Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT

Title: 250 KW Wind Power Plant by eClouds Energy LLP, Tirunelveli, Tamil Nadu. India
(079224723272)

Date 06th March 2024

First CoU Issuance Period: 1st Sep 2019 to 31st Dec 2023
First Monitoring Period: 1st Sep 2019 to 31st Dec 2023
1st Crediting Period: 4 years 4 months

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

Monitoring Report	
Title of the project activity	250 KW Wind Power Plant by eClouds Energy LLP, Tirunelveli, Tamil Nadu
UCR Project Registration Number	365
Version	Version:01
Completion date of the MR	06/03/2024
Monitoring period number and duration of this monitoring period	Monitoring Period Number:01 Duration of this monitoring Period: (first and last days included (01/09/2019 to 31/12/2023)
Project participants	Project Proponent (PP): eClouds Energy LLP. UCR Aggregator: eClouds Energy LLP. UCR ID: 980949808
Host Party	India
Applied methodologies and standardized baselines	Type I (Renewable Energy Projects) UNFCCC Methodology Category AMS I.D.: "Grid connected renewable electricity generation" Ver 18 UCR Protocol Standard Baseline Emission Factor
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources).
Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	2019: 35 CoUs (35 tCO2eq)
	2020: 265 CoUs (265 tCO2eq)
	2021: 269 CoUs (269 tCO2eq)
	2022: 308 CoUs (308 tCO2eq)
	2023: 300 CoUs (300 tCO2eq)
Total	1177 CoUs (1177 tCO2eq)

SECTION A. Description of project activity

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

The project **M/s. eClouds Energy LLP** is located in SF.NO.708(P), Mayamankurichy village, AlangulamTaluk, District: Tirunelveli, State: Tamil Nadu, Country: India. (079224723272)

The details of the registered project are as follows:

The ecology can benefit greatly from the usage of wind energy as a substitute energy source. Windenergy doesn't release any carbon emissions, in contrast to fossil fuels. This is a crucial element that makes it far more eco-friendly than conventional energy sources. As a result, can lessen the consequences of climate change.

The proposed project activity of 250KW is the installation and operation of a wind power plant in Mayamankurichy village, Alangulam Taluk, District: Tirunelveli, State: Tamil Nadu, Country: India.

Village	District	Type	Total installed capacity kW	Commissioning date
Mayamankurichy	Tirunelveli	Ground mounted	250 KW	13th Aug 2010

According to the ex-ante estimate, this project will produce about 3,00,000 units of power annually, assuming a PLF of 14% on average. The Wind Turbine Generator (WTG) project activity was commissioned on 13 Aug 2010.

The project activity is anticipated to reduce CO_2 emissions by 265 tCO_2e per year on average, with the actual emission reduction achieved during the first CoU term to be presented as part of theinitial monitoring and verification. The project activity has been helping in greenhouse gas (GHG) emission reduction by using renewables resources (wind energy) for generating power which otherwise would have been generated using grid mix power plants, which is dominated by fossil fuel based thermal power plant.

Since the project activity generates electricity through wind energy, a clean renewables 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 is a renewable power generation activity which incorporates installation and operation of single Wind Turbine Generator (WTG) having capacity of 250KW owned by eClouds Energy LLP. This project helps in reducing harmful greenhouse gas (GHG) emissions and promotes a greener and healthier environment.

A wind turbine turns wind energy into electricity using the aerodynamic force from the rotor blades, which work like an airplane wing or helicopter rotor blade. When wind flows across the blade, the air pressure on one side of the blade decreases. The difference in air pressure across the two sides of

the blade creates both lift and drag. The force of the lift is stronger than the drag and this causes the rotor to spin. The rotor connects to the generator, either directly (if it's a direct drive turbine) or through a shaft and a series of gears (a gearbox) that speed up the rotation and allow for a physically smaller generator. This translation of aerodynamic force to rotation of a generator creates electricity.

