PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (COU) PROJECT

Title under UCR:

49.5 MW Wind Project by NSL Wind Power Company (Phoolwadi) Pvt. Ltd. in Tamilnadu.

Version 01
Date 02/06/2022

First COU Issuance Period: 10 months 21 days
Date: 11/07/2021 to 31/05/2022

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

BASIC INFORMATION	
Title of the project activity	49.5 MW Wind Project by NSL Wind Power Company (Phoolwadi) Pvt. Ltd. in Tamilnadu.
Scale of the project activity	large Scale
Completion date of the PCN	02/06/2022
Project participants	NSL Wind Power Company (Phoolwadi) Pvt. Ltd.
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: ACM0002: "Grid-connected electricity generation from renewable sources", version 13.0.0[1] (Large-scale Consolidated Methodology) Standardized Methodology: Not Applicable.
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of total GHG emission reductions	To be estimated during verification [An ex-ante estimate is 78,051 COUs per year]

[1] This project is a CDM and VCS registered project with CDM Methodology version 13, hence same is followed under UCR. Further details explained under the section B.6.

SECTION A. Description of project activity

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

The project titled "**49.5 MW Wind Power Project in Tirupur District by NSL**." is a grid connected wind power project located in village Udumalpet, Tirupur district in the state of Tamil Nadu (India). The project is an operational activity with continuous reduction of GHG under Clean Development Mechanism (CDM and also under Voluntary Standard; currently being applied under "Universal Carbon Registry" (UCR).

Purpose of the project activity:

The project activity is developed and operated by "NSL Wind Power Company (Phoolwadi) Pvt. Ltd." (part of NSL Group); hereinafter called as project proponent or PP, engaged in the capacity of an Independent Power Producer (IPP) focusing on developing green power projects in India. The project activity is defined as the installation and operation of total 33 Wind Turbine Generators (WTGs) having individual capacity of 1.5 MW; manufactured and supplied by ReGen Power, model V82 . Thus the total aggregated installed capacity is 49.5 MW, is operational in village Udumalpet, Tirupur district in the state of Tamil Nadu (India).

The project activity harnesses kinetic energy of wind (renewable source) to generate electricity. It is capable to generate around 86,724 MWh of annualized average green electricity, which is estimated based on an operational utilization factor of 20% with efficient utilization of the available wind energy through adoption of an efficient and modern technology. The power generated by this project activity has been supplied to Tamil Nadu state electricity grid, which is a part of Indian Grid system (earlier was under the regional Southern Grid). However, currently the project activity sells power to captive consumers via wheeling from the grid. Thus, the project activity contributes to emission reductions which would have otherwise caused due to the consumption of grid electricity which is predominantly fossil fuel based. Also, the project activity helps reducing the demand-supply gap in the state and also helps in contributing to the sustainable development attributes in the project region.

The details along with commissioning period are as follows:

Capacity (MW)	Details (Nos., Type & Make)	Commissioning Date
49.5	33 WTGs @1.5 MW, ReGen V82 model	11 July 2011 The first WTG has been commissioned on 11 July 2011 which is start date of operation the project activity. The project activity has been fully commissioned &running successfully. As on 31 March 2012, the project participant has completed commissioning of all 33 WECs.

SL. No	Location No.	Village
1	RKPT 465	Kondampatti
2	RAK 444	Anaikadavu
3	RIN 397	Iluppanagaram
4	RKPT 502	Kondampatti
5	RIN 421	Iluppanagaram
6	RVG 274	Vadugapalayam
7	RSP 68	Somavarapatti
8	RVP 433	Virugalpatti
9	RIN 433	Iluppanagaram
10	RVP 53	Virugalpatti
11	RVG 292	Vadugapalayam
12	RVP 86	Virugalpatti
13	RJKM 17	J. Krishnapuram
14	RJKM 529	J. Krishnapuram
15	RKPI 240	Kammalapatti
16	RKPI 257	Kammalapatti
17	RJKM 593	J. Krishnapuram
18	RSPR 433	Sencheriputhur
19	RJKM 535	J. Krishnapuram
20	RTK 137	Talakkarai
21	RSPR 157	Sencheriputhur
22	RSPR 161	Sencheriputhur
23	RAYM 40	Ayyampalayam
24	RSPR 199	Sencheriputhur
25	RJKM 62	J. Krishnapuram
26	RKTM 366	Kottamangalam
27	RKTM 389	Kottamangalam
28	RKTM 250	Kottamangalam
29	RKTM 540	Kottamangalam
30	RPM 364	Pookulam
31	RPM 331	Pookulam
32	RPM 349	Pookulam
33	RAM 65	Amandakadavu

