Project design document form for CDM project activities

(Version 05.0)

PROJECT DESIGN DOCUMENT (PDD)	
Title of the project activity	Wind Power Project at Jath, Maharashtra
Version number of the PDD	06
Completion date of the PDD	05/09/2014
Project participant(s)	ReNew Wind Energy (Jath) Private Limited
Host Party	India
Sectoral scope and selected methodology(ies), and where applicable, selected standardized baseline(s)	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."
Estimated amount of annual average GHG emission reductions	162,514 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.

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[2]. The project is environmentally safe as it uses renewable sources for electricity generation and also technologically sound as it uses latest advanced technology[3] 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[4]: 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 NEWNE 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- 162,514 tCO_2e and a total 1,137,598 tCO_2, over the first crediting period of 7 years.

Contribution to Sustainable Development:

[1] MERC Tariff Order as submitted to the DoE

[2] 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..

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

[4] http://cdm.unfccc.int/DOE/scopelst.pdf

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[5]:

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 green house gas emission. It will avoid the fossil fuel consumption in the NEWNE grid and in turn it will result in SO_x, NO_x 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. Detailed Credible Monitorable action plan is described in Annex I of this CDM PDD.

A.2. Location of project activity

A.2.1. Host Party

India

A.2.2. Region/State/Province etc.

Region: Western India / Sate: Maharashtra / District: Sangli

A.2.3. City/Town/Community etc.

Taluka: Jath/ Site/Village: Jath

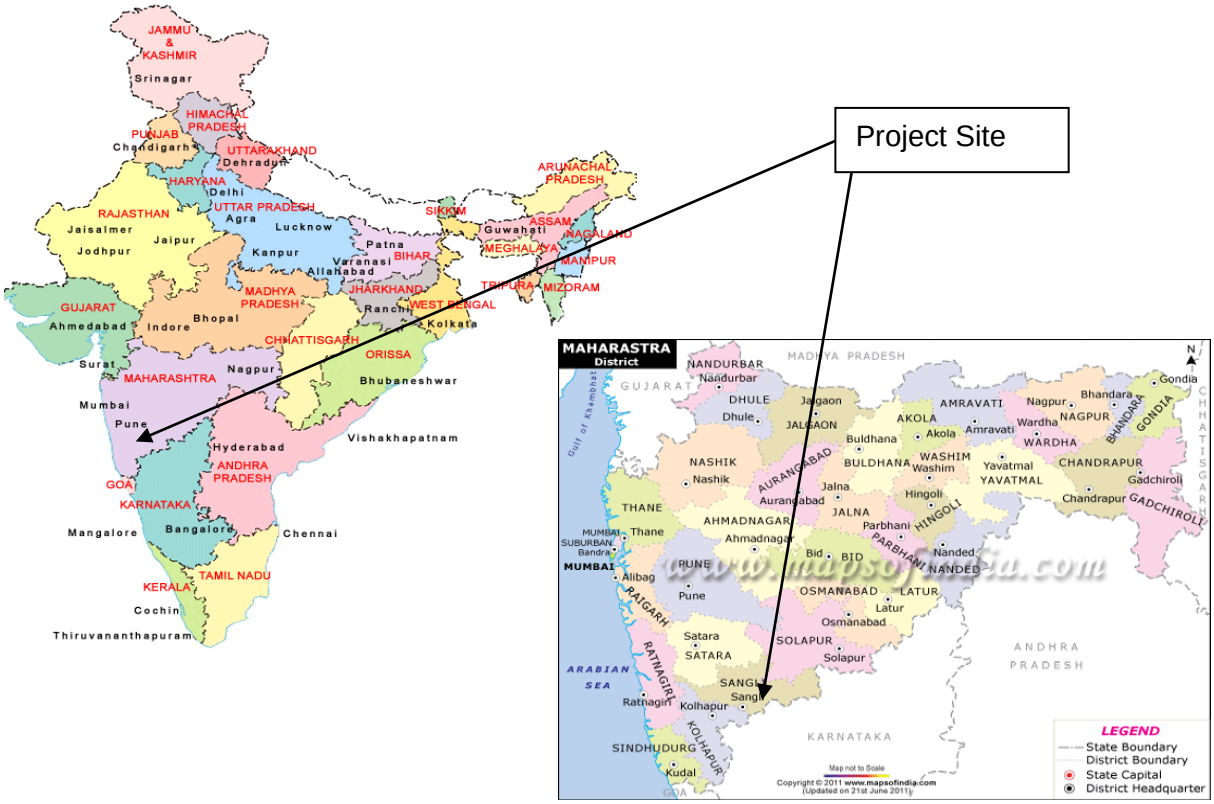
A.2.4. Physical/Geographical location

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.