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	: 365
Start Date of Crediting Period	: 01/09/2019
Project Commissioned	: 13/08/2010

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

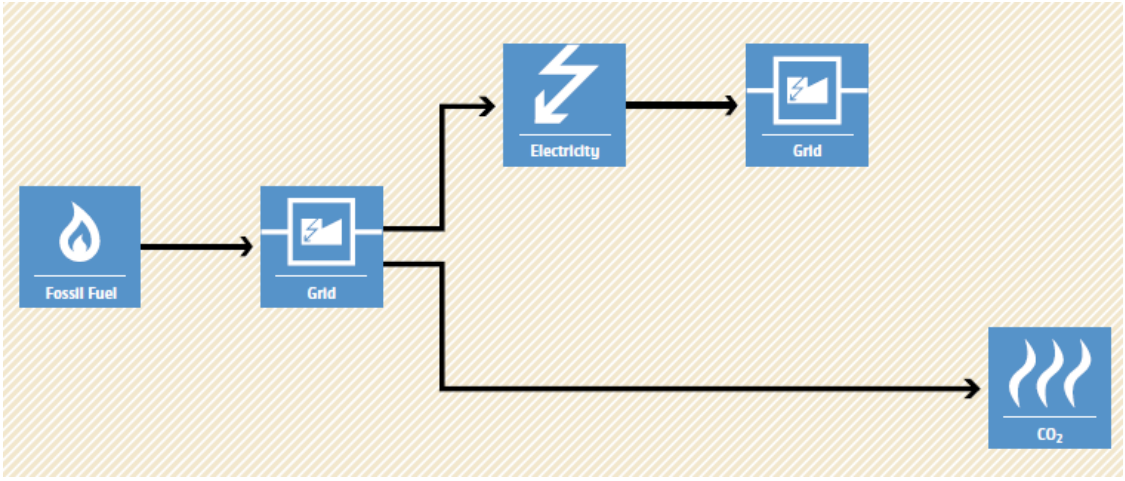
The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	01/09/2019
Carbon credits claimed up to	31/12/2023
Total ERs generated (tCO_{2eq})	1,177 tCO_{2eq}
Leakage	0

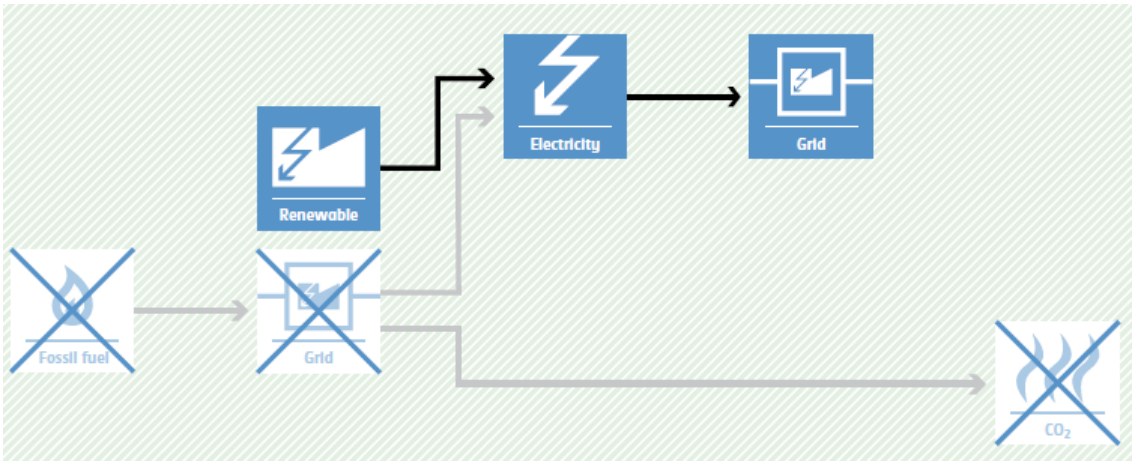
e) Baseline Scenario>>

Schematic diagram showing the baseline scenario:

Baseline Scenario:

