Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



800 kW small scale wind power Project

Title: 800 kW small scale wind power project by M/S Micro Melt Pvt Ltd
Version 1.0

Date 16/04/2022

First CoU Issuance Period: 6 years 4 months

Monitoring Period: 30/09/2015 to 31/12/2021

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

Monitoring Report	
Title of the project activity	800 kW small scale wind power project by M/S Micro Melt Pvt Ltd
UCR Project Registration Number	140
Version	1.0
Completion date of the MR	16/04/2022
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: 6 years 4 months (first and last days included (30/09/2015 to 31/12/2021)
Project participants	Creduce Technologies Private Limited (Representator) M/S Micro Melt Pvt Ltd (Project Proponent)
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I.D.: "Grid connected renewable electricity generation", Version 18
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	2015: 177 CoUs (177 tCO2eq)
	2016: 1,200 CoUs (1,200 tCO2eq)
	2017: 1,260 CoUs (1,260 tCO2eq)
	2018: 1,248 CoUs (1,248 tCO2eq)
	2019: 1,270 CoUs (1,270 tCO2eq)
	2020: 965 CoUs (965 tCO2eq)
	2021: 1,092 CoUs (1,092 tCO2eq)
Total:	7,212 CoUs (7,212 tCO2eq)

SECTION A. Description of project activity

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

The proposed project activity with title under UCR "800 kW small scale wind power project by M/S Micro Melt Pvt Ltd", is a grid connected Wind Power project located in Jamnagar district in the state of Gujarat (India). The project is an operational activity with continuous reduction of GHG, currently being applied under "Universal Carbon Registry" (UCR).

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

The project activity aims to harness kinetic energy of wind (renewable source) to generate electricity. The net generated electricity from the project activity is used for the captive consumption at the project proponent premises through NEWNE grid as per Power Purchase Agreement between Paschim Gujarat Vij Company Limited and PP.

In pre-project scenario, the project proponent was importing energy from the NEWNE grid which is connected to large numbers of fossil fuel-based power plants. The project activity will generate clean energy which will be wheeled to the point of consumption at PP's premise. Hence, project activity is displacing the gross electricity generation i.e., 1,600 MWh from the NEWNE grid.

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

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

The project activity involves installation and operation of Wind Turbine Generator (WTGs) in two phases having capacity of 800 kW each which are manufactured and supplied by Wind World (India) Pvt Ltd. The average life time of the generator is around 20 years as per the equipment supplier specification.

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

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

1. **Main Tower:** The main support tower is made of steel, finished in a number of layers of protective paint to shield it against the elements. The tower is tall enough to ensure the rotor blade does not interfere with normal day-to-day operations at ground level.

2. **Rotar Blades:** The rotor blades are the three (usually three) long thin blades that attach to the hub of the nacelle. These blades are designed to capture the kinetic energy in the wind as it passes, and convert it into rotational energy.

3. **Nacelle:** The nacelle is the 'head' of the wind turbine, and it is mounted on top of the support tower. The rotor blade assembly is attached to the front of the nacelle. It contains all the major parts of the WEG.

4. **Hub:** The hub of the wind turbine is the component that connects the blades to the main shaft and ultimately to the rest of the tower. The hub transmits and withstand all the loads generated by the blades.

5. **Main Shaft:** It is a piece of metal in the form of a tube which constitutes the most important spinning constituent since it conveys the energy from the wind turbine blades to the other parts of the wind turbine.

6. **Gear Box:** A gearbox is often used in a wind turbine to increase the rotational speed from a low-speed main shaft to a high-speed shaft connecting with an electrical generator. Gears in wind turbine gearbox are subjected to severe cyclic loading due to variable wind loads that are stochastic in nature.

7. **Brake:** A wind turbine rotor brake is a brake placed next to the gearbox that reduces the rotational speed of the blade assembly, fixes the blade so that it does not rotate in the case of power transmission maintenance or power generator rest, and in an emergency.

8. **Turbine generator:** The turbine generator is the component that turns the rotational energy in the high-speed output shaft from the gearbox into an electrical current. The electrical principle of electromagnetic induction shows that while a magnet is moving past a coil of wire, an electric current is created (or "induced") in the wire.

