Project design document form
(Version 11.0)

BASIC INFORMATION	
Title of the project activity	Wind Power Project at Jath, Maharashtra
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the PDD	08
Completion date of the PDD	11/11/2019
Project participants	M/s ReNew Wind Energy (Jath) Private Limited Amsterdam Capital Trading B.V.
Host Party	India
Applied methodologies and standardized baselines	Selected Methodology: ACM0002 / Version 19.0. "Consolidated baseline methodology for grid-connected electricity generation from renewable sources." Standardized Baseline: Not Applicable
Sectoral scopes	Sectoral Scope : 1 Energy industries (renewable / non-renewable sources)
Estimated amount of annual average GHG emission reductions	159,773 tCO_2e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

Introduction:
The project activity involves setting up of 29 numbers of G58/0.85 MW and 30 numbers of G 97/2.0 MW Wind Turbine Generators (WTGs) by ReNew Wind Energy (Jath) Private Limited (RNWEJPL) at Jath Mandal of Sangli district in Maharashtra, India. The total installed capacity of the project activity is 84.65 MW and Gamesha Wind Turbines Private Limited is the supplier of WTGs for this project activity. The decision to increase the capacity of the project from 74.65MW to 84.65MW was taken on 20/11/2012. The project activity is expected to generate electricity at 23% PLF[1]. The net electricity generated from this project activity will be supplied to NEWNE grid[2] (Now Indian Grid).

The Gamesha Wind Turbines Private Limited make G58/0.85 MW & G 97/2.0 MW WTGs are based its technology on speed control and variable pitch, while incorporating the latest technologies to extract the maximum amount of energy from the wind and to do it as efficiently as possible. The hub heights of WTGs are 65 meter and 90 meter respectively and the rotor diameter is 58 meters and 97 meter respectively. The design lifetime of the project activity is of 20 years[3]. The project is environmentally safe as it uses renewable sources for electricity generation and also technologically sound as it uses latest advanced technology[4] with variable pitch and speed technology maximize energy production.

The project activity is a grid connected renewable energy project that supplies electricity to the NEWNE grid, thus it comes under the Sectoral scope Sectoral Scope[5]: 1 Energy industries (renewable / non-renewable sources).

Purpose of the Project activity:

The purpose of the project activity is to generate electricity using wind energy and to supply the net electricity generated to the Indian grid. This would reduce the dependency on fossil fuels for electricity generation and reduce the Green House Gas (GHG) emissions that would have happened in a baseline scenario.

Scenario existing prior to the project activity:
The project activity involves the installation of 29 new WTGs of 0.85 MW each and 30 new WTGs of 2.0 MW each. The scenario existing prior to the implementation of the project activity is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.

Baseline scenario:
The baseline scenario for the project activity is identical to the scenario existing prior to the implementation of the project activity. The annual estimated emission reduction from this project activity is- 159,773 tCO_2e and a total 1,118,411 tCO_2e, over the second crediting period of 7 years. The Baseline scenario has been explained thoroughly in section B.4.

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[1] MERC Tariff Order as submitted to the DoE

[2] Now a part of unified Indian Electricity grid

[3] The General Characteristic Manual as supplied by the technology supplier has been submitted to DoE, as an evidence of operational life time. Please refer to 1st paragraph of page 3 of 21 of the same.

[4] http://www.gamesacorp.com/en/products-and-services/wind-turbines/g9x-20-mw-en.html

[5] http://www.gamesacorp.com/en/products-and-services/wind-turbines/g9x-20-mw-en.html

Contribution to Sustainable Development:

National CDM Authority (Indian DNA), Ministry of Environment & Forests, Government of India has stipulated the following indicators for sustainable development in the interim approval guidelines for CDM projects:[6]

Social well-being:
Since, the project activity is in a rural area of Maharashtra, it will help in the overall development of the region. The project activity will result in generation of direct and indirect employment opportunities for the local people residing in nearby villages of Sangli district, both during construction and operation phases of the project activity.

Economic well-being:
The project will create a business opportunity for local stakeholders such as suppliers, manufacturers, contractors etc in Sangli region of Maharashtra.

Environmental well-being:
Since, the project uses wind as renewable source for power generation; it does not lead to any greenhouse gas emission. It will avoid the fossil fuel consumption in the NEWNE grid and in turn it will result in SOx, NOx particulate matter emission reduction.

Technological well-being:
The technology that is being used in the project activity is environmentally safe and sound. The project demonstrates harnessing wind power potential in Maharashtra and encourages setting up such projects in near future.

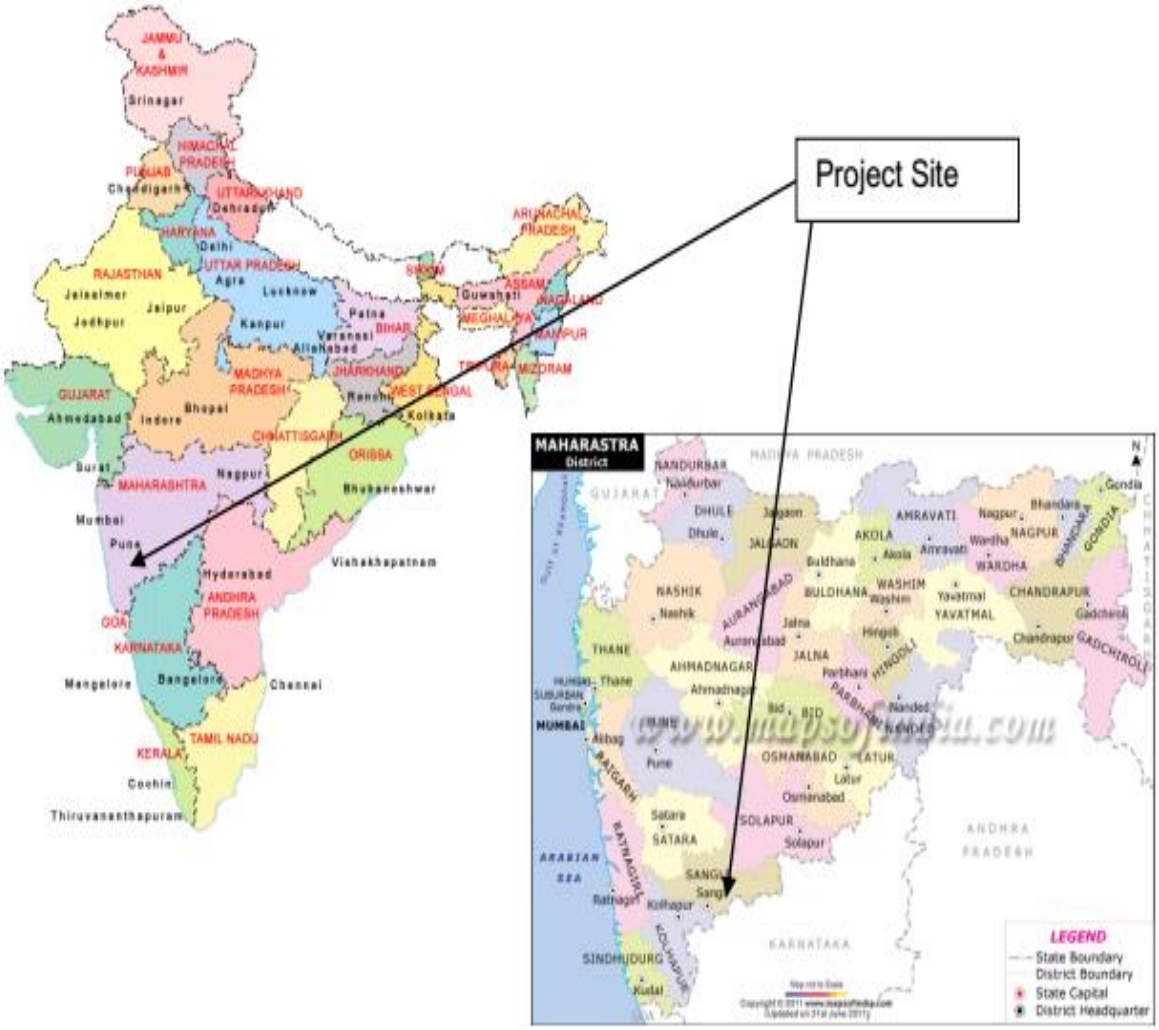
Proposed action plan for Action Plan for Sustainable Development:
RNWPPL plans to use 2% of the net revenues accrued from the sale of Certified Emission Reductions (CERs) of this Project activity post its accrual in areas related to sustainable development.

A.2. Location of project activity

Project activity is located in Sangli districts in the state of Maharashtra, India. The project site is well connected with major cities in Maharashtra. Nearest Airport from project activity is Sholapur at a distance of 112 Km and nearest railway head is Jath Road Railway Station at 23 Km distance. Wind turbine-wise detailed co-ordinates have been listed below:

Wind turbine-wise detailed co-ordinates are tabulated in the Annexure 1 of the PDD.

[6] http://ncdmaindia.gov.in/approval_process.aspx



A.3. Technologies/measures

The project activity involves installation of Gamesha Wind Turbines Private Limited make 29 number G58/0.85 MW and 30 Number G97/2.0 MW WTGs. The total installed capacity of the project activity is 84.65 MW. The project activity will generate electricity @ 23% PLF and will be supplied to NEWNE grid. The technology is clean as there are no GHG emissions associated with the generation of electricity from renewable source such as wind.