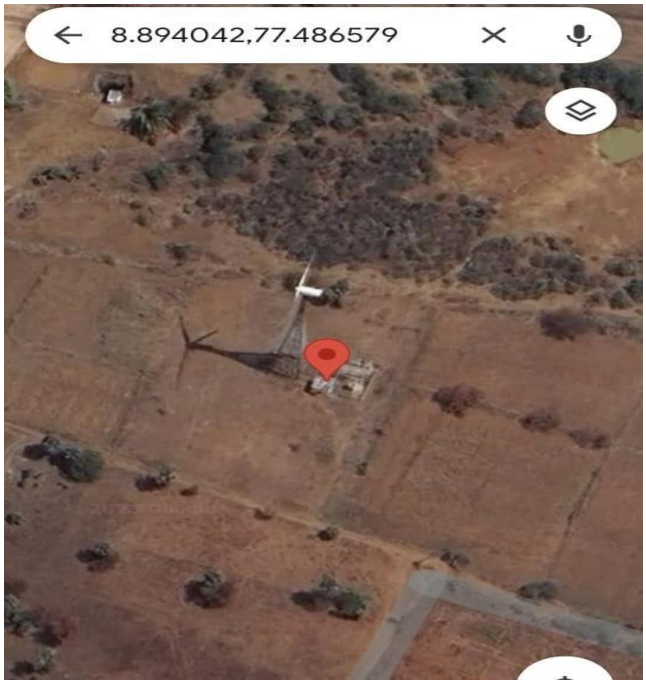


Project Scenario:



A.2. Location of project activity>>

Country : India.
District : Tirunelveli.
Village : Mayamankuruchi.
Taluk : Alangulam.
State : Tamil Nadu.
Latitude : 8. 8940420 N
Longitude : 77. 4865790 E



A.3. Parties and project participants

Party (Host)	Participants
India	**Project Owner: M/s. eClouds Energy LLP** is located in SF.NO.708(P), Mayamankurichy village, AlangulamTaluk, District: Tirunelveli, State: Tamil Nadu, Country: India. (079224723272) **Project Aggregator: eClouds Energy LLP,** #81 West Venkatasamy Road, R.S.Puram, Coimbatore 641002, Tamil Nadu INDIA Email: nocarbon@ecloudsenergy.com

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", Ver 18.

A.5. Crediting period of project activity >>

Start Date of Crediting Period eClouds Energy LLP: 01/09/2019.
Length of the crediting period corresponding to this monitoring period: 4 years 4 months i.e., 01/09/2019 to 31/12/2023

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

Name: Shamuthira Hari G
Contact No: +91 7397492517
E-Mail: shamuthirahari@gmail.com , nocarbon@ecloudsenergy.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 project activity is a renewable power generation activity which incorporates installation and operation of single Wind Turbine Generator (WTG) having capacity of 250KW owned by eClouds Energy LLP. This project helps in reducing harmful greenhouse gas (GHG) emissions and promotes a greener and healthier environment.

Village	District	Type	Total installed capacity kW	Commissioning date
Mayamankurichy	Tirunelveli	Ground mounted	250 KW	13th Aug 2010

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

The project activity is using clean renewable wind energy to produce electricity. The applied technology is considered to be one of the most environment friendly technologies available as the operation of the wind energy generators does not emit any GHGs or any other harmful gases unlike theoperation of conventional power plants.

The technical specifications of the key components that are used for baseline calculations or methodology selection limits as follows:

Particulars	**Machine**
Machine Number	079224723272
Maximum Power Output	250KW
Diameter	28.5 M
No. of Blades	3
Swept Area	638 SQ.M
Rotor Speed Range	46 REV/MIN
Rotational direction	CLOCK WISE VIEWD
Tip speed @ rated power	-
Orientation	-
Speed regulation	44 RPM/MIN
Aerodynamic brakes	NIL
Pitch System	
Principle	STALL PITCH REGULATION
Actuation	-

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

There are social, environmental, economic, and technological benefits that contribute to sustainabledevelopment.