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	:	140
Start Date of Crediting Period	:	30/09/2015
Commissioning Date	:	30/09/2015

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	30/09/2015
Carbon credits claimed up to	31/12/2021
Total ERs generated (tCO_{2eq})	7,212 tCO2eq
Leakage	0

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".**

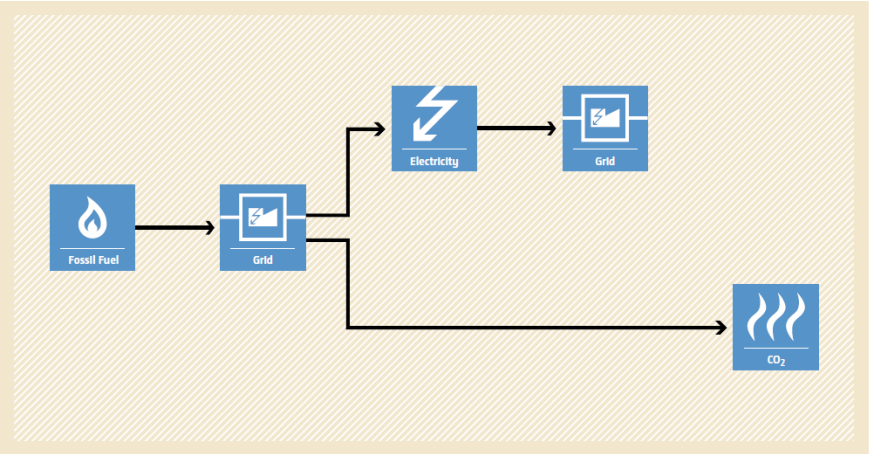


Figure 1 Baseline Scenario

A.2. Location of project activity>>

Country	:	India
State	:	Gujarat
District	:	Jamnagar
Village	:	Dharampur

The project location is situated at Jamnagar district in the state of Gujarat. The nearest airport is in Jamnagar. The project site is well connected by district and village roads to the nearest town. The geographic co-ordinates of the project locations are 22°06'38.5"N 69°55'16.1"E.

The representative location map is included below:



Project Site

A.3. Parties and project participants >>

Party (Host)	Participants
India	**Creduce Technologies Private Limited (Representator)** Contact person: Shailendra Singh Rao Mobile: +91 9016850742, 9601378723 Address: 2-O-13,14 Housing Board Colony, Banswara, Rajasthan - 327001, India. **M/S Micro Melt Pvt Ltd (Developer)** Address: NH-27, Survey No.196, Plot No. 1 & 2 Veraval, Shapar, Gujarat 360024, India.

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

SECTORAL SCOPE - 01 Energy industries (Renewable/Non-Renewable Sources)

TYPE - Renewable Energy Projects

CATEGORY - AMS-I. D: "Grid connected renewable electricity generation", Version 18

A.5. Crediting period of project activity >>

Start date : 30/09/2015
Crediting period corresponding to this monitoring period : 06 years 4 months
30/09/2015 to 31/12/2021 (Both the dates are inclusive)

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

Name : Shailendra Singh Rao
Contact No : +91 9016850742, +91 9601378723
E-Mail : shailendra@creduce.tech

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 is installation and operation of a Wind Turbine Generators (WTGs) manufactured and supplied by Wind World (India) Limited with an installed capacity of 800 kW in the state of Gujarat state of India. As per commissioning certificate of GEDA, WTG ID: WWIL/800/15-16/3620 with a capacity of 0.8 MW (800 kW) has been commissioned and synchronised with 33 kV grid line, which is then connected to 220 kV Wind World site sub-station at Tebhda (Dharampur).

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

Technical details for WTG Machine manufactured by Wind World (India) Limited Energy are as follows:

Turbine model	Wind World (India) Limited (E- 53)
Rated power	800 kW
Rotor diameter	52.9 m
Hub height	75 m
Turbine Type	Direct driven, horizontal axis wind turbine with variable rotor speed
Power regulation	Independent pitch system for each blade
Cut in wind speed	3 *m/s*
Rated wind speed	12 *m/s*
Cut-out 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	Fiber Glass Epoxy reinforced
Output Voltage	400 V
Tower Height	74 m (Concrete)

Apart from the above technical specification of WTGs, the connectivity of all the WTGs is to a central Monitoring Station (CMS) through high-speed WLAN modem or fibre optic cable which helps in providing real time status of the turbine at CMS with easy GUI (Graphical User Interface) and ability to monitor the functioning of the turbine from CMS.