The technical specification of G58 & G 97 WTGs installed in the project activity are described below:-

Technical Parameters	G58	G97
ROTOR		
Diameter	58 Meter	97 Meter
Swept Area	2,642 Sq. Meter	7,390 Sq. Meter
Rotational Speed	19.44 – 30.8 rpm	9.6 – 17.8 rpm
BLADES		
Number of Blades	3	3
Length	28.3 Meter	47.5 Meter
Airfoils	NACA 63.XXX + FFA-W3	Gamesha
Material	Fiberglass pre-impregnated with epoxy resin	Pre-impregnated with epoxy glass fiber + carbon fiber
TOWER		

Type	Modular	Modular
Height	65 Meter	90 Meter
GEAR BOX		
Type	1 planetary stage / 2 parallel axis stage	1 planetary stage / 2 parallel stage
Ratio	1:61.74 (50Hz)	1:106.8 (50Hz)
GENERATOR		
Type	Dual power fed	Dual power fed
Rated Power	850 kW	2.0 MW
Voltage	690 V AC	690 V AC
Frequency	50 Hz	50 Hz
Potection Class	IP 54	IP 54
Poer Factor	0.95 CAP – 0.95 IND at partial loads and 1 at nominal power	0.95 CAP – 0.95 IND throughout the power range

The life of the project equipment, i.e. wind turbines are 20 years. Apart from the WTGs, the project activity also involves the installation of transformers, transmission lines/ cables and other equipment required for the generation and transfer of electricity to the grid.

Scenario existing prior to the project activity –
The project activity involves the installation of 29 new WTGs of 0.85 MW each and 30 new WTGs of 2.0 MW each. The scenario existing prior to the implementation of the project activity is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

Baseline scenario –
The baseline scenario for the project activity is identical to the scenario existing prior to the implementation of the project activity.

The proposed project activity does not involve any transfer of equipment and uses technology readily available in the host country.

A.4. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host)	ReNew Wind Energy (Jath) Private Limited (Private entity)	No
Netherlands	Amsterdam Capital Trading B.V.	No

A.5. Public funding of project activity

The project is not utilizing any Official Development Assistance (ODA) and does not involve any public funding from Annex I countries to undertake the project activity.

A.6. History of project activity

I. The project has already been commissioned on 31/12/12
II. The proposed CDM project activity is registered as CDM project having UNFCCC reference number as UN 9154;
III. The project installed capacity has been augmented from initial planning of 74.65 MW (29 numbers of G58/0.85 MW and 25 numbers of G 97/2.0 MW wind turbines) to 84.65 MW (29 numbers of G58/0.85 MW and 30 numbers of G 97/2.0 MW wind turbines).
IV. The proposed CDM project activity is not a project activity that has been deregistered**.**
V. The project underwent post registration changes. The same has been approved by UNFCCC vide PRC-9154-001[7]**.**

Currently the project is applying for renewal of crediting period

A.7. Debundling

Not Applicable as project is large scale project activity.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines

a) Selected Approved Baseline Methodology:

Methodology No : ACM0002,
Title : "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
Version : 19.0.0

Reference:
https://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD

b) ACM0002, Version 19.0.0, draws upon the following tools which have been used in the PDD:

1. Tool to calculate the emission factor for an electricity system (Version 07, EB100, annex 4)
2. Tool for demonstration and assessment of additionality (Version 07.0)

B.2. Applicability of methodologies and standardized baselines

The project activity involves generation of grid connected electricity from renewable wind energy. The project activity has a proposed capacity of 84.65 MW which will qualify for a large scale CDM project activity under Type-I of the large scale methodologies. The project status is corresponding to the methodology ACM0002 version 19.0 and applicability of methodology are discussed below.

[7] https://cdm.unfccc.int/PRCContainer/DB/prcp634339889/view

Applicability Criterion	Project Case
1. This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s)	The project activity is a Renewable Energy Project i.e. Wind Power Project which falls under applicability criteria option 1 (a) i.e., "Install a Greenfield power plant". Hence the project activity meets the given applicability criterion.
2. The methodology is applicable under the following conditions: (a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; (b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit 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, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	The option (a) of applicability criteria 2 is applicable as project is renewable energy wind power plant/unit.
3. In case of hydro power plants, one of the following conditions shall apply:[8] (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s)	The project is installation of new wind based electricity generation plants (not a hydro power plant). Hence this criteria is not applicable.

[8] Project participants wishing to undertake a hydroelectric project activity that result in a new reservoir or an increase in the volume of an existing reservoir, in particular where reservoirs have no significant vegetative biomass in the catchments area, may request a revision to the approved consolidated methodology.

is increased and the power density calculated using equation (3), is greater than 4 W/m^2; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m^2; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m^2, all of the following conditions shall apply: (i) The power density calculated using the total installed capacity of the integrated project, as per equation (4), is greater than 4 W/m^2; (ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; (iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be: a. Lower than or equal to 15 MW; and b. Less than 10 per cent of the total installed capacity of integrated hydro power project.	

4. In the case of integrated hydro power projects, project proponent shall: (a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	The project is wind power project and thus the criterion is not applicable to this project activity.
5. The methodology is not applicable to: (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/units.	(a) The project activity is Greenfield and there is no switching of fossil fuel to renewable energy. Hence the criteria is not applicable to the project activity (b) The project is not a biomass fired power plant. Hence the criteria is not applicable to the project activity.
6. In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.	Not applicable, the wind project is a Green field project activity and this project is not the enhancement or up gradation project.

7.	In addition, the applicability conditions included in the tools referred to below apply.[9]	Please refer tables below.

Tool to calculate the emission factor for an electricity system[10] - Version 07.0 (EB 100, Annex 04)

Applicability Criterion	Project Case
This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project is a grid connected Greenfield wind power project and thus the tool is applicable.
Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option IIa and option IIb. If option IIa is chosen, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	Steps involved in calculation of Emission Factor is included in section B.6.3 of the PDD as per the requirement of the tool
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project is located in non-Annex I country and hence the tool is applicable
Under this tool, the value applied to the CO_2 emission factor of biofuels is zero.	The project is a wind project and there is no involvement of biofuels.

B.3. Project boundary, sources and greenhouse gases (GHGs)

The spatial extent of the Project boundary includes the project power plant and all the power plants physically connected in the Indian Grid. The greenhouse gases and the emission sources included in or excluded from the project boundary are shown in table below:

[9] The condition in the "Combined tool to identify the baseline scenario and demonstrate additionality" that all potential alternative scenarios to the proposed project activity must be available options to project participants; does not apply to this methodology, as this methodology only refers to some steps of this tool.

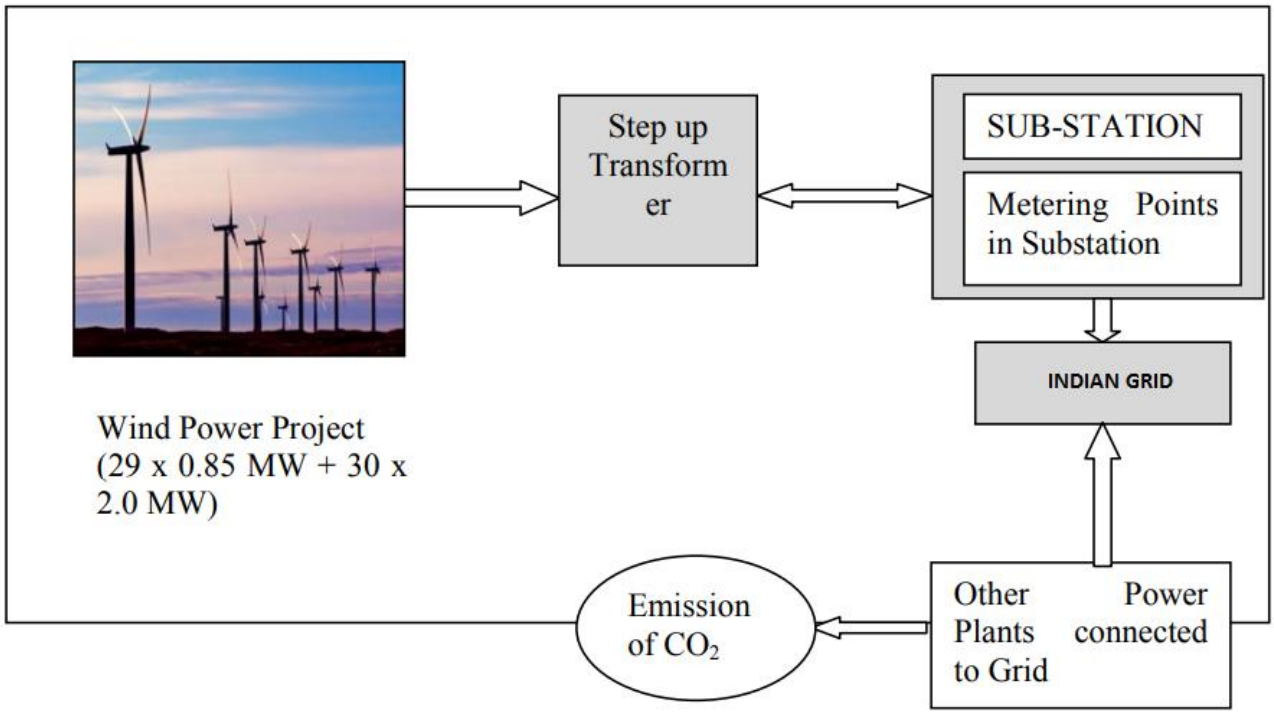
[10] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

Source		Gas	Included	Justification/explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project activity	For dry or flash steam geothermal power plants, emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	No	The project activity does not emit carbon dioxide.
		CH_4	No	The project activity does not emit CH_4.
		N_2O	No	The project activity does not emit N_2O.
	For binary geothermal power plants, fugitive emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	No	The project activity does not emit carbon dioxide.
		CH_4	No	The project activity does not emit CH_4.
		N_2O	No	The project activity does not emit N_2O.
	For binary geothermal power plants, fugitive emissions of hydrocarbons such as n-butane and isopentane (working fluid) contained in the heat exchangers	Low GWP hydrocarbon/ refrigerant	NO	Project is wind power project
	CO_2 emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO_2	No	The project activity does not emit carbon dioxide.
		CH_4	No	The project activity does not emit CH_4.
		N_2O	No	The project activity does not emit N_2O.
	For hydro power plants, emissions of CH_4 from the reservoir	CO_2	No	The project activity does not emit carbon dioxide.
		CH_4	No	The project activity does not emit CH_4.
		N_2O	No	The project activity does not emit N_2O.