[5] http://cdmindia.in/approval_process.php

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



A.3. Technologies and/or 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[6] 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

[6] http://www.gamesacorp.com/en/products-and-services/wind-turbines/catalogue/

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[7]. 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

Party involved (host) indicates host Party	Private and/or public entity(ies) project participants (as applicable)	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

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.

[7] General Characteristics Manual of Gamesha; as provided to the DoE.

SECTION B. Application of selected approved baseline and monitoring methodology and standardized baseline

B.1. Reference of methodology and standardized baseline

a) Selected Approved Baseline Methodology:

Methodology No : ACM 0002[8],
Title : "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
Version : 13.0.0
Approved in : EB 67

Reference:
https://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT

b) ACM 0002, Version 13.0.0, draws upon the following tools which have been used in the PDD:

1. Tool to calculate the emission factor for an electricity system (Version 02.2.1)
2. Tool for demonstration and assessment of additionality (Version 06.1.0)

B.2. Applicability of methodology and standardized baseline

The project activity is a new, grid connected wind based power project, therefore, the approved consolidated baseline and monitoring methodology ACM0002, Version 13.0.0, has been selected for the project activity. The table given below shows the justification of the choice of the methodology & its applicability to the project activity.

Sr. No	Applicability criterion	Justification
1	This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	The Project activity involves installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). Hence, it meets the requirement.
2	The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	The project activity involves the installation of a wind power plant. Hence, it meets the requirement.
3	In the case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected: the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the	Not applicable to the Project activity as the project is a Greenfield setup and does not involve capacity additions, retrofits or replacements.

[8] https://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT

	project activity;	
4	In case of hydro power plants, At least one of the following conditions must apply: • The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or • The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m after the implementation of the project activity; or • The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m2 after the implementation of the project activity.	Not applicable to the Project activity. The Project activity involves installation of a wind power plant.
5	In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m^2 after the implementation of the project activity all of the following conditions must apply: • The power density calculated for the entire project activity using equation 5 is greater than 4 W/m^2; • All reservoirs and hydro power plants are located at the same river and were designed together to function as an integrated project that collectively constitutes the generation capacity of the combined power plant; • The water flow between the multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; • The total installed capacity of the power units, which are driven using water from the reservoirs with a power density lower than 4 W/m2, is lower than 15 MW; • The total installed capacity of the power units, which are driven using water from reservoirs with a power density lower than 4 W/m^2, is less than 10% of the total installed capacity of the project activity from multiple reservoirs.	Not applicable to the Project activity. The Project activity involves installation of a wind power plant.
6	The methodology is not applicable to the following: • 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; • Biomass fired power plants; • A hydro power plant that results in the creation of a new single reservoir or in the increase in an existing single reservoir where the power density of the reservoir is less than 4 W/m2.	The Project activity is installation of a wind power plant and hence does not involve the following- • Switching from fossil fuels to renewable energy sources at the sites • Biomass fired power plants • Hydro power plants
7	In the case of retrofits, 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, i.e. to use the power generation equipment that was already in use prior to the	The project is not a retrofit, replacement or capacity addition. Hence this condition is not applicable.

	implementation of the project activity and undertaking business as usual maintenance".	

