MW Wind Project in Karnataka
Version 1.0
Date 17/01/2023
First CoU Issuance Period: 8 years 9 months
Monitoring Period:01/01/2014 to 30/09/2022

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

Monitoring Report	
Title of the project activity	14.2 MW Wind Project in Karnataka
UCR Project Registration Number	241
Version	01
Completion date of the MR	17/01/2023
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: (first and last days included) 01/01/2014 to 30/09/2022
Project participants	M/S V. S. Lad & Sons
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I.D.: "Grid connected renewable electricity generation", version 18.0 Standardized Methodology: Not Applicable
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	01/01/2014 – 31/12/2014: 1499.4 CoUs (1499.4 tCO2eq)
	01/01/2015 – 31/12/2015: 7011.9CoUs (7,011.9 tCO2eq)
	01/01/2016 – 31/12/2016: 25,891.2 CoUs (27,891.2 tCO2eq) 01/01/2017 – 31/12/2017: 14,608.8 CoUs (14,608.8 tCO2eq) 01/01/2018 – 31/12/2018: 16130.7 CoUs (16130.7 tCO2eq) 01/01/2019 – 31/12/2019: 15809.4 CoUs (15809.4 tCO2eq) 01/01/2020 – 31/12/2020: 14836.5 CoUs (14836.5 tCO2eq) 01/01/2021 – 31/12/2021: 15867 CoUs (15867 tCO2eq)

	01/01/2022 – 30/09/2022: 15586.2 CoUs (15586.2 tCO2eq)
Total:	127241.1 CoUs (127241.1 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 proposed project activity involves construction and operation of 4 Small Scale Wind Power Projects (WPP) in the state of Karnataka in India.

The project activity has been essentially conceived to generate clean energy by utilizing the wind energy. It causes total minimum environmental impacts and in turn will lead to actual emission reduction of t 12,724.11CO_2 emissions per year.

Total cumulative installed capacity of the project would be 14.2 MW with an annual gross energy generation of 14,138MWh. The Small-Scale wind power projects developed by V.S. Lad & Sons, will deliver electricity to the buyer, through National transmission network.

The details of

Project	IPP	Capacity	Location	Net Generation	Emission Reduction	Commissioned Date
1.2MW Wind Power Project in Davangere	V. S. Lad & Sons	1.2 MW	Davangere district, Karnataka	20,980 MWh	18,882 tCO2e/yr	31/03/2006
6.25 MW Wind Power Project in Gadag	V. S. Lad & Son	6.25 MW	Gadag district, Karnataka	64,410 MWh	57,969 tCO2e/yr	10/08/2006
3.0 MW Wind Power Project in Chitradurg	V. S. Lad & Son	3.0 MW	Chitradurg district, Karnataka	20,710 MWh	18,639 tCO2e/yr	28/03/2008
3.75 MW Wind Power Project in Bellary.	V. S. Lad & Son	3.75 MW	Bellary district, Karnataka	35,279 MWh	31,751.1 tCO2e/yr	30/09/2005

Proposed wind power project has evolved as a result of the policies of Government of India and Government of Maharashtra and Karnataka, which encourages energy development form renewable sources. These policies have given fresh impetus to wind power generation. Also, by virtue of being a wind power plant, the proposed plant can be instantly started, stopped and quickly adjusted for power generation corresponding to variations in power/energy releases.

The electricity produced by the project is directly contributing to climate change mitigation by reducing the anthropogenic emissions of greenhouse gases into the atmosphere by displacing an equivalent amount of power at grid.