As per the applied methodology ACM0002, Version 19.0.0, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

The project boundary of this project activity consists of 29 wind turbines of 0.85 MW capacity each and 30 wind turbines of 2.0 MW capacity each, step up transformer, substation and Indian Grid. The project boundary also includes all power plants connected to the Indian. The project activity does not include any sources of emission and also does not involve any GHGs.

The monitoring of net electricity supplied (monitoring parameter) by the project activity will take place at the substation via installed energy meters. The detailed project boundary is depicted below-



B.4. Establishment and description of baseline scenario

Updated baseline for the second crediting period in line with the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1.

This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 274 to 295 of Project Standard version 02.0.

The tool stipulates the following steps to be carried out.

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

The baseline scenario remains unchanged and is in compliance with all the relevant mandatory national and/or sectoral policies.

Step 1.2: Assess the impact of circumstances

The baseline scenario identified at the validation of the project activity was 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. Thus this project activity was a voluntary investment which intends to replace equivalent amount of electricity at grid from renewable source. PP was not bound to incur this investment; hence absence of project activity (i.e. the investment) does not lead to any continued baseline practice for PP within their scope whereas the continued operation of the project activity would continue to replace equivalent amount of electricity at grid. Hence, the same baseline as identified in the previous

crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period under CDM.

Nevertheless, there is an impressive growth attained by the Indian Power Sector within the recent years, the installed capacity has grown from mere 1,713 MW in 1950 to 344,002.39 MW as on 31.03.2018, consisting of 222,906.59 MW Thermal, 69,022.39 MW Renew and 6,780 MW Nuclear. Sector-wise details of installed capacity are shown in Table 1. However, it is evident from Table 1[11] that the installed capacity is predominantly coal based and therefore, is a major source of carbon dioxide emissions in India. Hence, there exists scope for reducing the CO_2 emissions in the country by increased use of renewable energy sources.

Furthermore, project participant has considered the latest available CO_2 Baseline Database (CEA database, version 14) at the time of requesting renewal of the crediting period for establishing the baseline emission factor, which itself considered all the new circumstances. Hence, the new circumstances do not have an impact on the baseline emission. As per below table, the fossil fuel based thermal power generation is dominant over the renewable based power generation, thus baseline scenario remains same as original.

Table 1: Sector- wise installed capacity (MW) as on 31/03/2018 (CEA CO_2 Baseline Database version 14)

Sector	Thermal				Nuclear	Hydro	RES	Total
	Coal	Gas	Diesel	Total				
State	64670.50	7078.95	363.93	72113.38	0.00	29858.00	2003.37	103974.75
Central	56955.00	7237.91	0.00	64192.91	6780.00	12041.42	1502.30	84516.63
Private	75546.00	10580.60	473.70	86600.30	0.00	3394.00	65516.72	155511.02
All India	197171.50	24897.46	837.63	222906.59	6780.00	45293.42	69022.39	344002.39

Thus, current baseline remain same and there is no impact if circumstances, existing at the time of requesting renewal of crediting period.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested

As explained in step 1.2, the baseline scenario was the electricity import/generation from the power plants connected to the electricity grid. The project activity in green field project and there is no any baseline equipment or investment involved in project activity. Therefore, this condition is not applicable to the project activity.

Step 1.4: Assessment of the validity of the data and parameters

This step stipulates that “Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity.”

In the context of the present project activity the emission factor has been updated along with the approach used to calculate the emission factor.

Step 2: Update the current baseline and the data and parameters

[11] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

As evident from the explanation provided above the baseline scenario remains unchanged. Only the approach used to calculate the baseline emission factor is updated as per the latest version of CEA database available at the time of PDD submission for renewal.

In line with the project standard version 02.0, the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period; and the correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period

Impact of the national and/or sectoral policies and circumstances upon the baseline scenario of the project activity

The Government of India enacted the Electricity Act in the year 2003 to harmonize and rationalize the provisions in the existing laws. The Act consolidated the laws relating to generation, transmission, distribution, trading and use of electricity. With the Enactment of the act, the then existing laws viz, The Indian Electricity Act 1910, The Electricity Supply Act, 1948 and The Electricity Regulatory Commissions Act, 1998 were repealed. The Electricity Act 2003 was in force at the time of the completion of the baseline study for the registered PDD.

Section 3 of the said act required the Central Government to prepare the national electricity policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy. In accordance with the section 3 of the Electricity Act 2003, the Central Government notified the National Electricity Policy[12] on 12th February 2005 which was in force at the time of completion of the baseline study as stated in the registered PDD of the project activity. This policy has not been revised since then and is currently in force as well.

In addition to the above policies, State Electricity Regulatory Commissions (SERCs) have announced preferential tariffs and Indian Renewable Energy Development Agency (IREDA) provides term loan assistance towards establishing biomass power projects. All these fiscal and financial incentives were in force at the time of completion of the baseline study for the registered PDD of the project activity and still continue to exist.

The state electricity regulatory commission issues tariff order in respect of procurement of power generated wind generators and there is no mandatory national and/or sectoral policies have come into effect that would affect the compliance of the current baseline. Hence, it can be concluded the current baseline complies with all relevant mandatory national and/or sectoral policies that have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period.

However, in spite of the financial incentives given by the government to renewable power projects in India the generation from the low cost must run resources connected to the Southern Grid has not increased to such an extent that this would lead to more than 50% contribution from the low cost must run resources towards the total generation from the Southern Grid.

The approved consolidated baseline methodology, ACM0002 (Version 19), has been used to determine the baseline and the estimation of emission reductions for the applicable crediting period. As referred in the methodology "*Tool to calculate the emission factor for an electricity system*" *(version 07.0)* has been used to determine continued validity of the baseline based on combined margin (CM) calculations.

[12] http://www.cercind.gov.in/Act-with-amendment.pdf

As per CEA database version 14, the fossil fuel dominated electricity is more than renewable sector and is continuing with same pattern. In light of the above discussion it is to be concluded that in accordance with relevant guidelines stipulated in the Project Standard version 02.0, national and/or sectoral policies and circumstances had been considered towards formulating the OM & BM baseline scenario. Hence the baseline scenario as applied for the present project activity remains justified.

As per the approved consolidated Methodology ACM0002 (Version 19.0) "If the project activity is the installation of a Greenfield power plant, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system". The project activity involves setting up of wind energy project to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants.

In the absence of the project activity, the equivalent amount of power would have been drawn from the Indian grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid.

The combined margin ($EF_{grid, CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM).

Calculations for this combined margin must be based on data from an official source (where available) and made publically available. The CEA database version 14 is the latest available data at the time of PD submission to DOE for validation, hence same is considered for emission factor calculations.

The combined margin of the Indian grid used for the project activity is as follows:

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.9368 tCO_2/MWh	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values, sourced from Baseline CO_2 Emission Database, Version 14.0, Dec 2018 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,OM,y}$	0.9610 tCO_2/MWh	Operating margin CO_2 emission factor for the project electricity system in year y	Calculated as the last 3 year (2015-16, 2016-17, 2017-18) generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 14.0, Dec 2018 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8723 tCO_2/MWh	Build margin CO_2 emission factor for the project electricity system in year y	Baseline CO_2 Emission Database, Version 14.0[13], May 2018 published by Central Electricity Authority (CEA), Government of India

[13] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

B.5. Demonstration of additionality

The demonstration of additionality for the proposed Project activity is being carried out in accordance with "Tool for demonstration and assessment of Additionality" Version 07.0, The tool provides a step- wise approach to demonstrate additionality which is displayed below:

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a: Define alternatives to the project activity:

If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario for the project activity as per the applied methodology ACM 0002[14], Version 19.0.0 is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid- connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".
Accordingly, the realistic and credible alternatives to the project activity are:

a) The Project is undertaken without registering it as a CDM activity.
b) Equivalent amount of electricity being generated through operation of grid-connected power plants and by addition of new generation sources.

Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above.

Sub-step 1b: Consistency with mandatory laws and regulations:

The relevant National Acts and regulations pertaining to generation of energy in India are:

- Electricity Act[15] 2003
- National Electricity Policy[16] 2005
- Tariff Policy[17] 2006

The above mentioned National Acts and regulations pertaining to generation of energy in India does not influence the choice of fuel used for power generation. There is no legal requirement on the choice of a particular technology for power generation. There are no legal and regulatory requirements that prevent Alternatives (a) and (b) from occurring.