B.3. Project boundary

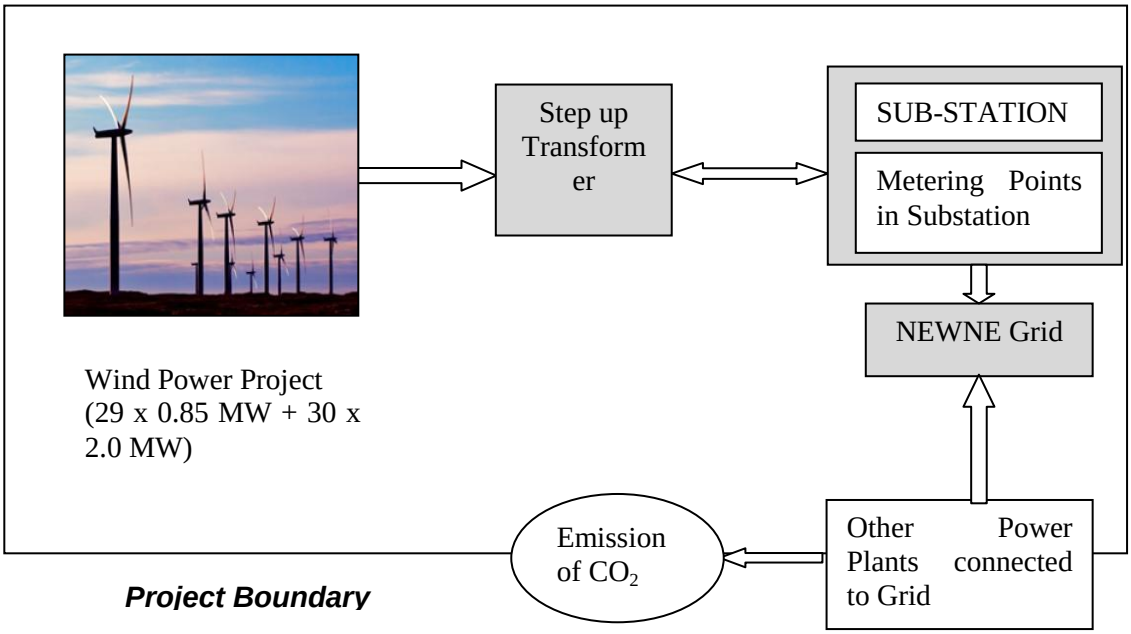
The spatial extent of the Project boundary includes the project power plant and all the power plants physically connected in the NEWNE Grid. The greenhouse gases and the emission sources included in or excluded from the project boundary are shown in table below:

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Grid connected electricity generation	CO_2	Yes	In the baseline scenario, electricity would be sourced from the NEWNE Grid which in turn would have been connected to fossil fuel fired power plants which emit CO_2.
		CH_4	No	No methane emission is expected.
		N_2O	No	No nitrous oxide emission is expected.
Project scenario	electricity generation by WTGs	CO_2	No	The project activity does not emit carbon dioxide.
		CH_4	No	No methane emission is expected.
		N_2O	No	No nitrous oxide emission is expected.

As per the applied methodology ACM 0002, Version 13.0.0, 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 the NEWNE grid. The project boundary also includes all power plants connected to this NEWNE Grid. 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

As per ACM 0002 version 13.0.0, if the Project activity is the installation of a new grid-connected renewable power plant/ unit, the baseline scenario is the following:

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 data provided by the Central Electricity Authority (CEA), an official data source has been relied upon for the calculation of the CM. The same has been detailed in Annex 3. The latest version of the database, Version 7 (January, 2012) has been used. The CM calculations have been based upon generation data, fuel consumption and the Gross Calorific value (GCV) of the fuel.

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 06.1.0, EB 69. 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[9], Version 13.0.0 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".

[9] https://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT

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[10] 2003
- National Electricity Policy[11] 2005
- Tariff Policy[12] 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 NEWNE grid and the revenues from the sale of electricity at the preferential tariff which is revenue other than CDM 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[13]", Version 6.0.0.

"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[14]" version 5.0, 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 5.0)[15], Equity Internal Rate of Return (IRR) was selected as the financial indicator to assess the attractiveness of the project.