The project activity was developed as a greenfield activity with no power generation facility existing at the project site in the pre-project scenario that can be attributed to the captive power requirement of PP. In the pre-project scenario equivalent amount of electricity would have been generated and supplied from grid for the purpose of captive consumption, thus the power displaced by the project activity would have been otherwise generated from fossil fuel dominated thermal power plant and fed to the grid which is the current baseline for the project. [Details of the HTSC Nos. and date of wheeling agreement (under group captive) shall be provided during the 1st verification.]

Hence, project activity is displacing the estimated annual net electricity generation i.e., 86,724 MWh from the southern grid (currently part of Unified Indian National Grid system), which otherwise would have been generated from fossil fuel based thermal power plant and exported to

the national grid. The project activity doesn't involve any GHG emission sources. The estimated annual average CO_2e emission reduction by the project activity is expected to be 78,051 tCO_2e; whereas actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification.

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.

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. Ministry of Environment and Forests, has stipulated economic, social, Environment and technological well-being as the four indicators of sustainable development. The project contributes to sustainable development using the following ways:

1. Social benefits:

The project helped in generating employment opportunities during the construction and operation phases. There are local people who are currently employed under the project. The project activity has led to development in infrastructure in the region like development of roads and also promotes business with improved power generation.

2. Environmental benefits:

The project is a clean technology investment in the region, which would not have been taken place in the absence of the carbon benefits, being availed by the project activity. The project activity also helps reducing the demand supply gap in the state.

By nature, the wind energy does not emit toxic substances or contaminants into the air as compared to the project baseline being established (i.e. Grid), which can be very damaging to the environment and to human beings. Toxic substances can acidify land and water ecosystems, and corrode buildings. Air contaminants can trigger heart disease, cancer and respiratory diseases like asthma. It is a very clean energy source, which does not release any pollution or produce any waste during operation. Thus, wind project has zero negative impacts, while adding many environmental benefits.

3. Economic benefits:

Wind energy projects provide many economic benefits to neighbouring communities: jobs, a new source of revenue for farmers and ranchers in the form of land lease payments, and an increased local tax base. Wind projects can also attract tourists who want to see wind farms in person. Locally owned community wind projects create even more of an economic opportunity for those involved. The following sections describe some of the potential economic impacts of wind development.