Outcome of Sub-step 1b: The identified realistic and credible alternative scenarios to the project activity are in compliance with mandatory legislation and regulations taking into account the enforcement in the region or country and EB decisions on national and/or Sectoral policies and regulations.

Step 2: Investment analysis

Sub-step 2a: Determine appropriate analysis method

The Project activity envisages exporting the electricity to Indian (erstwhile NEWNE) grid and the revenues from the sale of electricity at the preferential tariff which is revenue other than CDM

[14] https://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD

[15] https://powermin.nic.in/sites/default/files/uploads/The%20Electricity%20Act_2003.pdf

[16] https://powermin.nic.in/en/content/national-electricity-policy

[17] https://powermin.nic.in/en/content/tariff-policy

related income. Thus, the "Option I- Apply simple cost analysis" cannot be used as for this project activity as per "Tool for demonstration and assessment of additionality[18]", Version 7.0.0.

"Option II- Investment Comparison Analysis" is applicable when the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services. This option is also not applicable as the proposed baseline scenario does not require the project participant to make an investment.

As the alternative to the project activity is supply of electricity from grid, hence as per the "Guidelines on the assessment of investment analysis[19]" version 9.0, the Benchmark analysis method is considered to be appropriate for investment analysis of the project activity.

Sub-step 2b (Option III): Apply benchmark analysis Choice of Financial Indicator:
As allowed by the Guidelines on the Assessment of Investment Analysis (Version 9.0)[20], Equity Internal Rate of Return (IRR) was selected as the financial indicator to assess the attractiveness of the project.

Choice of Benchmark:

As per guidance 12 of Guidelines on the assessment of the investment analysis (Version 09, EB 101), in cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. The value for cost of equity is selected from Appendix. The value of Return on Equity for Group- 1 projects in India is 11.75%.

The investment analysis of the project has been carried out in nominal terms, as per paragraph 7 of Appendix of the above mentioned document,

In situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used.

Thus, the inflation forecast value has been considered as 5.90%[21] forecasted value for the crediting period chosen by the Central Bank (Reserve Bank of India) of the host country.

Thus, the benchmark can be computed as 11.75%+5.90%= 17.65%.

The Project Proponent has conducted financial analysis taking the Equity IRR, on nominal basis, as the financial indicator to prove additionality. The Equity IRR in the initial capacity for 74.65 MW comes out to be 12.48% and for revised capacity of 84.65 MW comes out to be 12.39 %.

IRR input parameters: For 84.65 MW Capacity:

Particulars	Value	Unit	Source
No. of wind turbines G58	29	Nos	Term sheet between PP & Supplier

[18] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

[19] http://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf

[20] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf

[21] Average of 10 Yr WPI Inflation (Median Values) - Table A.7: Annual Average Percentage Change at http://rbi.org.in/scripts/PublicationsView.aspx?id=14022

Capacity of each wind turbine	0.85	MW	Term sheet between PP & Supplier
No. of wind turbines G97	25	Nos	Term sheet between PP & Supplier
Capacity of each wind turbine	2.0	MW	Term sheet between PP & Supplier
Capacity of the project	74.65	MW	Calculated
Net Generation	150.405	MU	Calculated
Net PLF	23.00	%	MERC Tariff Order 2011
Deration factor	0.00	%	MERC Tariff order 2011
Project cost	4,886.00	INR Million	Gamesha Offer
Debt	70	%	Draft MERC Tariff Order 2012
Debt Contribution	3420.20	INR Million	Calculated
Equity Contribution	1465.80	INR Million	Calculated
Operation and Maintenance Cost (first year)	0.768	INR Million/MW	Draft MERC Tariff Order 2012
Operation and Maintenance Cost (first year)	57.33	INR Million	Calculated
Escalation in O & M	5.72	%	Draft MERC Tariff Order 2012
Working capital: O & M Expenses for 1 month	1	Month	Draft MERC Tariff Order 2012
Receivables equivalent to 2 Months of energy charges for sale of electricity	2	Month	Draft MERC Tariff Order 2012
Maintenance Charges	15.00%	% 0f O&M	Draft MERC Tariff Order 2012
Service Tax on O&M	12.36%		http://www.servicetax.gov.in/
Preferential Tariff (Zone 1)	5.49	INR / KWh	Draft MERC Tariff Order 2012
Depreciation Rate (Companies Act) - Plant & Machinery	5.28%	%	Indian Companies Act
IT Accelerated Depreciation Rate - Plant & Machinery	7.69%	%	Appendix IA of IT Rules
Income tax rate	33.22%	%	Indian IT Act
Moratorium	0	Year	Draft MERC Tariff Order 2012
Debt repayment	10	Year	Draft MERC Tariff Order 2012
Salvage value	10%	%	MERC Tariff Order 2011
MAT rate	19.93%	%	Indian IT Act
Interest Rate	12.56%	%	Draft MERC Tariff Order 2012
Interest on Working Capital	12.06%	%	Draft MERC Tariff Order 2012

Sub-step 2c: Sensitivity Analysis:

As per Guidelines on the assessment of investment analysis, version 5, EB 62, Annex 5, point 20, only variables, including the initial investment cost, that constitute more than 20% of total project costs or total project revenues have been identified and subjected to a reasonable variation and the results of this variation have been presented below. Also as per the point 21 of the above mentioned guideline, a range of +10% to - 10% has been considered for the analysis.

For 84.65 MW:

Net Generation		Total Project Cost		O & M Cost		Preferential Tariff		Debt %	
+10%	-10%	+10%	-10%	+10%	-10%	+10%	-10%	+10%	-10%
15.52 %	9.42 %	10.05 %	15.49 %	12.13 %	12.82 %	15.52 %	9.42%	12.68 %	12.29 %

The purpose of the sensitivity analysis is to demonstrate the sensitivity of the returns from the Project activity due to uncertainty in plant load factor, capital cost, preferential tariff and O&M costs. This is an assessment of the impact of variations in above parameters from the assumed/design values, and represents magnitude of effects of these variations on the returns from the Project activity.

From the sensitivity analysis, it can be seen that the Equity IRR does not reach to the benchmark value even in favourable scenario of the variation in electricity generation, project cost, operation & maintenance (O&M) Cost, tariff and Debt ratio in project financing, which indicates that the project will remain additional in all favourable scenarios. The favourable scenarios where the Equity IRR will cross the benchmark have been explained below:

Electricity Generation Variation:

For 84.65 MW:

The Equity IRR will touch the benchmark considering a positive variation of 16.82%. The PLF has been considered in the financial analysis sourced from offer from the tariff order, as available during the investment decision of the project, which are conservative in consideration of the third party PLF assessment as conducted by PP in line with EB48, Annex 11, and a positive variation of 16.82% is not practical feasible and reasonable scenario.

Project Cost Variation:

For 84.65 MW:

The Equity IRR will touch the benchmark considering a negative variation of project cost of 16.19%. The project cost has been sourced from the Term Sheet as executed between the PP and the equipment supplier. This contractual price is firm and negative variation of the same to the tune of 16.19% is not feasible.

O&M Cost Variation:

For 84.65 MW:

The equity IRR will cross the benchmark considering a negative variation of O & M expenditure 158.85%. The O&M cost has been considered from the MERC tariff order. This is not expected to experience a negative variation due to incremental trend of inflations, material and manpower expenditures during the course of the project lifetime. So negative variation to the tune of above mentioned percentages are not reasonable.

Tariff Variation:

For 84.65 MW:

The project IRR will cross the benchmark considering a variation of 17.22%. The tariff has been considered based on MERC tariff order, where the tariff has been computed based 14[22] years levelised tariff, and a positive variation to the tune of 17.22% is not reasonable for the project.

Debt Percentage:

For 84.65 MW:

The project IRR will not cross the benchmark even with consideration of 100% debt, so there is no practical scenarios that the project will reach the bench mark in change in financing pattern.

Step 4 – Common practice Analysis

The common practice analysis of the project activity has been done as per the methodological tool "Demonstration and Assessment of Additionality", Version 7.0.

Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.

Project Capacity	Applicable Range (±50%)
84.65 MW	42.325 MW- 126.975 MW

Step 2: The host country, i.e., India has been considered as the applicable geographical area for this project as per the default option as mentioned in the Tool. In this step all plants (Nall) that deliver the same output or capacity, within the applicable output range calculated in Step 1, as the proposed project activity and have started commercial operation before the start date of the project and not registered as CDM project or not in the pipeline of development as CDM project, has been identified and listed below-

Technology Area	All projects in applicable cap range	Projects registered as CDM project or in CDM development pipeline	Projects included in N_{all}
Thermal[23]	19	0[24]	19
Hydro[25]	57	2[26]	55

[22] http://www.mercindia.org.in/pdf/Order%2058%2042/MERC_Draft%20RE%20Tariff%20Order%20(SuoMotu)_for%20FY2012-13_Case%20No%2010%20of%202012.pd

[23] CEA Database Version 7.0

[24] CEA Database Version 7.0

[25] CEA Database Version 7.0

[26] Hydro Projects Under CDM

Biomass	1[27]	0[28]	1
Wind[29]	12	12	0
Nuclear[30]	0	0	0
Solar[31]	0	0	0
Tidal-Mechanical &Thermal	0	0	0
Geothermal	0	0	0
Total	**89**	**14**	**75**

From the above list N_{all} = 75

Step 3: Within plants identified in Step 2, $\mathbf{N_{diff}}$ has been identified as per the definition of **Different technology** as mentioned in Methodological tool "Demonstration and assessment of additionality", Version 7.0.