[10] http://www.powermin.nic.in/acts_notification/electricity_act2003/pdf/The%20Electricity%20Act_2003.pdf

[11] http://www.powermin.nic.in/whats_new/national_electricity_policy.htm

[12] http://www.powermin.nic.in/whats_new/pdf/Tariff_Policy.pdf

[13] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.0.0.pdf

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

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

Choice of Benchmark:

As per guidance 12 of Guidelines on the assessment of the investment analysis (Version 05, EB 62), 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%[16] 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 74.65 MW Capacity:

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

[16] 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

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

For 85.65 MW Capacity:

Particulars	Value	Unit	Source
No. of wind turbines G58	29	Nos	Term sheet between PP & Supplier
Capacity of each wind turbine	0.85	MW	Term sheet between PP & Supplier
No. of wind turbines G97	30	Nos	Term sheet between PP & Supplier
Capacity of each wind turbine	2.0	MW	Term sheet between PP & Supplier
Capacity of the project	84.65	MW	Calculated
Net Generation	170.55	MU	Calculated
Net PLF	23.00	%	MERC Tariff Order 2011
Deration factor	0.00	%	MERC Tariff order 2011
Project cost	5,558.00	INR Million	Gamesha Offer
Debt	70	%	Draft MERC Tariff Order 2012
Debt Contribution	3,890.60	INR Million	Calculated
Equity Contribution	1,667.40	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)	65.01	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 74.65 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%

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%
15.42%	9.34%	9.92%	15.38%	12.03%	12.73%	15.42%	9.34%	12.58%	12.20%

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 74.65 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.

For 84.65 MW:

The Equity IRR will touch the benchmark considering a positive variation of 17.22%. 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 17.22% is not practical feasible and reasonable scenario.

Project Cost Variation:

For 74.65 MW:

The Equity IRR will touch the benchmark considering a negative variation of project cost of 15.88%. 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 15.88% is not feasible.

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 74.65 MW:

The equity IRR will cross the benchmark considering a negative variation of O & M expenditure 155.15%. 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.

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 74.65 MW:

The project IRR will cross the benchmark considering a variation of 16.82%. The tariff has been considered based on MERC tariff order, where the tariff has been computed based 14[17] years levelised tariff, and a positive variation to the tune of 16.82% is not reasonable for the project.

For 84.65 MW:

[17] MERC Tariff Order, Page 40. http://www.mercindia.org.in/pdf/Order%2058%2042/MERC_Draft%20RE%20Tariff%20Order%20(SuoMotu)_for%20FY2012-13_Case%20No%2010%20of%202012.pdf

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[18] years levelised tariff, and a positive variation to the tune of 17.22% is not reasonable for the project.

Debt Percentage:

For 74.65 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..

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 6.1.0.

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 (N_{all}) 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-

[18] MERC Tariff Order, Page 40. http://www.mercindia.org.in/pdf/Order%2058%2042/MERC_Draft%20RE%20Tariff%20Order%20(SuoMotu)_for%20FY2012-13_Case%20No%2010%20of%202012.pdf

Technology Area	All projects in applicable cap range	Projects registered as CDM project or in CDM development pipeline	Projects included in N_{all}
Thermal[19]	19	0[20]	19
Hydro[21]	57	2[22]	55
Biomass	1[23]	0[24]	1
Wind[25]	12	12	0
Nuclear[26]	0	0	0
Solar[27]	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 6.1.0.

[19] CEA Database Version 7.0

[20] CDM Pipeline

[21] CEA Database Version 7.0

[22] Hydro Projects Under CDM:

Teesta I-III: http://cdm.unfccc.int/Projects/Validation/DB/4NUB299IQ53P6M05UQYZDMM57L6JA4/view.html

Malana: http://cdm.unfccc.int/Projects/Validation/DB/IGIXOH2HCUH72OAA7ICZWTUULS9H8V/view.html

[23] 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

these are only the publically available credible database of commissioned / operational Biomass projects from India, which the project proponent has considered for common practice analysis.

[24] CDM Pipeline

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

[26] CEA Database Version 7.0

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

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 $N_{diff.}$

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

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

The proposed project is not common practice as the factor **F<0.2** and $\mathbf{N_{all}- N_{diff} = 0}$**,** which is less than 3**,** thus satisfying the criteria mentioned in the methodological tool "Demonstration and assessment of additionality", Version 06.1.0.