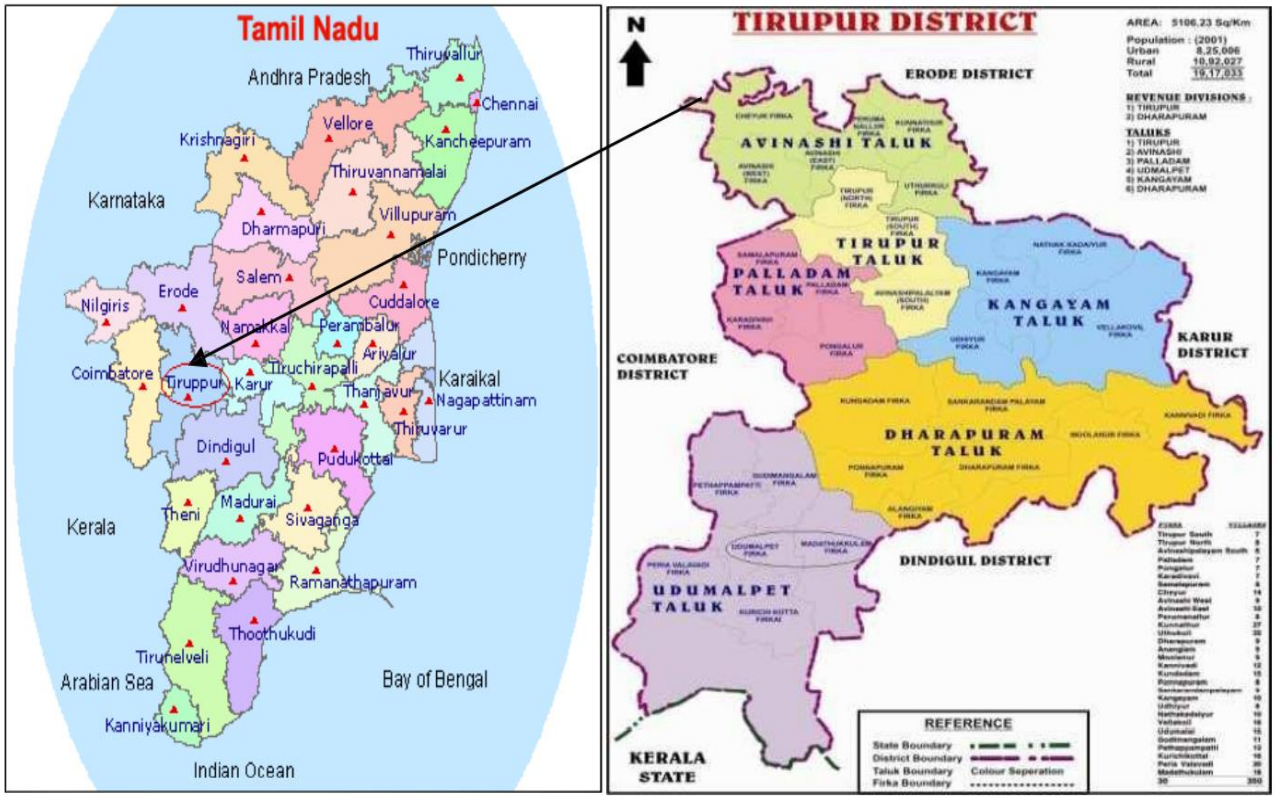
4. Technical benefits:

Project being a wind energy projects the technology itself is a clean and green; it has helped promoting clean technology drive in the state and also contributing to the national clean energy and thus addressing the concern of energy security in the country.

A.3. Location of project activity >>

The project sites are located at in village Udumalpet, Tirupur district in the state of Tamil Nadu (India). The site has been identified as ideally suited for wind power generation based on the micro siting studies and data analysis based on annual wind speed and frequency distribution, carried out by eminent agencies like Indian Institute of Tropical Meteorology and Tamil Nadu Renewable Energy Development Limited.

The representative location map is included below:



(Courtesy: google map and images)

S. No	Location No	Village	Latitude	Longitude
1	RKPT 465	Kondampatti	10° 42' 15.391" N	77° 14' 17.901" E
2	RAK 444	Anaikadavu	10° 43' 30.983" N	77° 9' 40.871" E
3	RIN 397	Iluppanagaram	10° 42' 40.834" N	77° 10' 24.108" E
4	RKPT 502	Kondampatti	10° 42' 1.297" N	77° 14' 9.738" E
5	RIN 421	Iluppanagaram	10° 43' 5.674" N	77° 9' 58.754" E
6	RVG 274	Vadugapalayam	10° 41' 36.949" N	77° 13' 48.538" E
7	RSP 68	Somavarapatti	10° 42' 2.215" N	77° 12' 33.058" E
8	RVP 433	Virugalpatti	10° 42' 21.917" N	77° 11' 12.368" E
9	RIN 433	Iluppanagaram	10° 42' 59.917" N	77° 10' 21.744" E
10	RVP 53	Virugalpatti	10° 43' 1.547" N	77° 8' 57.101" E
11	RVG 292	Vadugapalayam	10° 42' 13.301" N	77° 13' 42.751" E
12	RVP 86	Virugalpatti	10° 42' 57.446" N	77° 8' 38.451" E
13	RJKM 17	J.Krishnapuram	10° 48' 34.394" N	77° 14' 27.477" E
14	RJKM 529	J.Krishnapuram	10° 47' 45.572" N	77° 15' 32.568" E
15	RKPI 240	Kammalapatti	10° 49' 41.656" N	77° 14' 57.202" E
16	RKPI 257	Kammalapatti	10° 49' 57.304" N	77° 14' 30.628" E
17	RJKM 593	J.Krishnapuram	10° 48' 25.535" N	77° 14' 46.729" E
18	RSPR 433	Sencheriputhur	10° 48' 20.444" N	77° 15' 28.880" E
19	RJKM 535	J.Krishnapuram	10° 48' 1.713" N	77° 15' 27.621" E
20	RTK 137	Talakkarai	10° 48' 35.987" N	77° 13' 51.881" E
21	RSPR 157	Sencheriputhur	10° 48' 31.749" N	77° 15' 9.055" E
22	RSPR 161	Sencheriputhur	10° 48' 39.607" N	77° 15' 33.334" E
23	RAYM 40	Ayyampalayam	10° 49' 30.720" N	77° 14' 39.941" E
24	RSPR 199	Sencheriputhur	10° 48' 47.367" N	77° 16' 2.089" E
25	RJKM 62	J.Krishnapuram	10° 48' 16.891" N	77° 13' 46.935" E
26	RKTM 366	Kottamangalam	10° 40' 22.112" N	77° 15' 46.576" E
27	RKTM 389	Kottamangalam	10° 40' 11.207" N	77° 15' 6.924" E
28	RKTM 250	Kottamangalam	10° 39' 36.748" N	77° 15' 43.511" E
29	RKTM 540	Kottamangalam	10° 39' 27.480" N	77° 14' 12.494" E
30	RPM 364	Pookulam	10° 38' 2.905" N	77° 13' 56.287" E
31	RPM 331	Pookulam	10° 38' 5.271" N	77° 13' 25.585" E
32	RPM 349	Pookulam	10° 37' 27.713" N	77° 13' 54.617" E
33	RAM 65	Amandakadavu	10° 45' 43.902" N	77° 14' 14.830" E