A Supervisory Control & Data Acquisition System (SCADA) provides a graphical representation of data providing ease to understand the behaviour of WTG, long time data storage facility, access to daily generation report and power curve related information & helps to analyze the problem with graphical tools offline as well as online. The other specifications include a safety system with instrumentation for tracking individual functions of the wind turbine generator. The life time of the WTG is 20 years as per manufacturer specifications.

In the absence of the project activity the equivalent amount of electricity imported from NEWNE grid would have been generated from the NEWNE grid, which is predominantly based on fossil fuels[1], hence baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

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

Indian economy is highly dependent on "Coal" as fuel to generate energy and for production processes. Thermal power plants are the major consumers of coal in India and yet the basic electricity needs of a large section of population are not being met. This results in excessive demands for electricity and places immense stress on the environment.
Changing coal consumption patterns will require a multi-pronged strategy focusing on demand, reducing wastage of energy and the optimum use of renewable energy (RE) sources. This project is a greenfield activity where grid power is the baseline. The renewable power generation is gradually contributing to the share of clean & green power in the grid; however, grid emission factor is still on higher side which defines grid as distinct baseline.
The Government of India has stipulated following indicators for sustainable development in the interim approval guide lines 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: The project would help in generating direct and indirect employment benefits accruing out of ancillary units for implementation of the Wind Turbine Generator and for maintenance during operation of the project activity. It will lead to development of infrastructure around the project area in terms of improved road network etc. and will also directly contribute to the development of renewable infrastructure in the region.

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

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

Technological well-being: The project activity leads to the promotion of 800 kW Wind Turbine Generator into the region and will promote practice for small scale industries to reduce the dependence on carbon intensive grid supply to meet the captive requirement of electrical energy and also increasing energy availability and improving quality of power under the service area. Hence, the project leads to technological well-being.

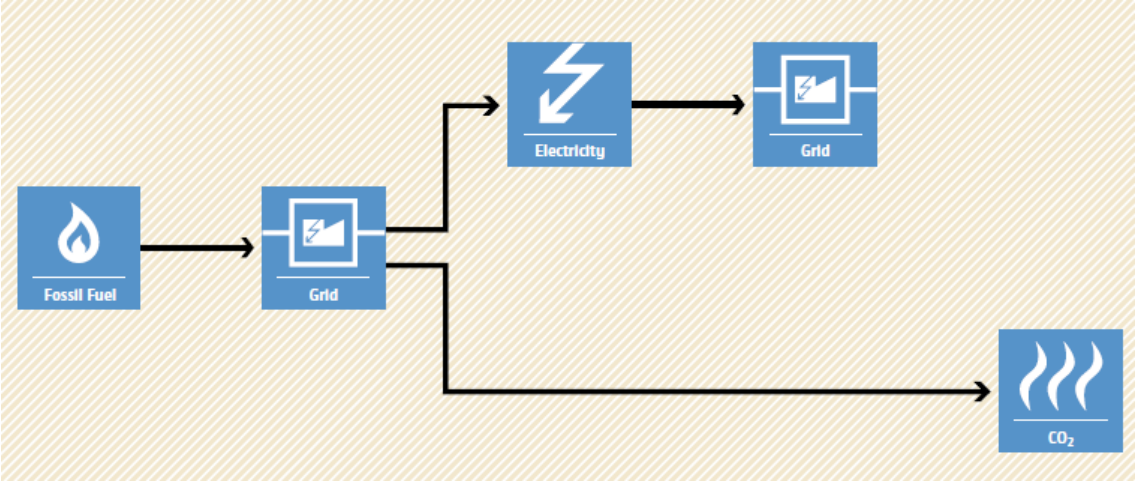
[1] http://www.cea.nic.in/executive_summary.html