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
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. Emission reductions

B.6.1. Explanation of methodological choices

Baseline Emissions
As per the equation 6 of the methodology ACM 0002 (Version 13.0.0),

$$BE_y = EG_{PJ,\,y} * EF_{grid,\,CM,\,y} \quad (1)$$

Where:

BE_y	*Baseline emissions in year y (tCO_2e)*
$EG_{PJ,\,y}$	*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)*
$EF_{grid,\,CM,\,y}$	*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_2e/MWh)*

Calculation of $EG_{PJ,\,y}$
As per methodology ACM 0002 (Version 13.0.0) $EG_{PJ,\,y}$ for Greenfield renewable energy power plant is calculated as follows-

If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$$EG_{PJ,y} = EG_{facility,y} \quad (2)$$

Where:

$EG_{PJ,y}$	*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)*
$EG_{facility,y}$	*Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)"*

Calculation of $EF_{grid,CM,y}$

The methodology ACM 0002 (Version 13.0.0) requires that the combined margin for the grid be calculated in accordance with the procedure provided in the *"Tool to calculate the emission factor for an electricity system".*

As per version 02.2.1 of "Tool to calculate emission factor for an electricity system[28]" to calculate emission factor for an electricity system, following steps are included in the calculation of the emission factor for the baseline scenario:

STEP 1: Identify the relevant electricity systems.
STEP 2: Choose whether to include off-grid power plants in the project electricity system (optional).
STEP 3: Select a method to determine the operating margin (OM).
STEP 4: Calculate the operating margin emission factor according to the selected method.
STEP 5: Calculate the build margin (BM) emission factor
STEP 6: Calculate the combined margin (CM) emissions factor.

Step 1: Identifying the relevant electricity system

Grid/project electricity system is defined by the spatial extent of the power plants that are physically connected through transmission and distribution lines to the project activity (e.g. the renewable power plant location or the consumers where electricity is being saved) and that can be dispatched without significant transmission constraints.

The Southern grid and the NEWNE Grid form the two independent regional grids of India. As the project activity comprises the project activity located in the state of Maharashtra, the NEWNE grid is the project electricity system of the proposed CDM project activity.

Each state in a regional grid meets its own demand with its own generation facilities and also with allocation from power plants owned by the central sector. Depending on the demand and generation, there are electricity exports and imports between states in the regional grid. The volume of the net transfers between the regions in India is relatively small and electricity is largely produced and consumed within the same states. Consequently, it is appropriate to assume that the impacts of the project activity will be confined to the regional gird in which it is located. Hence for the purpose of estimation of the baseline emission factor, the NEWNE grid has been chosen as the relevant electricity system.

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

Off-grid power plants have not been included in the project electricity system

Step 3: Selection of an Operating Margin method

The project proponent wishes to use the Simple Operating Margin (OM) method for the estimation of the baseline. The use of the Simple OM method is justified as the share of the low cost/ run resources constitute less than 50% of the total grid generation.

The data pertaining to the total grid generation and the low/cost must run resources have been included in Annex 3.

[28] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)					
	2006-07	2007-08	2008-09	2009-10	2010-11
NEWNE	18.5%	19.0%	17.4%	15.9%	17.6%
South	28.3%	27.1%	22.8%	20.6%	21.0%
India	20.9%	21.0%	18.7%	17.1%	18.4%

Note: As per the above information, it can be clearly established that the share of the low cost/ run resources constitute to less than 50% of the total grid generation.

With regards to data vintage, the project participant wishes to use the ex-ante option for calculation of Simple OM wherein 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.

Step 4: Calculation of the OM according to the Simple OM method

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2e/MWh) of all generating power plants serving the system, not including low-cost / must-run power plants / units.

The data provided by the Central Electricity Authority (CEA), an official data source has been relied upon for the calculation of the OM. The same has been detailed in Annex 3. The latest version of the database, Version7 (January, 2012) has been used. The OM calculations have been based upon generation data, fuel consumption and the Gross Calorific value (GCV) of the fuel.

Option A has been chosen for calculating Operating Margin emission factor for the project. OM has been determined based on fuel consumption and net efficiency generation of each power plant/ unit, since fuel consumption data for each power plant/ unit is available.

Assumptions

The following assumptions have been made in case of unavailability of data at station level:

Net generation: In case of stations where only gross generation is available, CEA standard values for auxiliary consumption have been applied to calculate the net generation data.