Since the project activity will generate electricity through wind energy, a clean renewable energy source, it will not cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

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

The project activity involves 4 small scale wind power projects installed in phases at various locations within the state of Karnataka. The average lifetime of the generator is around 20 years as per the equipment supplier specification. The generated electricity from the WEGs is connected to the state electric utility grid, KPTCL and is then distributed to captive users in the same state.

c) 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 : 241
Start Date of Crediting Period : 01/01/2014
Project Commissioned :

Project	Commissioned Date
1.2MW Wind Power Project in Davangere	31/03/2006
6.25 MW Wind Power Project in Gadag	10/08/2006
3.0 MW Wind Power Project in Chitradurg	28/03/2008
3.75 MW Wind Power Project in Bellary.	30/09/2005

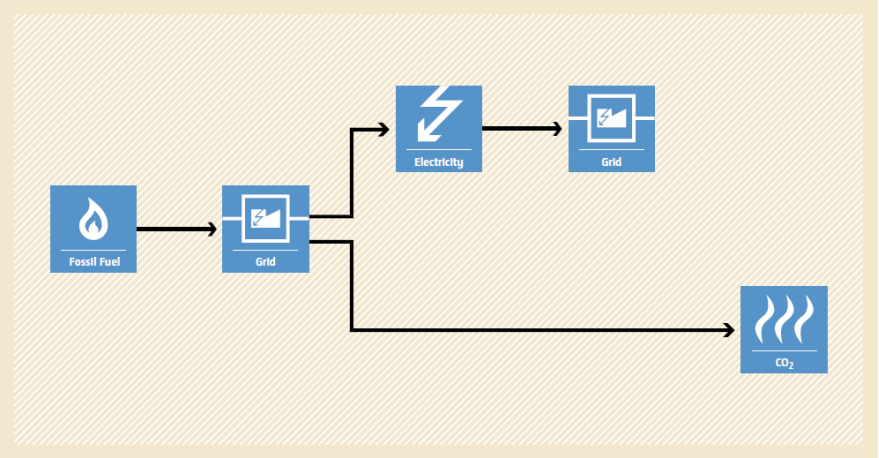
d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period>>

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	01/01/2014
Carbon credits claimed up to	30/09/2022
Total ERs generated (tCO_{2eq})	127241.1 tCO2eq
Leakage	00

e) 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”.

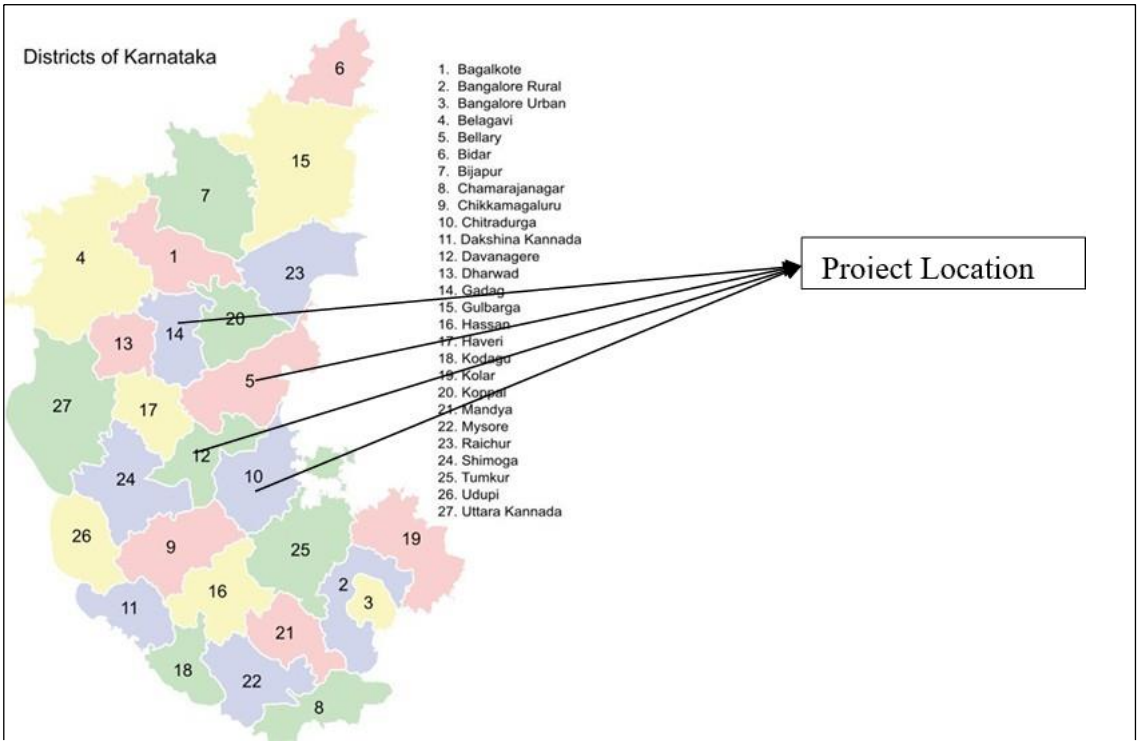


A.2. Location of project activity>>

The projects are located in India in the state of Karnataka.