As apart from wind power projects, all other power plants included in the N_{all} uses energy resources (thermal, hydro & biomass) which are different to wind, hence all those projects are categorized as Ndiff.

The total no of projects in N_{diff} is = (19+55+1)
= 75

Step 4: Calculate factor $F = 1-N_{diff}/N_{all}$
F = 1-(75/75)
F = 0.00

The proposed project is not common practice as the factor **F<0.2 and N_{all}- N_{diff} = 0**, which is less than 3, thus satisfying the criteria mentioned in the methodological tool "Demonstration and assessment of additionality", Version 7.0.
Chronology of Events:

Sr. No.	Event	Date
1	Investment decision of the project with CDM consideration; Resolution by Board of Directors	23/03/2012
2	Signing of Term Sheet with Technology Supplier	03/05/2012
3	Paid the first payment to the Technology Supplier (Start Date)	23/05/2012

[27] The list of references:
a. Andhra Pradesh: http://nedcap.gov.in/Biomassenergy.aspx
b. Chhattisgarh: http://www.creda.in/sites/default/files/page-document/districtwise%20BMPP.pdf
c. Gujarat: http://geda.gujarat.gov.in/projects_completed.php
d. Haryana: http://hareda.gov.in/?model=pages&nid=155
e. Karnataka: http://kredlinfo.in/Biostat.aspx
f. Maharashtra: http://www.mahaurja.com/PDF/PG2_bagase_Projcomm.pdf
g. Punjab: http://peda.gov.in/eng/cogeneration.html
h. Rajasthan: http://www.rrecl.com/PDF/Commissioned.pdf
i. Tamil Nadu: http://teda.in/index.php?r=site/index&id=2O8i9U4E3U
j. Uttar Pradesh: http://neda.up.nic.in/programmes/BEP/3-LIST-BB-PP-03-02-12.pdf

[28] CDM Pipeline

[29] Details of wind power projects is provided in the excel sheet and data taken from the wind power directory of India

[30] CEA Database Version 14.0

[31] http://www.renewablemarketsindia.com/attachments/4490_MNRE_List%20of%20MW-size-Grid-SolarPower-Plants-in-India.pdf

4	Appointment of CDM Consultant	16/04/ 2012
5	Appointment of DoE	02/05/2012
6	Prior Intimation to UNFCCC	16/06/2012
7	Local Stakeholder consultation	26/06/2012
8	Expected Commissioning of the Project	31/12/2012

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

As per the approved consolidated Methodology ACM0002 (Version 19.0) para 42:

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

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

Where:

BE_y = Baseline emissions in year y (tCO_2/yr)
$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

Note: Being greenfield project activity, the Quantity of net electricity generation that is produced and fed into the grid is represented as $EG_{PJ,y}$. However in the registered PDD & methodology the same had been represented as $EG_{facility,y}$. So in order to maintain the consistency $EG_{facility,y}$ has been used in the PPD Version 08. Thus, $EG_{PJ,y} = EG_{facility,y}$

As per methodology, combined grid emission factor as per the "Tool to calculate the emission factor for an electricity system" version 07 is calculated as below.

CO_2 Baseline Database for the Indian Power Sector, Version 14, Dec 2018[32] published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

As per Methodological tool: Tool to calculate the emission factor for an electricity system (Version 07.0, EB 100, Annex 4), following six steps have been followed:

(a) Step 1: Identify the relevant electricity systems;

(b) Step 2: Choose whether to include off-grid power plants in the project electricity system (optional);

(c) Step 3: Select a method to determine the operating margin (OM);

[32] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

(d) Step 4: Calculate the operating margin emission factor according to the selected method;

(e) Step 5: Calculate the build margin (BM) emission factor;

(f) Step 6: Calculate the combined margin (CM) emission factor.

Step 1: Identify the relevant electricity systems

As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems". It also states that "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used". Keeping this into consideration, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into five regional grids viz. Northern, Eastern, Western, North-eastern and Southern.

However since August 2006, however, all regional grids except the Southern Grid had been integrated and were operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids were treated as a single grid named as NEWNE grid from FY 2007-08 onwards for the purpose of this CO_2 Baseline Database. As of 31 December 2013, the Southern grid has also been synchronised with the NEWNE grid, hence forming one unified Indian Grid. Since the project supplies electricity to the Indian grid, emissions generated due to the electricity generated by the Indian grid as per CM calculations will serve as the baseline for this project.

Table: Geographical Scope of Indian Electricity Grid

Northern	Eastern	Western	North-Eastern	Southern
Chandigarh	Bihar	Chhattisgarh	Arunachal Pradesh	Andhra Pradesh
Delhi	Jharkhand	Gujarat	Assam	Karnataka
Haryana	Orissa	Daman & Diu	Manipur	Kerala
Himachal Pradesh	West Bengal	Dadar& Nagar Haveli	Meghalaya	Tamil Nadu
Jammu & Kashmir	Sikkim	Madhya Pradesh	Mizoram	Telangana
Punjab	Andaman & Nicobar	Maharashtra	Nagaland	Puducherry
Rajasthan		Goa	Tripura	Lakshadweep
Uttar Pradesh				
Uttarakhand				

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.
The Project Participant has chosen only grid power plants in the calculation.

Step 3: Select a method to determine the operating margin (OM)

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described under Step 4:

(a) Simple OM; or
(b) Simple adjusted OM; or
(c) Dispatch data analysis OM; or
(d) Average OM.

The data required to calculate Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers. The choice of other two options for calculating operating margin emission factor depends on generation of electricity from low-cost/ must-run sources. In the context of the methodology low cost/must run resources typically include hydro, geothermal, wind, low cost biomass, nuclear and solar generation.

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)

	2013-14	2014-15	2015-16	2016-17	2017-18
India	18.6%	16.8%	15.1%	14.6%	14.3%

Data Source: Central Electricity Authority (CEA) database Version 14, Dec'2018[33]

The above data clearly shows that the percentage of total grid generation by low-cost/ must-run plants (on the basis of average of five most recent years) for the Indian grid is less than 50 % of the total generation. Thus the Average OM method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

For the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either of the two following data vintages:

(a) **Ex-ante option:** if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.

OR

(b) **Ex-post option:** if the ex-post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

PP has chosen ex-ante option for calculation of Simple OM emission factor using a 3-year generation-weighted average, based on the most recent data available at the time of submission of the PD to the DOE for validation.

OM determined at validation stage will be the same throughout the crediting period. There will be no requirement to monitor & recalculate the emission factor during the crediting period.

Step 4: Calculate the operating margin emission factor ($EF_{grid,OMSimple,y}$) according to the selected method

The operating margin emission factor has been calculated using a 3 year data vintage:

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2015-16	2016-17	2017-18

[33] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

INDIAN Grid	871,753	916,278	960,693

Simple Operating Margin (tCO_2/MWh) (incl. Imports)			
	2015-16	**2016-17**	**2017-18**
INDIAN Grid	0.9655	0.9636	0.9543

Weighted Generation Operating Margin	
INDIAN Grid	**0.9610**

Step 5: Calculate the build margin (BM) emission factor ($EF_{grid,BM,y}$)

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 72:

In terms of vintage of data, project participants can choose between one of the following two options:

(a) **Option 1** - for the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of PD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

(b) **Option 2** - For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option

1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Option 1 as described above is chosen by PP to calculate the build margin emission factor for the project activity. BM is calculated ex-ante based on the most recent information available at the time of submission of PD and is fixed for the entire crediting period.

Build Margin (tCO_2/MWh) (not adjusted for imports)	
	2017-18
INDIAN Grid	**0.8644**

Step 6: Calculate the combined margin (CM) emission factor ($EF_{grid,CM,y}$)

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 81:

The calculation of the combined margin (CM) emission factor ($EFgrid_{,CM,}y$) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM.

PP has chosen option (a) i.e weighted average CM to calculate the combined margin emission factor for the project activity.

The combined margin emissions factor is calculated as follows:

$EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)
$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (t CO_2/MWh)
W_{OM} = Weighting of operating margin emissions factor (per cent)
W_{BM} = Weighting of build margin emissions factor (per cent)

The following default values should be used for W_{OM} and W_{BM}:

Wind and solar power generation project activities: W_{OM}= 0.75 and W_{BM}= 0.25 (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods. Since project activity is of wind power generation, the above weightage has been considered for OM and BM.

Therefore, $EF_{grid,CM,y}$ = 0.9610 * 0.75 + 0.8644 * 0.25
= 0.9368 t CO_2/MWh

B.6.2. Data and parameters fixed ex ante

Data/Parameter	$EF_{grid,BM,y}$
Data unit	tCO_2/MWh
Description	Build Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 14, Dec 2018[34]
Value(s) applied	0.8644
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2017-18. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 14, published by the Central Electricity Authority, Ministry of Power, and Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

[34] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

Data/Parameter	$EF_{grid,OM,y}$
Data unit	tCO_2/MWh
Description	Operating Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 14, Dec 2018[35]
Value(s) applied	0.9610
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as 3-year generation weighted average using data for the years 2015-16, 2016-17 & 2017-18. The data are obtained from "CO_2 Baseline Database for Indian Power Sector" version 14, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

Data/Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2/MWh
Description	Combined Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 14, Dec 2018[36]
Value(s) applied	0.9368
Choice of data or measurement methods and procedures	The combined margin emissions factor is calculated as follows: $\mathbf{EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year *y* (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year *y* (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= Weighting of build margin emissions factor (%) = 25%
Purpose of data	For the calculation of the Baseline Emission
Additional comment	This parameter is fixed ex-ante for the entire crediting period.