- ***Social benefits:***

The project activity will lead to the development of supporting infrastructure such as road network etc., in the wind park location, the access to which is also provided to the local population. The project activity will lead to alleviation of poverty by establishing direct and indirect benefits through employment generation and improved economic activities by strengthening the local grid of the state electricity utility. Use of a renewable source of energy reduces the dependence on imported fossil fuels and associated price variation thereby leading to increased energy security.

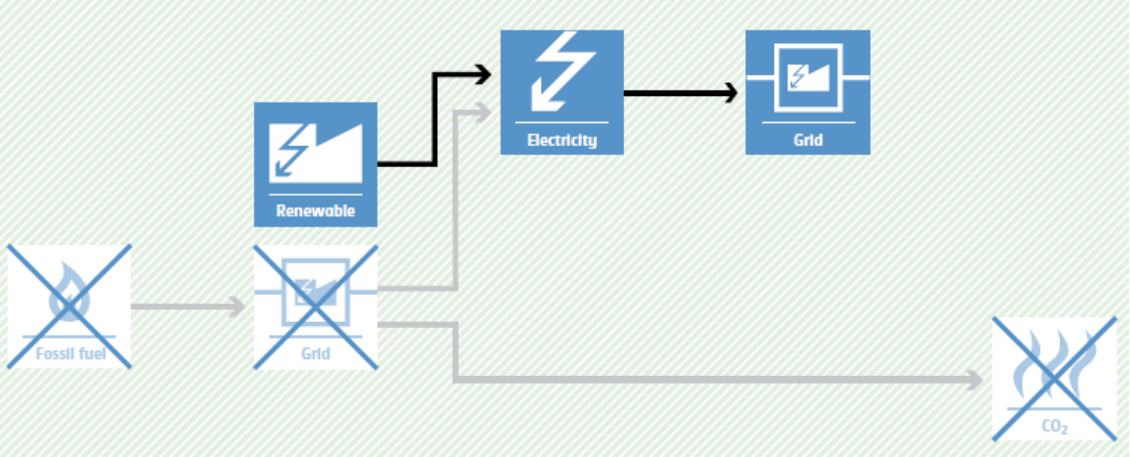
- ***Environmental benefits:***

The project aims to generate power through a wind-based facility that emits absolutely no greenhouse gases (GHG) or harmful pollutants like Sox, NOx and SPM, typically associated with conventional thermal power generation. 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 and contributes to environmental well-being.

- ***Economic benefits:***

The project is a clean technology investment decided based on carbon revenue support, which signifies flows of clean energy investments. In additional, success of these kind of projects will be provided 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.

B.3. Baseline Emissions>>



As a result of this project activity, an equivalent amount of electricity from the Indian grid was replaced.

As a result, the project activity would continue to replace fossil fuel-based power plants and combat the effects of climate change.

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 is a renewable power generation activity which incorporates installation and operation of single Wind Turbine Generator (WTG) having capacity of 250KW owned by eClouds Energy LLP. This project helps in reducing harmful greenhouse gas (GHG) emissions and promotes a greener and healthier environment.

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

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 involves setting up of a grid connected renewable energy (wind) generation plant for selling it to the grid. Therefore, it meets the requirement of point (b) of criteria 1.
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 Generator (WTG). 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 250 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.
5. Combined heat and power (co-generation) systems are not eligible under this category	The project is a 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 distinct1 from the existing units.	This is a green field project and no expansion and retrofitting were carried out. Hence this criterion is not applicable.
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 250 KW wind power project, i.e., the only component is a renewable power project below 15 MW, thus the criterion is not applicable to this project activity
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 250 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.	No biomass is involved, the project is only a wind power project and thus the criterion is not applicable to this project activity.

C.3 Applicability of double counting emission reductions >>

Due to the following factors, there is no double accounting of emission reductions in the project activity:

- Based on its geographic location, the project may be uniquely identified.
- The project has a specific connection point and commissioning certificate.
- The project is linked to energy meters that are devoted to the project developer's consumption point.