	1.2 MW	6.25 MW	3 MW	3.75 MW
Country	India	India	India	India
District	Davangere	Gadag	Chitradurg	Bellary
Village	Kumabaluru	Kalkeri	Kolalu	Nagtibassapur & shivallinganhalli
Tehsil	Honnali	Mundaragi	Holalkere	Huvaina Hadagali
State	Karnataka	Karnataka	Karnataka	Karnataka
Code	577530	586118	577533	583219

Project	Latitude	Longitude
1.2 MW Wind Power Project in Davangere.	14° 15' 27.3"	75° 46' 23.7"
	14° 15' 21.1"	75° 46' 23.4"
6.25 MW Wind Power Project in Gadag.	15° 08’ 48.3”	75° 48’ 14.6”
	15° 08’ 18.4”	75° 48’ 34.0”
	15° 08’ 13.7”	75° 48’ 38.3”
	15° 08’ 10.3”	75° 48’ 43.8”
	15° 08’ 04.9”	75° 48’ 48.4”
3.0 MW Wind Power Project in Chitradurg.	14° 03’ 14.6”	76° 26’ 18.9”
	14° 03’ 00.3”	76° 26’ 19.3”
3.75 MW Wind Power Project in Bellary.	14° 58’ 12.0”	75° 54’ 39.3”
	14° 58’ 06.6”	75° 54’ 43.5”
	14° 58’ 01.4”	75° 54’ 47.7”


Districts of Karnataka
1. Bagalkote
2. Bangalore Rural
3. Bangalore Urban
4. Belagavi
5. Bellary
6. Bidar
7. Bijapur
8. Chamarajanagar
9. Chikkamagaluru
10. Chitradurga
11. Dakshina Kannada
12. Davanagere
13. Dharwad
14. Gadag
15. Gulbarga
16. Hassan
17. Haveri
18. Kodagu
19. Kolar
20. Koppal
21. Mandya
22. Mysore
23. Raichur
24. Shimoga
25. Tumkur
26. Udupi
27. Uttara Kannada
Proiect Location

A.3. Parties and project participants >>

Party (Host)	Participants
India	M/S V. S. Lad & Sons

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

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

TYPE I - Renewable Energy Projects

CATEGORY- AMS. I.D. (Title: "Grid connected renewable electricity generation", version 18)

The project activity involves generation of grid connected electricity from the construction and operation of a new wind power project. The project activity has installed capacity of 14.2 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 18.0 and applicability of methodology is discussed below:

Applicability Criterion	Project Case
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling	All the project activities involve setting up of a renewable energy (hydro) generation plant that exports electricity to the fossil fuel dominated electricity grid (Indian Grid system). Thus, the project meets this applicability conditions "a".
Illustration of respective situations under which each of the methodology (i.e., AMS-I. D: Grid connected renewable electricity generation", AMS-I.F: Renewable electricity generation for captive use and mini-grid" and AMS-I.A: Electricity generation by the user) applies is included in Table 2	According to the point 1 of the Table 2 in the methodology – "Project supplies electricity to a national/ regional grid" is applicable under AMS I.D. As the project activity supplies the electricity to Indian Grid system grid which is a regional grid, the methodology AMS-I.D. is applicable.
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); or (e) Involve a replacement of (an) existing plant(s)	The Project activity involves the installation of new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity. Thus, Project activity is a Greenfield plant and satisfies this applicability condition (a).
4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or (b) The project activity is implemented in existing reservoir, where the volume of the reservoir(s) is	Project is Wind and hence this criterion is not applicable.