B.6.3. Ex Ante calculation of emission reductions

Ex-ante calculation of emission reductions is equal to ex-ante calculation of baseline emissions as project emissions and leakage are nil.
Baseline emission factor (Combined Margin) ($EF_{grid,CM,y}$)
= 0.9368 tCO_2e/MWh

Annual electricity supplied to the grid by the Project ($EG_{PJ,y} = EG_{facility,y}$)
= 84.65MW*(capacity) *23 %(PLF) *8760(hours)
= 170,552(MWH)

Annual Baseline Emissions Reduction: $BE_y = EF_{grid,CM,y} * E_{GPJ,y}$
= 0.9368 tCO_2e/MWh*170,552MWh
= 159,773 $tCO_2e/year$

Leakage emissions

[35] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

[36] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

Not applicable as per ACM 0002 version 19

Project activity emissions

The Project activity does not envisage any fossil fuel consumption. Therefore, the parameter $PE_{FF,y}$ = 0 tCO_2e/ annum. Also, as the proposed CDM Project activity is not a geothermal project activity or a hydro project activity, hence, the Project emissions as per parameters $PE_{GP,y}$ and $PE_{HP,y}$ are also zero.

Therefore, PE_y = 0 tCO_2e/annum

According to equation (7), overall emission reductions (ER_y) are, $ER_y = BE_y – PE_y – LE_y$
= 159,773 - 0 - 0
= 159,773 tCO_2e

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
Year 1	159,773	0	0	159,773
Year 2	159,773	0	0	159,773
Year 3	159,773	0	0	159,773
Year 4	159,773	0	0	159,773
Year 5	159,773	0	0	159,773
Year 6	159,773	0	0	159,773
Year 7	159,773	0	0	159,773
Total	1,118,411			1,118,411
Total number of crediting years	7			
Annual average over the crediting period	159,773			159,773

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data/Parameter	$EG_{facility,y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y*
Source of data	Distribution Licensee report on energy delivered to grid (Credit Note/JMR)
Value(s) applied	170,552 (Estimated)
Measurement methods and procedures	The electricity generated and fed into the grid shall be continuously monitored using energy meters. For measuring the net electricity supplied by the project activity, the state electricity board has installed a set of energy meters (main and check) at the substation of the project activity. Monthly readings are taken jointly by the representative of Maharashtra State Electricity Transmission Co. Ltd. and site in charge of Project Proponent and a statement is prepared and signed by the representatives of both parties for total electricity exported to grid, total electricity imported from the grid and the net electricity supplied. The net electricity supplied is calculated as the difference of the total electricity exported to grid and total electricity imported from the grid by the

	project activity. The meters have an accuracy class of 0.2S The net electricity supplied to grid is a calculated value and would be determined as the difference between the electricity exported to the grid and the electricity imported from the grid by the project activity. The emission reduction would be computed on the basis of *EGfacility,y .* $EG_{facility,y} = E_{export,y} – E_{import,y}$
Monitoring frequency	Monitoring: Continuous measurement and monthly recording. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The plant management shall be responsible for the regular recording of data. Archiving: Crediting Period + 2 years Calibration Frequency[29]: Once in 5 year.
QA/QC procedures	The meter readings can be cross checked with the invoices for sale of power to ensure correctness. The meter(s) shall be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent
Purpose of data	The data will be used for calculation of emission reductions.
Additional comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/Parameter	**$EG_{export,y}$**
Data unit	MWh
Description	The quantity of electricity supplied by the project plant/unit to the grid in year *y*
Source of data	Distribution Licensee report on energy delivered to grid (Credit Note/JMR)
Value(s) applied	170,552
Measurement methods and procedures	The electricity generated and fed into the grid shall be continuously monitored using energy meters. For measuring the electricity exported by the project activity, the state electricity board has installed a set of energy meters (main and check) at the substation of the project activity. Monthly readings are taken jointly by the representative of State Electricity Transmission Co. Ltd. and site in charge of Project Proponent and a statement is prepared and signed by the representatives of both parties. The meters have an accuracy class of 0.2S
Monitoring frequency	Monitoring: Continuous measurement and monthly recording. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The plant management shall be responsible for the regular recording of data. Archiving: Crediting Period + 2 years Calibration Frequency[30]: Once in 5 year.
QA/QC procedures	The meter readings can be cross checked with the invoices for sale of power to ensure correctness. The meter(s) shall be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent
Purpose of data	The data will be used for calculation of emission reductions.
Additional comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/Parameter	$EG_{import,y}$
Data unit	MWh
Description	The quantity of electricity imported by the project plant/unit from the grid in year *y*
Source of data	Distribution Licensee report on energy delivered to grid (Credit Note/JMR)
Value(s) applied	0
Measurement methods and procedures	For measuring the electricity imported by the project activity, the state electricity board has installed a set of energy meters (main and check) at the substation of the project activity. Monthly readings are taken jointly by the representative of State Electricity Transmission Co. Ltd. and site in charge of Project Proponent and a statement is prepared and signed by the representatives of both parties. The meters have an accuracy class of 0.2S
Monitoring frequency	Monitoring: Continuous measurement and monthly recording. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The plant management shall be responsible for the regular recording of data. Archiving: Crediting Period + 2 years Calibration Frequency[31]: Once in 5 year.
QA/QC procedures	The meter readings can be cross checked with the invoices for sale of power to ensure correctness. The meter(s) shall be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent
Purpose of data	The data will be used for calculation of emission reductions.
Additional comment	The data will be kept for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/Parameter	EG_{WTG}
Data unit	MWh
Description	Daily electricity generation at the WTG controller
Source of data	Power Generation Reports from O&M Contractor
Value(s) applied	0
Measurement methods and procedures	The data will be monitored via project activity WTG Controllers and will be recorded daily in Power Generation Reports by the O&M Contractors. This data will be used only for determination of apportioning ratio, and will be applied only in cases where the monitoring period does not coincide with the initial/final meter reading dates in the Credit Notes. Detailed apportioning procedures are described in section B.7.2.
Monitoring frequency	Monitoring: Continuous measurement. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The plant management shall be responsible for the regular recording of data. Archiving: Crediting Period + 2 years
QA/QC procedures	In case of any fault with the WTG Controller, the same would be immediately identified through an interlocking mechanism. In such a scenario the WTG Controller would be automatically shut down. The WTG Controller would then be replaced.
Purpose of data	The data will be used for calculation of emission reductions.
Additional comment	The data will be kept for two years after the end of the crediting period or the

	last issuance of CERs for this project activity, whichever occurs later.

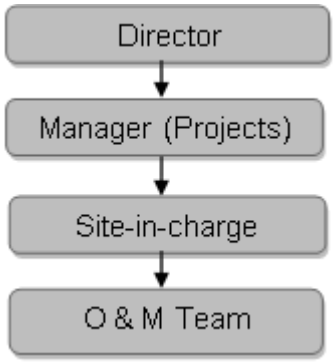
B.7.2. Sampling plan

Data and parameters monitored in section B.7.1, will not be determined by a sampling approach, hence not applicable.

B.7.3. Other elements of monitoring plan

Evaluation and verification procedures: This involves recording, data collection of all wind turbines, metering of electricity generated at substation, on daily basis as well as on monthly basis. The general conditions for metering, recording, meter readings, meter inspections, Test & Checking and communication shall be as per the Power Purchase Agreement with the state utility.

The project proponent proposes following arrangements in order to carry out metering and O & M activities for all wind turbines.



Meter readings will be taken jointly at the appointed date by PP's representative, Gamesha official and Discom officials. The same will be reported to the site-in-charge and the compiled reports will be sent to the Manager (Projects) and Director. The Manager will monitor overall activity of the project and report to the

Director. As per O & M schedule, the operation and maintenance activities will be carried out by trained and qualified technical staff of Gamesha.

Each party shall maintain complete and accurate records and all other data required by each of them for the purposes of proper administration and the operation of the project.

SECTION C. Start date, crediting period type and duration

C.1. Start date of project activity

The start date of the project activity is 23/05/2012. This is the date of initial payment released to the Technology Supplier

C.2. Expected operational lifetime of project activity

20 years, 00 months

C.3. Crediting period of project activity

C.3.1. Type of crediting period

Renewable crediting period chosen for the project activity, it is the second crediting period

C.3.2. Start date of crediting period

01-01-2020 to 31-12-2026

C.3.3. Duration of crediting period

7 years, 00 months

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

As per the Schedule 1 of the EIA notification dated 1/12/2009, given by the Ministry of Environment and Forests under the Environment (Protection) Act 1986, the proposed Project activity does not fall under the list of activities requiring EIA as the environmental impacts for such project are not considered as significant by the host Party or Project Proponent.

D.2. Environmental impact assessment

The project being harnessing environmentally biennial wind power through well establish technological option which has no adverse impacts on the local as well as global environment and help in mitigating anthropogenic climate change, environmental impacts for such project are not considered as significant by the Host Party or Project Proponent.