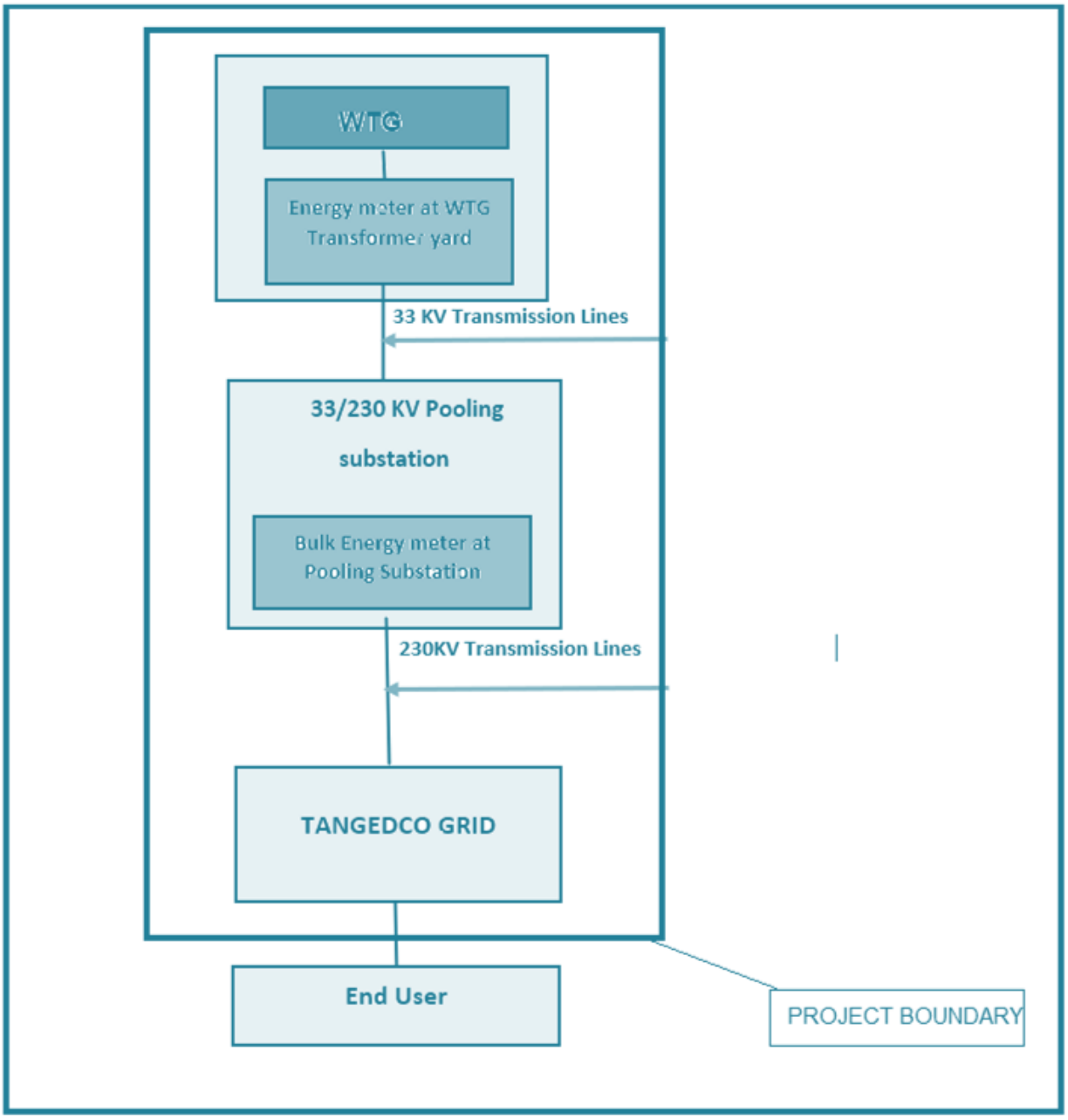
More details about the project location and related references are included under the Appendix 2.