increased and the power density as per definitions given in the project emissions section, is greater than 4 W/m^2. (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	
5. 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.	Not relevant as there is no non-renewable components involved in the project.
Combined heat and power (co-generation) systems are not eligible under this category	This is not relevant to the project activity as the project involves only hydro power generating units.
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.	There is no other existing renewable energy power generation facility at the project site. Therefore, this criterion is not applicable.
In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is a new installation, it does not involve any retrofit measures nor any replacement and hence is not applicable for the project activity.
9. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS I. C.: Thermal energy production with or without electricity" shall be explored	This is not relevant to the project activity as the project involves only hydro power generating units.
10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	This is not relevant to the project activity as the project involves only hydro power generating units.

A.5. Crediting period of project activity >>

Length of the crediting period corresponding to this monitoring period: 8 years 9 months
01/01/2014 – 30/09/2022

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

UCR ID – 241
Kosher Climate India Private Limited
Name: Narendra Kumar
Email ID – narendra@kosherclimate.com

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 proposed project activity involves construction and operation of 4 small-scale wind turbine generator project by V. S. Lad & Sons (VSL) in different districts of the state of Karnataka in India. The project generates clean energy by utilizing the kinetic energy of flowing wind.

The project was commissioned on:

Project	Commissioned Date
1.2MW Wind Power Project in Davangere	31/03/2006
6.25 MW Wind Power Project in Gadag	10/08/2006
3.0 MW Wind Power Project in Chitradurg	28/03/2008
3.75 MW Wind Power Project in Bellary.	30/09/2005

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

Specifications	1.2 MW	6.25 MW	3 MW	3.75 MW
Tower / Rotor Height	50 m	56 m	78.5	56m
Rotor Diameter	47 m	66 m	82 m	66m
Annual generation of individual WTGs as per the guaranteed generation	20,932 MW	64,528 MW	29,872 MW	35,338 MW
Cut-in wind speed	4 m/s	3 m/s	4 m/s	3 m/s
Rated wind speed	15 m/s	14 m/s	12.5 m/s	14 m/s
Cut-out wind speed	25 m/s	25 m/s	20 m/s	25 m/s
Rotor swept area	1735.16 m^2	3421.19 m^2	5281 m^2	3421.19 m^2
Rotor material Blades material	High Tensile Angles	GRP	GRP	GRP
Generator				
Rated output	600 kW	1250 kW	1500 kW	1250 kW
Rotational speed at rated power	1527 rpm	1515 rpm	1511RPM	1515 rpm
Operating voltage	690 V	690 V	690 V	690 V
Frequency	50 Hz	50 Hz	50 Hz	50 Hz
Gear ratio	1:58.2	1:75.917	1:95.09	1:75.917

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

There was no harm identified from the project and hence no mitigations measures are applicable. Rational: as per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016), it has been declared that hydro 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 Hydro Projects.

Nevertheless, PP had conveyed about project activity before implementation at respective village of Maharashtra and Karnataka, India to understand, discuss, record all possible concerns related to environment and socio-economic aspects of the project so that as per requirements, the mitigation measures can be taken. The feedback and inputs received from local stakeholders confirm that no negative impact and all issues were resolved by them.

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 benefits:

- 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

Environmental benefits:

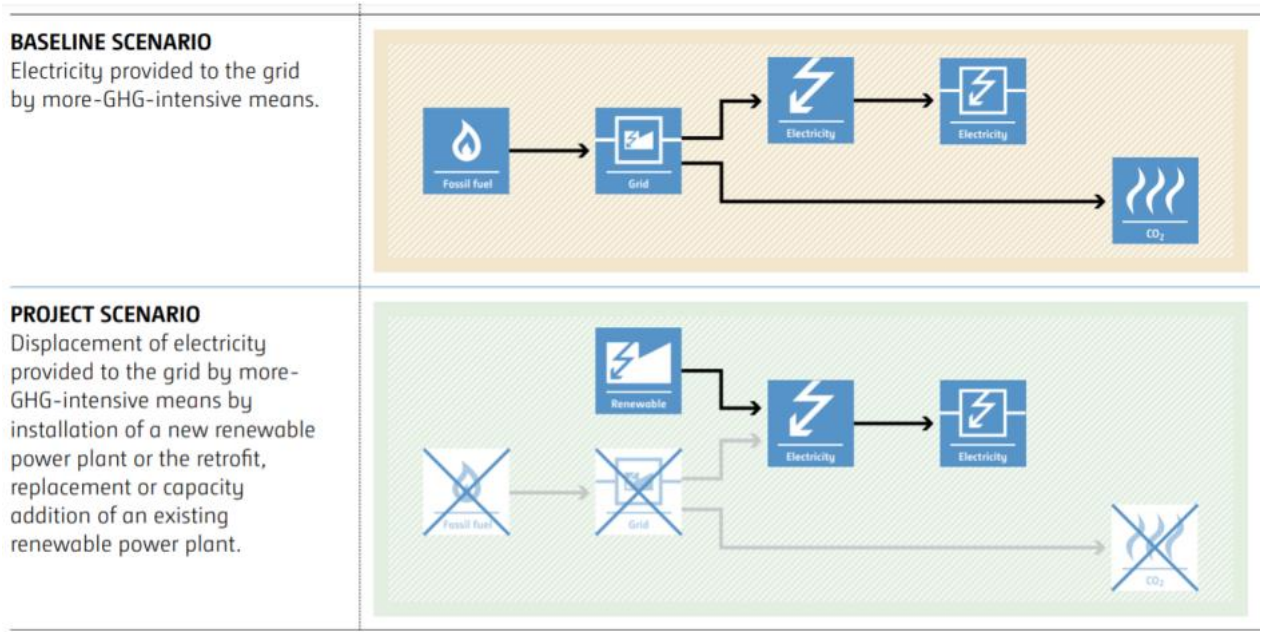
- The project utilizes wind energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions.
- As 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.

Economic benefits:

- 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

B.3. 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.



B.4. Debundling>>

This project is a small-scale project and it is not de-bundled component of any larger project.

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. (Title: "Grid connected renewable electricity generation", version 18)

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

The project activity involves generation of grid connected electricity from the construction and operation of a new wind power-based power project. The project activity has installed capacity of 14.2 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 18.0 and applicability of methodology is discussed below:

Applicability Criterion	Project Case
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling	All the project activities involve setting up of a renewable energy (Wind) generation plant that exports electricity to the fossil fuel dominated electricity grid (Indian Grid system). Thus, the project meets this applicability conditions "a".
Illustration of respective situations under which each of the methodology (i.e., AMS-I. D: Grid connected renewable electricity generation", AMS-I.F: Renewable electricity generation for captive use and mini-grid" and AMS-I.A: Electricity generation by the user) applies is included in Table 2	According to the point 1 of the Table 2 in the methodology – "Project supplies electricity to a national/ regional grid" is applicable under AMS I.D. As the project activity supplies the electricity to Indian Grid system grid which is a regional grid, the methodology AMS-I.D. is applicable.
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); or (e) Involve a replacement of (an) existing plant(s)	The Project activity involves the installation of new Wind Power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity. Thus, Project activity is a Greenfield plant and satisfies this applicability condition (a).
4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or (b) The project activity is implemented in existing reservoir, where the volume of the reservoir(s) is	Project is a Wind Power plant hence this criterion is not applicable

increased and the power density as per definitions given in the project emissions section, is greater than 4 W/m^2. (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	
5. 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.	Not relevant as there is no non-renewable components involved in the project.
6. Combined heat and power (co-generation) systems are not eligible under this category	This is not relevant to the project activity as the project involves only wind power generating units.
7. 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.	There is no other existing renewable energy power generation facility at the project site. Therefore, this criterion is not applicable.
8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is a new installation, it does not involve any retrofit measures nor any replacement and hence is not applicable for the project activity.
9. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS I. C.: Thermal energy production with or without electricity" shall be explored	This is not relevant to the project activity as the project involves only wind power generating units.
10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	This is not relevant to the project activity as the project involves only wind power generating units.