SECTION E. Local stakeholder consultation

E.1. Modalities for local stakeholder consultation

RNWEJPL had identified stakeholders for their wind power project in Jath, Sangli District, Maharashtra. The identified stakeholders have been invited through prior written personal invitations for the schedule consultation as taken place on 26/06/2012 at specified venue.

Following stakeholders were invited via personal invitation letters.

1. Representatives from Gamesha Wind Turbines Private Limited
2. Employees of RNWEJPL
3. Panchayets representatives of the Rampur and Jath Villages
4. Local Villagers from nearby area
5. Site workers/operators

E.2. Summary of comments received

Meeting started with opening speech by representative from Technology Supplier, (Gamesha Wind Turbines). He introduced all guest on dais. The representative of project proponent explained Technical aspects of Project to stakeholders. He also explained about social, environmental & economic benefits of the Project. He also elaborated about CDM & its requirement for the current project. After the presentation, the session was open for questions/feedback from stakeholders.

The villagers raised various queries as summarised below:
1. Number of turbines going to be commissioned
2. Any possible impacts of the turbines on rain pattern

All the above queries have been suitable and satisfactorily replied / clarified by Gamesha Wind Turbines Private Limited and project proponent’s representatives. Local stakeholders welcome the project and express their support to the project. The meeting was concluded by vote of thanks to all the participants.

E.3. Consideration of comments received

There was no negative feedback from any of the stakeholders. Hence, there is no need to take due account of the comments.

SECTION F. Approval and authorization

Letter of approval from the DNA, India (NCDMA, Ministry of Environment & forest Government of India) has been provided to DOE.

Appendix 1. Contact information of project participants

Organization name	ReNew Wind Energy (Jath) Private Limited
Country	India
Address	MG Road, 601-604, 6th Floor, DLF Corporate Park, Gurgaon, Haryana, 122001, India
Telephone	+91- 124 – 4896670/80
Fax	-
E-mail	parag@renewpower.in
Website	www.renewpower.in
Contact person	Mr. Parag Sharma

Organization name	Amsterdam Capital Trading B.V.
Country	Netherlands
Address	Herengracht 469, 1017 BS, Amsterdam, The Netherlands, Netherlands
Telephone	-
Fax	-
E-mail	-
Website	www.renewpower.in
Contact person	Mr. Jaap Janssen

Appendix 2. Affirmation regarding public funding

The project is not utilizing any public funding from the Annex I countries and does not create any diversion of the Official Development Assistance (ODA).

Appendix 3. Applicability of methodologies and standardized baselines

Please refer PDD Section B.2

Appendix 4. Further background information on ex ante calculation of emission reductions

Refer to PDD section B.6.3 for further information on ex ante calculation of emission reductions

Appendix 5. Further background information on monitoring plan

The purpose of the monitoring plan is to measure the net electricity supplied to the grid by the project activity, on the basis of which emission reductions are calculated. The source of the monitored data will be Credit Notes purchase of electricity generated from the WTGs.

For each WTG in the project activity, the distribution licensee would report electricity exported and imported from the grid. The net electricity supplied to the grid would be reported as the difference between the export and import from the WTG. The electricity export and import data will be monitored via main and check meters connected to feeders at the respective sub-stations. Multiple WTGs would be connected to each feeder, some of which would be part of the project activity (WTGs under this project activity) and some of which would not be part of the project activity (WTGs owned by other entities). Distribution licensee follows an apportioning procedure to account for electricity generation from individual WTGs based on data from individual WTG controllers.

The electricity exported and imported from the grid is recorded on a monthly basis, jointly in the presence of representatives of project proponent (O&M Contractors) and distribution licensee personnel. Following the joint meter readings, the O&M Contractors provide the readings of the WTG

controller to Distribution licensee. Based on the monthly export and import data as per main/check meters and the WTG controller readings, distribution licensee provides a break-up of the electricity exported and imported for each WTG.

The net electricity generation from each WTG is determined by distribution licensee as follows:

$$\text{Export from WTG meter} = \frac{\text{Generation at WTG controller}}{\text{Total generation at all WTG controllers for the feeder}} \times \text{Export from distribution licensee main/check meter}$$

$$\text{Import from WTG meter} = \frac{\text{Generation at WTG controller}}{\text{Total generation at all WTG controllers for the feeder}} \times \text{Import from distribution licensee main/check meter}$$

Net Electricity Exported from WTG = Export from WTG – Import from WTG

The above calculations would be carried out solely by distribution licensee and only the final apportioned electricity export, import, and net export for each WTG would be reported by distribution licensee in the Credit Notes. The details of the joint meter readings are not reported in the credit notes issued by distribution licensee.

Monitoring Frequency:

A monthly joint meter reading of the energy meters would be carried out by distribution licensee officials and O&M contractors (representatives of the project promoter).

Apportioning Procedures in case the dates of monitoring period do not match with billing cycle dates:

The dates of the monitoring period for the project activity may not coincide with the dates of the Credit Note issued by distribution licensee. In such a scenario, the net electricity generation data would have to be apportioned. For carrying out the apportioning procedures, WTG controller data (data recorded by the WTG controller software) would be utilized. The electricity generation from WTG controllers is recorded on a daily basis in the Power Generation Reports maintained by the O&M contractors. The data from Power Generation Reports would be referred for determination of the apportioning ratio. The following steps will be applied to carry out the apportioning:

1. Apportioning Ratio: Generation at WTG controller for apportioning period/ Generation at WTG controller for period covered under Credit Note period.

2. Generation at WTG controller for period covered under Credit Note period

3. Apportioned Electricity Import = Apportioning Ratio x Electricity Import as per Credit Note

4. Apportioned Net Electricity Supplied to Grid =
Apportioned Electricity Export – Apportioned Electricity Import

Appendix 6. Summary report of comments received from local stakeholders

No negative comments received from local stakeholders. Please refer section E of the PDD.

Appendix 7. Summary of post-registration changes

The project installed capacity has been augmented from initial planning of 74.65 MW (29 numbers of G58/0.85 MW and 25 numbers of G 97/2.0 MW wind turbines) to 84.65 MW (29 numbers of G58/0.85 MW and 30 numbers of G 97/2.0 MW wind turbines).

The relevant change in capacity and related change in total generation potential has been incorporated in the revised PDD and IRR_ER Sheet. The same has been approved by UNFCCC vide PRC-9154-001[37]. The following are the snapshot of the parameters that got changed in the project design:

Parameter	As per registered PDD	As per commissioned project
No. of wind turbines G97	25	30
Capacity of the project	74.65 MW	84.65 MW
Net Generation	150.405 MU	170.56 MU
Project Cost	4883.00 INR Million	5558.00 INR Million
Debt Contribution	3418.10 INR Million	3890.60 INR Million
Operation and Maintenance Cost (first year)	57.33 INR Million	65.01 INR Million
Emission Reductions	143,315 tCO2e/year	162,514 tCO2e/year
Equity IRR	12.48%	12.39%

[37] https://cdm.unfccc.int/PRCContainer/DB/prcp634339889/view

Annexure 1
Wind Turbine wise geo-coordinates of the Project

Sr No.	Turbine ID	Turbine Location	Coordinates	Sr No.	Turbine ID	Turbine Location	Coordinates
1	GR1	GJ 30N	E 52.1109; N 18.77225	28	GR28	J58/2-134	E 52.5235; N 18.76882
2	GR2	GJ 31N	E 52.4292; N 18.77912	29	GR29	J58/2-71	E 52.2824; N 18.73019
3	GR3	GJ 25	E 52.5909; N 18.74517	30	GJ I-01	GJII 33N	E 52.7415; N 18.83430
4	GR4	GJ 26	E 52.5909; N 18.74691	31	GJ I-02	GJI 28	E 52.7210; N 18.84014
5	GR5	GJ 49	E 52.1739; N 18.75966	32	GJ I-03	GJI 47	E 52.6911; N 18.84480
6	GR6	GJ 01-A	E 52.5750; N 18.75382	33	GJ I-04	J97/1-124	E 52.6574: N 18.85011
7	GR7	GJ 28N	E 52.1092; N 18.77052	34	GJ I-05	J97/1-122	E 52.6354; N 18.85479
8	GR8	GJ 45N	E 52.4906; N 18.71092	35	GJ I-06	GJII 92N	E 52.5992; N 18.85923
9	GR9	GJ 44N	E 52.5890; N 18.74863	36	GJ I-07	GJI 21N1	E 52.5898; N 18.86392
10	GR10	GJB 15	E 52.4056; N 18.78863	37	GJ I-08	GJI 16N	E 52.5657; N 18.86889
11	GR11	GJB 13	E 52.1662; N 18.76122	38	GJ I-09	GJI 18N	E 52.5270; N 18.87592
12	GR12	GJB 10	E 52.5797; N 18.75209	39	GJ I-10	GJI 19	E 52.5593; N 18.88566
13	GR13	GJB 16	E 52.5843; N 18.75036	40	GJ I-11	GJI 20N	E 52.5978; N 18.88198
14	GR14	GJB 11N	E 52.5117; N 18.77011	41	GJ I-12	GJI 87N	E 52.6517; N 18.87838
15	GR15	GJB 20	E 52.1057; N 18.76705	42	GJ I-13	GJI 88N	E 52.8172; N 18.85523
16	GR16	GJ 02-A	E 52.4410; N 18.77783	43	GJ I-14	GJI 90	E 52.8325; N 18.85068
17	GR17	GJB 24	E 52.5703; N 18.75555	44	GJ I-15	GJI 17N	E 52.8535; N 18.84539
18	GR18	GJB 27	E 52.4778; N 18.71218	45	GJ I-16	GJI 86	E 52.7175; N 18.88873
19	GR19	GJB 28	E 52.1074; N 18.76879	46	GJ I-17	GJI 84	E 52.9491; N 18.87892
20	GR20	GJB 25	E 52.4999; N 18.77140	47	GJ I-18	GJI 70	E 52.9486; N 18.85854
21	GR21	GJB 36	E 52.4646; N 18.77526	48	GJ I-19	GJII 58	E 53.0453; N 18.84815
22	GR22	GJB 01	E 52.2798; N 18.72842	49	GJ I-20	GJI 76	E 53.0716; N 18.88191
23	GR23	GJB 02	E 52.1161; N 18.77745	50	GJ I-21	J97/1-144	E 53.0865; N 18.87590
24	GR24	GJB 09	E 52.4764; N 18.77397	51	GJ I-22	J97/1-145	E 53.0953; N 18.87100
25	GR25	J58/2-100	E 52.4882; N	52	GJ I-23	GJI 15N	E 53.1165; N
			18.77269				18.86535