A.4. Technologies/measures >>

The project activity employs state-of-art horizontal axis wind turbines. The WTGs comprising the project activity generates clean power which is then exported to the nearest receiving station of TNEB at Tirupur. The WTGs are grid connected and houses the metering, switchgear and other protection equipment. Representation of the same is provided below.

Technical details:

Single Line Diagram of the project:



Describe in detail

The machine details are given below:

Specification	Value
Rated power	1500 KW
Rotor Diameter	82m
Generator Type	Synchronous, Variable Speed
Braking	Aerodynamic Break
Blade Material	Glass Fibre reinforced Epoxy
Pitch System	Electromechanical, Maintenance free Toothed Belt Drive (Patented)

Further details given under the appendix 1.

A.5. Parties and project participants >>

Party (Host)	Participants
India	**NSL Wind Power Company (Phoolwadi) Private Limited** **Contact details:** Mr. Rajnikant. A rajnikant.a@nslpower.com Address: 8 - 2-684/2/A, 4th Floor, Road.No.12, Banjara Hills, Hyderabad - 500034, Telangana, India

A.6. Baseline Emissions>>

The baseline scenario identified at the PCN stage of the project activity is:

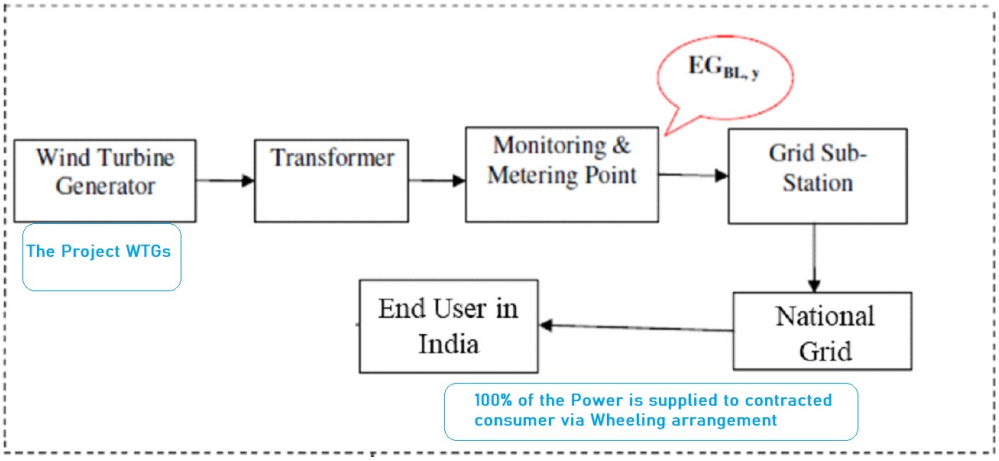
- Grid

In the absence of the project activity, the equivalent amount of electricity would have been generated from fossil fuel-based power plants and exported to the southern regional grid (which is connected to the unified Indian Grid system) as national grid is predominantly sourcing from fossil fuel-based power plants. The project activity sells power to captive consumers via wheeling from the grid. Thus, the project activity contributes to emission reductions which would have otherwise caused due to the consumption of grid electricity which is predominantly fossil fuel based.