C.3 Applicability of double counting emission reductions >>

There is no double counting of emission reductions for the project activities due to the following

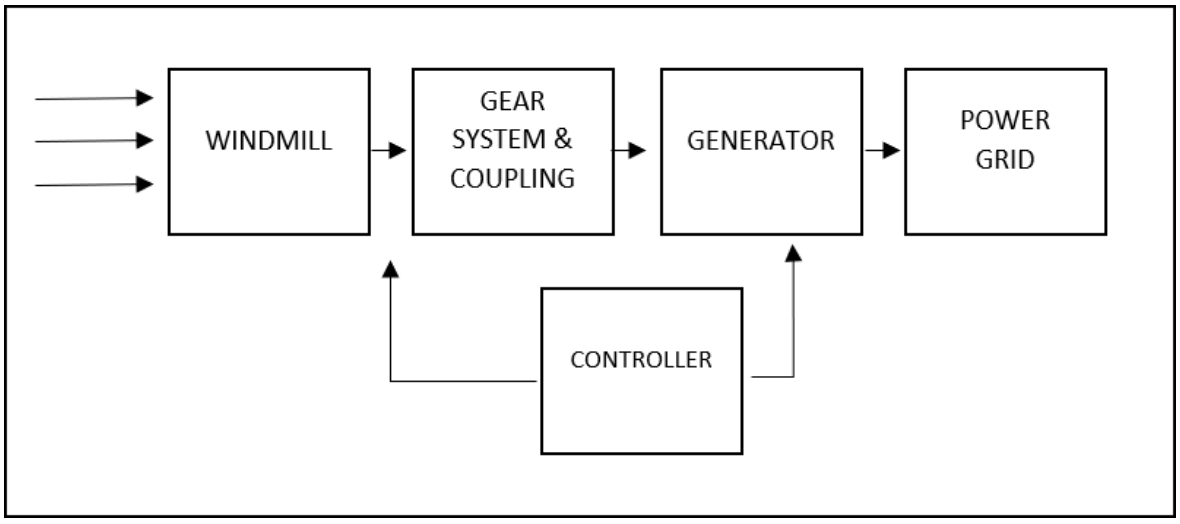
reasons:

• Project is uniquely identifiable based on its location coordinates,
• Project has dedicated commissioning certificate and connection point,
• Project is associated with energy meters which are dedicated to the consumption point for project developer

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

As per applicable methodology AMS-I.D. Version 18.0, "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to."

Thus, the project boundary includes the Wind Turbine Generators and the Indian grid system.



Scenario	Source	GHG	Included?	Justification/Explanation
Baseline	Electricity generation in fossil fuel fired power that is dispatched due to the project activity	CO2	Yes	Main emission source
		CH4	No	Not identified in the baseline methodology
		N2O	No	Not identified in the baseline methodology
Project Activity	Electricity generation in the project activity	CO2	No	Zero-emissions grid connected electricity generation from renewable energy
		CH4	No	Zero-emissions grid connected electricity generation from renewable energy

		N2O	No	Zero-emissions grid connected electricity generation from renewable energy

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

As per para 19 of the approved consolidated methodology AMS-I.D. Version 18.0, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenariois 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 wind power plant to harness the green power from wind energy and to use for sale to national grid i.e., India grid. In the absence of the project activity, the equivalent amount of power would have been generated by the operation of grid-connectedfossil fuel-based power plants and by the addition of new fossil fuel-based generation sources into the grid. The power produced at grid from the other conventional sources which are predominantly fossil fuel based. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

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

Net GHG Emission Reductions and Removals

$$ER_y = BE_y - PE_y - LE_y$$

Where:
ER_y = Emission reductions in year y (tCO2/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 (tCO2/y)

Baseline Emissions

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

The baseline emissions are to be calculated as follows:

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

Where:

BE_y = Baseline emissions in year y (t CO2)

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

$EF_{grid,y}$ = UCR recommended emission factor of 0.9 tCO_2/MWh has been considered, this is conservative as compared to the combined margin grid emission factor which can be derived from Database of Central Electricity Authority (CEA), India. (Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

Project Emissions

As per paragraph 39 of AMS-I.D. (Version 18.0, dated 28/11/2014), , 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.