26	GR26	GJB 35N	E 52.5656; N 18.75728	53	GJ I-24	GJII 07	E 53.1502; N 18.85389
27	GR27	GJB 26N	E 52.3938; N 18.78298	54	GJ I-25	J97/2-112	E 53.2157; N 18.86168
55	GJ I-26	GJII 76	E 52.7691; N 18.81145	56	GJ I-27	GJII 77	E 52.7514; N 18.8158
57	GJ I-28	GJII 97	E 52.9457; N 18.8178	58	GJ I-29	GJI 23	E 52.6457; N 18.8159
59	GJ I-30	J97/2 -113	E 52.6484; N 18.80996				

Annexure 2

Commitment of sharing 2% of the Certified Emission Reduction (CERs) for the development of the local communities (Exclusively for large scale projects)

Basic purpose of this commitment is to share 2% of the CERs revenue to support the local communities in achieving their developmental goal. It may be done in different ways:

- Project Proponent (PP) may directly share the amount with respective village Panchayts and monitor their developmental activities;
- PP may develop a plan and implement it for the betterment of the villages;
- PP may involve villagers and plan and implement it jointly; or
- PP may decide other means and ways;

For the public knowledge about its support, PP should discuss it with the villagers and inform details to the Village Panchayt, block and thesil office and it should be part of discussion during the stakeholder consultation.

a. Project details

Project Title	Wind Power Project at Jath , Maharashtra		
Project Proponent	ReNew Wind Energy (Jath) Private Limited		
Project Location	Jath Village, Sangli District of Maharashtra		
Project ID	Project Type	Project Size	CERs generation per year
	The project is a large scale wind power generation project. This falls in the Sectoral Scope : 1 Energy industries (renewable / non renewable sources) Selected Methodology: ACM 0002 / Version 13.0.0; "Consolidated baseline methodology for grid-connected electricity generation from renewable sources	74.65 MW	1,43,788

b). **Estimation of 2% of CERs available**

Project Life (in years)	20
Estimation of 2% of CERs per year	2,875
Approximate market value of per CER (INR)	280
Approx amount of money available per year (INR)	8,05,214

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Dass Street, Ansari Road, Darya Ganj, Delhi - 110002

c). **Identification of villages surrounding the project/installations and key developmental issues faced by them**

Identified Villages	Total Population	Key issues for development
Rampur	1200-1300	Primary Heath Care, Education
Yeldari	~700-800	Primary Heath Care, Education
Jath	~30,000-35,000	Primary Heath Care, Education
Valsang	~5000-5500	Primary Heath Care, Education
Salekeri	~2000-2200	Primary Heath Care, Education

d). **Plan for sharing 2% of the CERs revenues (village wise)**

List the activities/support PP like provide to the identified villages			
S No	Village Name	Activities/Support proposed over the project life time	Approximate amount in INR per year
1.	Rampur	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651
2.	Yeldari	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651
3.	Jath	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	4,02,606
4.	Valsang	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651
5.	Salekeri	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support;	1,00,651

		encouraging girl child for education 4. Adult education programme 5. Scholarship	

e). **Implementation of the plan** (provide details as applicable)

How it will be implemented	Who will implement the plan			
	PP	Villagers	Villagers and PP	Others
			X	
If PP implement the activities of its own, it has to be discussed with the villagers a local contact of PP has to be established	Describe briefly (including details of the local Contact)			
If Money is given to village panchyats for developing it by villagers. PP has to discuss the money transfer mechanism with the Villagers and have a local contact office for the purpose.	Describe briefly (including money transfer mechanism and local contact of the PP)			
If activities are done by villagers and pp jointly, how activities will undertaken and how money will be channelised for the activities and what will be local contact for PP	Each year after the realization of the CER revenue ReNew have a meeting with the local Panchayts / village body to inform them the amount available for expenditure and ask them to decide development activities to be carried out within the budget in primary health and education in the village. As per the recommendation of the local Panchayat / village body the money will be then allocated to the Panchayat for expenditure on the identified development activities.			
If others arrangements are preferred by PP, what will be the arrangement and how money will be chanelised to the villages and how villagers will be informed	Describe briefly about the arrangement (including money transfer mechanism and local contact of the PP)			

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Dass Street, Ansari Road, Darya Ganj, Delhi - 110002

f) Monitoring arrangement

In general, PP has to develop a monitoring committee involving villagers, representative of PP and a local government official /reputed person of the area. Monitoring parameters and frequency has to be defined.

Monitoring Committee	Participants from Local Panchyats, ReNew and any local NGO (if available and willing) will form the monitoring committee
Monitoring Parameters	Expenditure incurred version impacts based on the satisfaction survey among the beneficiaries
Monitoring Frequency	Once in a year

e) Making the Implementation plan public

Implementation plan including local contact, money transfer mechanism and monitoring Committee has to be finalised and discussed with the villagers. Once it is agreed it has to be submitted to Village Panchayts/ Block office/ Tehsil Office and District Collector Office.

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ReNew POWER

Reporting Template

Project Name: [Wind Power Project at Jath, Maharashtra]
Project Location: [Village/Site-Jath, District-Sangli (M.S)]

Commitment of the Project Proponent

The project proponent ReNew Wind Energy (Jath) Private Limited has committed to share 2% (Approximately 8, 05,212 INR per year) of its Certified Emission Reduction (CERs) in connection with his/her CDM project based on the issuance and transaction of the CERs.

2. The committed amount of money will be utilized for addressing the identified issues in the following villages:

Identified Villages	Total Population	Key issues for development
Rampur	1200-1300	Primary Heath Care, Education
Yeldari	~700-800	Primary Heath Care, Education
Jath	~30,000-35,000	Primary Heath Care, Education
Valsang	~5000-5500	Primary Heath Care, Education
Salekeri	~2000-2200	Primary Heath Care, Education

3. Accordingly, the project proponent has identified the activities/ support for the following villages:

List the activities/support PP like provide to the identified villages			
S No	Village Name	Activities/Support proposed over the project life time	Approximate amount in INR per year
1.	Rampur	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651
2.	Yeldari	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651
3.	Jath	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	4,02,606

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4.	Valsang	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651
5.	Salekeri	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support; encouraging girl child for education 4. Adult education programme 5. Scholarship	1,00,651

4. The implementation details along with local contact and money transfer mechanism are as follows:

Panchayats / Village Committee / Gram Sabha of the identified villages which has legal existences.	
Local contact of project proponent	Money transfer mechanism
	After the mutual decision on the activities to be taken up in relation with the allocation, the amount will be transferred to the Panchayt's account in the form of Grant.

5. Details of monitoring arrangement

Monitoring Committee	Participants from Local Panchyats, ReNew and any local NGO (if available and willing) will form the monitoring committee
Monitoring Parameters	Expenditure incurred version impacts based on the satisfaction survey among the beneficiaries
Monitoring Frequency	Once in a year

Date: 21/07/2012
Place: Gurgaon

Signature of the project proponent
Name: **Mr.Parag Sharma**
Office Seal

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Document information

Version	*Date*	*Description*
11.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Make editorial improvements.
10.1	28 June 2017	Revision to make editorial improvement.
10.0	7 June 2017	Revision to: • Improve consistency with the "CDM project standard for project activities" and with the PoA-DD and CPA-DD forms; • Make editorial improvement.
09.0	24 May 2017	Revision to: • Ensure consistency with the "CDM project standard for project activities" (CDM-EB93-A04-STAN) (version 01.0); • Incorporate the "Project design document form for small-scale CDM project activities" (CDM-SSC-PDD-FORM); • Make editorial improvement.
08.0	22 July 2016	EB 90, Annex 1 Revision to include provisions related to automatically additional project activities.
07.0	15 April 2016	Revision to ensure consistency with the "Standard: Applicability of sectoral scopes" (CDM-EB88-A04-STAN) (version 01.0).
06.0	9 March 2015	Revision to: • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Make editorial improvement.
05.0	25 June 2014	Revision to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from F-CDM-PDD to CDM-PDD-FORM; • Make editorial improvement.

Version	*Date*	*Description*
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b.
04.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the project design document form for CDM project activities" (EB 66, Annex 8).
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12 Initial adoption.

Decision Class: Regulatory
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Business Function: Registration
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