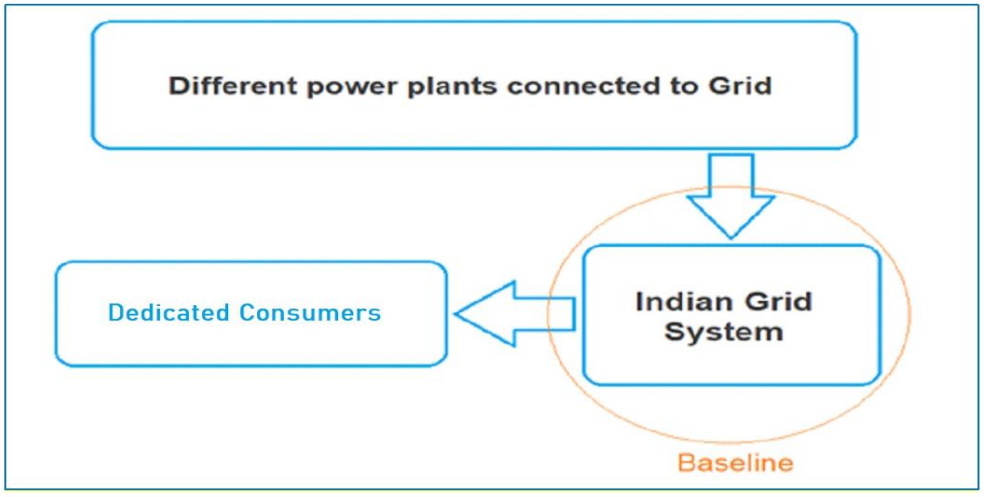
Hence, baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

Schematic diagram showing the baseline scenario:

Project Scenario:



Baseline Scenario:



A.7. Debundling>>

This project activity 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, version 13

Note: The current available version of the methodology is version 20.0; however PP had applied the version 13 of the methodology as the project is a CDM registered project under the CDM ID 9538 with the version 13 of the applied methodology. The project further registered under VCS of VERRA (VCS ID 1163) and the same methodology version was applied. Hence, for UCR registration the same version (i.e. version 13.0) of the methodology has been considered for emission reduction calculation which is in consistency with both CDM and VCS registration of the project.

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

The project activity involves generation of grid connected electricity from the operation of a new wind power project. The project activity has installed capacity of 49.5 MW which will qualify for a large-scale project activity under Type-I of the Large-scale Consolidated Methodology. The project status is corresponding to the methodology ACM0002, version 13 and applicability of methodology is discussed below:

Applicability Criterion	Project Case
1. This methodology is applicable to grid-connected renewable power generation project activities that: (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	The project activity is a Greenfield plant that is connected to Southern Grid of India. Hence the project activity satisfies the point (a) of the applicability criterion.
2. The methodology is applicable under the following conditions: The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: a) Hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), b) Wind power plant/unit, c) Geothermal power plant/unit, d) Solar power plant/unit, e)Wave power plant/unit or tidal power	The project activity is the installation of 49.5MW wind power plant. Hence the project falls under point (b) and applicable under these criteria.

Applicability Criterion	Project Case
plant/unit;	
3. In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 10 to calculate the parameter $EG_{BL,y}$): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;	Not applicable as the project activity is development of Greenfield wind power generation project.
3. In case of hydro power plants: One of the following conditions must apply: • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the project emissions section, is greater than 4 W/m2; or • The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the project emissions section, is greater than 4 W/m2. In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m2 all the following conditions must apply: • The power density calculated for the entire project activity using equation 5 is greater than 4 W/m2; • Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project that collectively constitute the generation capacity of the combined power plant; • Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; • Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4	The project activity is wind power project and hence the condition is not applicable.

Applicability Criterion	Project Case
W/m2, is lower than 15 MW; • Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than 4 W/m2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs	
5. The methodology is not applicable to the following: a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; b) Biomass fired power plants; c) A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the power plant is less than 4 W/m2. .	The project activity is Greenfield wind power project and does not fall under any of the options (a) (b) & (c). Hence the project activity satisfies the applicability criterion.