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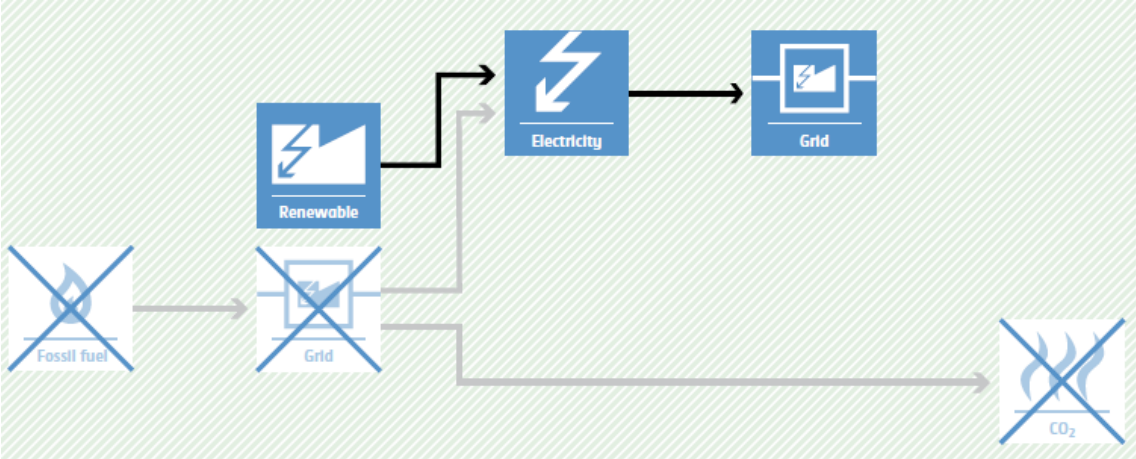
B.3. Baseline Emissions>>

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 (NEWNE Grid)), which is carbon intensive due to predominantly sourced from fossil fuel-based power plants.

Baseline Scenario:



Project Scenario:



Thus, this project activity was a voluntary investment which replaced equivalent amount of electricity from the Indian grid. The project proponent was not bound to incur this investment as it was not mandatory by national and sectoral policies. Thus, the continued operation of the project activity would continue to replace fossil fuel-based power plants and fight against the impacts of climate change. The Project Proponent hopes that carbon revenues from 2014-2021 accumulated as a result of carbon credits generated will help repay the loans and help in the continued maintenance of this project activity.

B.4. Debundling>>

This project activity is not a de-bundled component of a larger project activity.

SECTION-C: Application of methodologies and standardized baselines

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

Sectoral Scope: 01 Energy industries (Renewable/Non-Renewable Sources).

TYPE I – Renewable Energy Projects.

Applied Baseline Methodology: AMS-I.D**.** "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 project and to use for captive purpose via grid interface by wheeling through state electricity board i.e., Paschim Gujarat Vij Company Limited (PGVCL) under the Power Purchase Agreement (PPA) signed between the Project Proponent (PP) and the utility.
The project activity has installed capacity of 800 kW which will qualify for a small-scale project activity under Type-I of the Small-Scale methodology. The project status is corresponding to the methodology AMS-I.D., Version 18 and 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.	The project activity is a Renewable Energy Project which falls under applicability criteria option 1 (a) i.e., "Supplying electricity to a national or a regional grid". Hence the project activity meets the given applicability criterion.
2. This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	The option (a) of applicability criteria 2 is applicable as project is a Greenfield plant /unit. Hence the project activity meets the given applicability criterion.

3. 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 increased and the power density as per definitions given in the project emissions section, is greater than 4 W/m2. (c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.	The project activity involves installation of Wind Turbine Generators (WTGs), hence, this criterion is not applicable.
4. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The proposed project is 800 kW Wind power project, i.e. only component is renewable power project below 15MW, thus the criterion is not applicable to this project activity.
5. 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.
6. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The project is wind power project and thus the criterion is not applicable to this project activity.
7. In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The proposed project is a greenfield 800 kW wind power project, i.e., only component is renewable power project below 15 MW, thus the criterion is not applicable to this project activity.
8. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure prescribed 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.	The proposed project is a greenfield 800 kW wind power project; hence, this criterion is not applicable to this project activity.

9. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	Not biomass is involved, the project is only a wind power project and thus the criterion is not applicable to this project activity.

C.3 Applicability of double counting emission reductions >>

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

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

As per applicable methodology AMS-I.D. Version 18, "The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system."