Hence, $PE_y = 0$

Leakage

As per paragraph 42 of AMS-I.D. version-18, 'If the energy generating equipment is transferred from another activity (biomass), 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, $LE_y = 0$

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

1.2 MW Wind Power Project in Davangere

Estimated annual baseline emission reductions (BE_y)

=20,980 MWh/year × 0.9 tCO_2/MWh

= 18,882 tCO_2/year (i.e., 18,882 CoUs/year)

6.25 MW Wind Power Project in Gadag

Estimated annual baseline emission reductions (BE_y)= 64,410 MWh/year x 0.9 tCO_2/MWh

= 57969 tCO_2/year (i.e., 57969 CoUs/year)

3.0 MW Wind Power Project in Chitradurg

Estimated annual baseline emission reductions (BE_y)

20710 MWh/year × 0.9 tCO2/MWh

=18639 tCO2/year (i.e., 18639 CoUs/year)

3.75 MW Wind Power Project in Bellary

Estimated annual baseline emission reductions (BE_y)

= 35,279 MWh/year × 0.9 tCO2/MWh

31751.1 tCO2/year (i.e.,31,751.1 CoUs/year)

Project	Net Generation (MWh/)	Emission Factor (tCO2/MWh)	Emission Reduction (tCO2/
1.2MW Wind Power Project in Davangere	20,980	0.9	18,882
6.25 MW Wind Power Project in Gadag	64,410	0.9	57969
3.0 MW Wind Power Project in Chitradurg	20,710	0.9	18639
3.75 MW Wind Power Project in Bellary.	35,279	0.9	31,751.1
Total	**141379**		**127241.1**

C.6. Prior History>>

The project activity has not applied to any other GHG program for generation or issuance of carbonoffsets or credits for the said crediting period.

C.7. Monitoring period number and duration>>

First Issuance Period: 8 years, 9 months – 01/01/2014 – 30/09/2022

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>>

As per the law applicable and implemented in practice, the delivered energy shall be metered by VSL and KPTCL at the high voltage side of the step-up transformers installed at the receiving station. The energy metering equipment shall be electronic trivector meters, which is required for the project. The energy metering equipment shall be maintained in accordance with electricity standards and have the capability of recording half hourly and monthly readings, which in turn are produced to KPTCL. The energy meters installed would be capable of recording and storing the parameters for a minimum period of 35 days with digital output. The energy meter readings at the project sites and the receiving station will be taken simultaneously and jointly by both the parties. The recorded metering data shall be downloaded through meter recording instrument.

Apart from the joint (KPTCL/DISCOM and VSL) main meter reading undertaken as per the law applicable and implemented in practice to the wind farm in the State of Karnataka, which is duly signed by the KPTCL/DISCOM representative together with a VSL representative, VSL will follow the provisions under the law applicable and implemented in practice to the wind farm in the State of Karnataka and PPA in case the primary measuring fails.

Data/Parameter	UCR recommended emission factor
Data unit	tCO_2 /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 2014 - 2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.
Source of data	https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com/Documents/UCRStandardNov2021updatedVer2_301121081557551620.pdf
Value(s) applied	0.9
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of data	For the calculation of Emission Factor of the grid

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

Data / Parameter:	EG BL, y
Data unit:	MWh/year
Description:	Quantity of net electricity supplied to the grid as a result of the implementation of the project activity in year y (MWh)
Source of data:	Monthly Joint Meter Readings (JMRs)
Value(s) applied:	141.379 MWh
Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Calibration frequency: 5 years (as per CEA provision)
Monitoring frequency:	Monthly
QA/QC procedures:	Calibration of the Main meters will be carried out once in five (5) years as per National Standards (as per the provision of CEA, India) and faulty meters will be duly replaced immediately as per the provision of power purchase agreement. Cross Checking: Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the project participant to the grid.
Any comment:	-