Conclusions: The project activity is a Greenfield wind power project of 49.5 MW, which is greater than 15 MW. The project proposed to export the power generated to the Tamil Nadu state electricity grid for further utilization as captive power for specific group captive consumers. Thus, methodology is applicable.

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

There is no double accounting of emission reductions in the project activity 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 generation/feeding point with the grid.

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

As per applicable methodology ACM0002, version 13, "*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 (WTGs) and the Indian grid system.

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected fossil fuel-based electricity	**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

Source		Gas	Included?	Justification/Explanation
	generation			
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

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

This section provides details of emission displacement rates/coefficients/factors established by the applicable methodology selected for the project.

As per para 19 of the approved consolidated methodology ACM0002, version 13, 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 new wind farm to harness the green power from wind energy and to use for sale to dedicated consumers under group captive arrangement via national grid through PPA arrangements. 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 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 2021-22, 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 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:

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

Where:

BE_y	=	Baseline emissions in year y (t CO_2)
$EG_{BL,y}$	=	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)
$EF_{grid,y}$	=	UCR recommended emission factor of 0.90 tCO_2/MWh has been considered. (Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

Project Emissions

As per ACM0002, version 13, 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 wind 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 paragraph 22 of ACM0002, version 13, '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 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:

Estimated annual baseline emission reductions (BE_y):

= 86,724 MWh/year ✕ 0.9 tCO_2/MWh
= 78,051 tCO_2/year (i.e., 78,051 CoUs/year)

B.6. Prior History>>

The first WTG under the project was commissioned on 11th July 2011 and the project is under continuous operation since then. The entire project was fully commissioned as on 30th March 2012.

The project was mainly invested based on carbon revenue, hence the project was registered under Clean Development Mechanism (CDM) of UNFCCC with 10 years of crediting period (Reference No: 9538, titled "Wind Power Project in Tirupur District"); also was registered under VCS mechanism (VCS ID 1163) to secure position under voluntary platform. The CDM registration was achieved on 29th Jan 2013 and crediting period of the project under CDM was started on 31st January 2013 and ends on 30th January 2023. The project has already claimed carbon credits under CDM for the period "31st Jan 2013 to 07th Mar 2014". Thereafter, the project was considered under VCS mechanism till 10th July 2021. However, the project has not been further pursued under CDM and VCS beyond 10th July 2021.

In continuation with the same, the UCR project has been considered crediting of GHG emission reductions from 11th July 2021. Hence, the first monitoring period considered under UCR is from 11th July 2021, thus there is no concern of double accounting of emission reductions.

B.7. Changes to start date of crediting period >>

Not applicable, this is the first submission of the PCN under UCR for initial registration.
The start date of crediting under UCR is considered as 11th July 2021 as explained under the section B.6. However, if any change is considered the same will be addressed during the first verification.

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

Not applicable.

B.9. Monitoring period number and duration>>

Number : 01 (First Monitoring Period)
Duration : 10 months, 21 days
11/07/2021 to 31/05/2022 (inclusive of both dates)

B.8. Monitoring plan>>

Data and Parameters available at validation (ex-ante values):

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 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. 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	0.90
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 17, Year 2022) results into higher emission factor. Hence for 2021-22 vintage UCR default emission factor remains conservative.

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

Data / Parameter	$EG_{BL, y}$
Data unit	MWh / year
Description	Net electricity supplied to the grid by the project activity
Source of data	NSL records / TNEB records
Measurement procedures (if any):	For the purpose of a simplified and reliable measurement method, PP has proposed the following procedure for the parameter: (i) If the JMR/Monthly credit notes etc. generated for the project WTGs provide net export quantity, the same will be directly considered for calculation. (ii) However, if the monthly statement does not directly provide "net electricity" units, then quantity of net electricity supplied to the grid shall be calculated using the parameters reflected in the monthly document, such as Export units, Import units and losses. However, as per the practices observed during the ER accounting under CDM and VCS for the project, the monthly accounting procedure (as may be reflected in the monthly statement e.g., JMR and Invoices etc.) includes adjustment of transmission losses both for export and import