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

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	**CO_2**	**Yes**	**CO2 emissions from electricity generation in fossil fuel fired power plants**
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield Wind Power Project Activity	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	No other emissions are emitted from the project

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

As per para 19 of the approved consolidated methodology AMS-I.D. Version 18, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

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

The project activity involves setting up of a new Wind Turbine Generator to harness the green power from Wind energy and use it for personal requirement (captive consumption). In the absence of the project activity, the equivalent amount of power would have been generated by the operation of grid-connected fossil fuel-based power plants and by the addition of new fossil fuel-based generation sources into the grid. The power produced 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 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 same emission factors as that of the default value. Hence, the same emission factor has been considered to calculate the emission reduction.

Net GHG Emission Reductions and Removals

$ERy = BEy – PEy – LEy$

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 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 (tCO_2)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation 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)

Hence,

BEy = 8,013 x 0.9 = 7,212 tCO2eq

Project Emissions

As per paragraph 39 of AMS-I.D. (Version 18, dated 28/11/2014), for most renewable energy project activities emission is zero. Since the project activity is Wind Power Plant Installation, project emission for this plant is nil.

Hence,

PEy = 0

Leakage Emissions

As per paragraph 42 of AMS-I.D. Version-18, all projects other than Biomass projects have zero leakage.

Hence,

LEy = 0

Total Emission reduction by the project for the current monitoring period is calculated as below:

Hence,

ERy = 7,212 – 0 – 0 = 7,212 CoUs

C.6. Prior History>>

The project activity is a small-scale Wind project and was not applied under any other GHG mechanism prior to this registration with UCR. Also, project has not been applied for any other environmental crediting or certification mechanism. Hence project will not cause double accounting of carbon credits (i.e., COUs).

C.7. Monitoring period number and duration>>

First Monitoring Period : 6 years 4 months
30/09/2015 to 31/12/2021 (inclusive of both dates)

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

Crediting period start date is 30/09/2015.

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>>

The project activity essentially involves generation of electricity from water, the employed Wind Power Plant 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 (GETCO).

Parameter	$EG_{PJ,y}$
Data unit	MWh
Description	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of this project activity in year y.
Source of data Value(s) applied	JMR or Wind Energy Certificate issued by state authority.
Procedures	The Net electricity generation by the Wind power plant is recorded at the sub-station. At the end of every month Joint Meter Reading (JMR) is generated based on the total monthly electricity exported to the grid.
Monitoring frequency	Monthly
Purpose of data	To Calculate Baseline Emission

Data / Parameter	UCR recommended emission factor
Data unit	tCO_2 /MWh
Description	A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) which will be associated with 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. 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 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
Additional Comment	The combined margin emission factor as per CEA database (current Version 16, Year 2021) results into higher emission factor. Hence for 2021 vintage UCR default emission factor remains conservative.

ANNEXURE I (Emission Reduction Calculation)

800 kW small scale wind power project by M/S Micro Melt Pvt Ltd

Month - Wise Energy Delivered to Grid (in MWh)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	-	-	-	-	-	-	-	-	0.111	39.079	66.603	91.266
2016	44.806	64.129	74.530	87.963	217.241	208.649	208.727	186.996	102.084	36.479	37.851	63.498
2017	83.338	74.801	80.995	150.153	194.311	173.220	250.032	164.581	51.201	36.327	52.269	88.971
2018	49.272	49.747	75.462	91.188	166.810	242.338	246.876	212.332	85.605	31.826	41.191	94.775
2019	82.970	79.229	78.088	105.870	154.573	190.025	282.749	167.231	48.098	57.430	55.792	108.641
2020	72.070	67.325	81.281	75.316	155.464	91.157	123.346	174.449	42.175	41.242	72.707	75.192
2021	81.715	46.473	63.015	62.931	145.949	171.186	239.141	125.439	86.577	41.079	66.897	82.125

Year-Wise Emission reduction calculation for the project activity			
Year	Total No. of Electricity delivered in MWh	Recommended emission factor tCO2/MWh	Total CoUs generated
2015	197	0.9	177
2016	1,333	0.9	1,200
2017	1,400	0.9	1,260
2018	1,387	0.9	1,248
2019	1,411	0.9	1,270
2020	1,072	0.9	965
2021	1,213	0.9	1,092
Total CoUs to be issued for the first monitoring period (Year: 2015 to 2021)			7,212