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

The physical location of the Wind Turbine Generator (WTG), the energy metering hardware, and theassociated local electrical infrastructure are all included in the project perimeter.

The table below provides an overview of the emissions sources included or excluded from theproject boundary for determination of baseline and project emissions.

Source		Gas	Included?	Justification/Explanation
Baseline	Grid-connected electricity generation	**CO_2**	**Yes**	**Main emission source**
		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 Solar 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) >>

Net GHG Emission Reductions and Removals
Thus, **ERy = BEy – PEy – Ley**

Where:
ERy = Emission reductions in year y (tCO_2/y)
BEy = Baseline Emissions in year y ($t\ CO_2/y$)
PEy = Project emissions in year y (tCO_2/y)
LEy = Leakage emissions in year y (tCO_2/y)

<u>Baseline Emissions:</u>

Baseline emissions include only CO_2 emissions from electricity generation in wind turbines 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 wind turbines and the addition of new grid-connected wind turbines.

The baseline emissions are to be calculated as follows:
$BEy = EGPJ,y \times EFgrid,y$

Where,
Bey = Baseline emissions in year y ($t\ CO_2$)
EGPJ,y = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)
EFgrid,y = UCR recommended emission factor of 0.9 CO_2/MWh has been considered.
(Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4).

Project Emissions:

Since the project activity is a Wind Turbine Generator (WTG), project emission for renewable energy plants is nil.

Thus, PEy =0.

Leakage:

As per paragraph 42 of AMS-I.D. version-18, 'If the energy generating equipment is transferred from another activity, leakage is to be considered.' In the project activity, there is no transfer of energy-generating equipment, and therefore the leakage from the project activity is considered zero.

Hence, LEy= 0

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

Estimated annual baseline emission reductions (BEy)

= 295 KWh/year × 0.9 tCO_2/MWh

= 265 **tCO_2e/year (i.e.,** 265 **CoUs/year)**

C.6. Prior History>>

In 2019, N. Vasanthal initially owned the project before it was acquired by eClouds Energy LLP.

The project activity is a small-scale wind project and was not applied under any other GHG mechanism prior to this registration with UCR.

C.7. Changes to start date or crediting period >>

There has been no claim of a reduction in greenhouse gas emissions as of the commencementdate of crediting under UCR, which is 1st Sep 2019 and 31st Dec 2023.

C.8. Permanent changes from PCN monitoring plan, applies methodology,or applied standardized baseline >>

The implemented technique and registered PCN monitoring plan have not undergone any long-term alterations.

C.9. Monitoring period number and duration>>

First Issuance Period : 4 year, 4 months – 01/Sep/2019 to 31/Dec/2023

C.12. Monitoring plan>>

First Issuance Period: 4 years, 4 months – 01/Sep/2019 to 31/Dec/2023

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) that 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 2019- 2023 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 a conservative approach.
Source of data	UCR CoU Standard Aug 2022 (Updated Ver.6)
Value applied	0.9
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of Data	For the calculation of the Emission Factor of the grid

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

Parameter	$EG_{PJ,y}$
Data unit	MWh
Description	Net electricity supplied to the NEWNE grid facility by the project activity.
Source of data Value(s) applied	Energy generation report
Procedures	The Net electricity generation by the wind power plant is recorded by the project proponent in the record logs. At the end of every month, Energy bills generated based on the total monthly electricity exported to the grid.
Monitoring frequency	Monthly
Purpose of data	To estimate Baseline Emission
Value applied:	(Ex-ante estimate)
QA/QC procedures applied:	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.
Any comment:	Data will be archived electronically for a period of 36 months beyond the end of crediting period.

Emission reduction details:

Rounddown Calculations				
Vintage Year	**Net Generation**	**Emission Factor**	**Calculated CoUs**	**Rounddown CoUs**
2019	39894	0.9	35.90	35
2020	295286	0.9	265.76	265
2021	298952	0.9	269.06	269
2022	343310	0.9	308.98	308
2023	334150	0.9	300.74	300
Total CoUs			**1,180.43**	**1177**