	parameters. Thus, PP decides to consider the same given practice for ER calculation, which is conservative. Thus the final formula to be used for net electricity calculation is as follows: Net Electricity = Export – 115% of Import – Transmission Losses (%) * Export.
Measurement Frequency:	Monthly
Value applied:	86,724 (This is an annualized average value considered here for an ex-ante estimation only, whereas this is an ex-post parameter hence actual value shall be applied during monitoring and verification)
QA/QC procedures applied:	Calibration of the TNEB Main meters shall be carried out once in five 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. The energy meter details are attached in Appendix-2 for further reference. Any change/replacement in energy meters shall be addressed during periodic verification. The net amount of electricity considered for ER estimate which will be anyhow based on monthly statements to be issued by TNEB, which can be further cross verified by the monthly bills.
Purpose of data:	The Data/Parameter is required to calculate the baseline emission.
Any comment:	All the data will be archived till a period of two years from the end of the crediting period.

Appendix 1:

Technical specification of the wind machine:

Power		
Rated power:		1500 kW
Flexible power ratings:		-
Cut-in wind speed:		3.0 m/s
Rated wind speed:		Approx.12.5 m/s
Cut-out wind speed:		22 m/s
Survival wind speed:		52.5 m/s
Generator		Variable Speed, Muiti-pole Synchronous with permanent magnet Excitation
Rotor		
Diameter:		82m
Swept area:		5325 m²
Number of blades:		3
Rotor speed, range		9 to 17.3 rpm
Tower and Foundation		
Hub height		85 m
Design		Tubular, Four sections
Foundation Type		Floating foundation
Control and Safety Systems		
Control of output		Pitch Regulation
Speed Control		Variable, Micro- controller based
Low Voltage Ride Through		3 sec
Primary Break System:		Aerodynamic Break, Single pitch control/ triple redundant
Pitch system		Electromechanical, maintenance Free Toothlend Belt Drive (patented)
Remote Monitoring		VPN Visualization via web - browser
Type Classes		
Wind turbine type class		GL III A

Appendix 2:

List of energy meters and their basic details:

Old HTSC NO.	Current HTSC NO.	Date of Replacement of Energy Meter	New Energy Meter Make	S. NO	Accuracy Class	Due Date for Calibration
URA 41	39224341059	26-10-2017	L&T	17256868	0.2s	26-10-2022
URA 51	39224341078	27-10-2017	L&T	17256911	0.2s	27-10-2022
URA 52	39224341079	27-10-2017	L&T	17256910	0.2s	27-10-2022
URA 53	39224341080	27-10-2017	L&T	17256909	0.2s	27-10-2022
URA 54	39224341081	27-10-2017	L&T	17256870	0.2s	27-10-2022
URA 57	39224341084	26-10-2017	L&T	17256867	0.2s	26-10-2022
URA 58	39224341085	27-10-2017	L&T	17256869	0.2s	27-10-2022
URA 62	39224341094	27-10-2017	L&T	17256872	0.2s	27-10-2022
URA 63	39224341095	27-10-2017	L&T	17256871	0.2s	27-10-2022
URA 68	39224341100	26-10-2017	L&T	17256865	0.2s	26-10-2022
URA 69	39224341101	26-10-2017	L&T	17256866	0.2s	26-10-2022
URA 72	39224341104	26-10-2017	L&T	17256864	0.2s	26-10-2022
URA 73	39224341105	26-10-2017	L&T	17256863	0.2s	26-10-2022
URA 74	39224341107	26-10-2017	L&T	17256861	0.2s	26-10-2022
URA 80	39224341113	27-10-2017	L&T	17256908	0.2s	27-10-2022
URA 81	39224341114	26-10-2017	L&T	17256862	0.2s	26-10-2022
URA 88	39224341121	28-10-2017	L&T	17256923	0.2s	28-10-2022
URA 89	39224341122	28-10-2017	L&T	17256924	0.2s	28-10-2022
URA 90	39224341123	28-10-2017	L&T	17256922	0.2s	28-10-2022
URA 91	39224341124	28-10-2017	L&T	17256925	0.2s	28-10-2022
URA 92	39224341125	28-10-2017	L&T	17256916	0.2s	28-10-2022
URA 93	39224341126	28-10-2017	L&T	17256915	0.2s	28-10-2022