GCV: Default GCV values for some thermal power stations have been used for cases where station specific data was unavailable.

The following assumptions have been in case of unavailability of data at unit level:
Net generation: The data is not monitored at a unit level and hence the following assumptions have been made:

1. The auxiliary consumption (in % of gross generation) of the unit was assumed to be equal to that of the respective stations in the following cases:
   - All units of a station fall into the build margin; or
   - All units of a station have the same installed capacity; or
   - The units in the station have different capacities but do not differ with respect the applicable standard auxiliary consumption.

2. In all other cases, standard values for auxiliary consumption adopted by CEA were applied.

Fuel consumption and GCV: Fuel consumption and GCV are generally not measured at unit level. Instead, the specific CO_2 emissions of the relevant units were directly calculated based on heat rates.

Calculation Approach

The Simple OM has been calculated using the following formula:

$$EF_{grid,OMsimple,y} = \frac{\sum_i \left(FC_{i,y} \times NCV_{i,y} \times EF_{CO2,i,y}\right)}{EG_y} \quad (3)$$

Where:

$EF_{grid, OM simple, y}$	Simple operating margin CO_2 emission factor in year *y* (tCO_2e/MWh)
$FC_{i, y}$	Amount of fossil fuel type *i* consumed in the project electricity system in year *y* (mass or volume unit)
$NCV_{i, y}$	Net calorific value (energy content) of fossil fuel type *i* in year *y* (GJ/mass or volume unit)
$EF_{CO2, i, y}$	CO_2 emission factor of fossil fuel type *i* in year *y* (tCO_2e/GJ)
EG_y	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units, in year *y* (MWh)
I	All fossil fuel types combusted in power sources in the project electricity system in year *y*
y	The relevant year as per the data vintage chosen in Step 3

As per Annex 3, the last 3 year generation values are 1.0066, 0.9777 & 0.9707.

The 3-year generation-weighted average was taken and the same has been derived as $EF_{grid,OM,y} = 0.9842$

Step 5: Calculate the build margin emission factor

The build margin emissions factor is the generation-weighted average emission factor (tCO_2e/MWh) of all power units m during the most recent year y for which power generation data is available and will be calculated as follows:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \quad (4)$$

Where:

$EF_{grid, BM, y}$	Build margin CO_2 emission factor in year y (tCO_2e/MWh)
$EG_{m, y}$	Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)
$EF_{EL, m, y}$	CO_2 emission factor of power unit m in year y (tCO_2e/MWh)
m	Power units included in the build margin
y	Most recent historical year for which power generation data is available

As described above, the Build Margin would be calculated annually during the entire crediting period. For the purpose of ex-ante emission reduction calculations the most recent data available (from CEA for 2010-11) has been used and the build margin thus calculated is 0.8588

Therefore, $EF_{grid,BM,y} = 0.8588$

Step 6: Calculation of the combined Build Margin emission factor

The combined margin emission factor will be calculated as follows:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times w_{OM} + EF_{grid,BM,y} \times w_{BM} \quad (5)$$

Where,

$EF_{grid, BM, y}$ = Build margin CO_2 emission factor in year y (tCO_2e/MWh)

$EF_{grid, OM, y}$ = Operating margin CO_2 emission factor in year y (tCO_2e/MWh)
w_{OM} = Weightage of operating margin emissions factor (%)
w_{BM} = Weightage of build margin emissions factor (%)

As per the 'Tool to calculate the Emission Factor for an electricity system' version 02.2.1, the default values for w_{OM} and w_{BM} are taken as 0.75 and 0.25 respectively as per the guidance provided for wind project activities for the first crediting period and subsequent crediting periods.

Hence, the Baseline Emission Factor is calculated using the formula stated below:

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

Project Emissions

As per the guidance provided in the methodology ACM 0002 (Version 13.0.0), "*For most renewable power generation project activities, $PE_y = 0$. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted by using the following equation:*

$$PE_y = PE_{FF, y} + PE_{GP, y} + PE_{HP, y} \quad (6)$$

Where:

PE_y Project emissions in year y (tCO_2e)
$PE_{FF, y}$ Project emissions from fossil fuel consumption in year y (tCO_2e)
$PE_{GP, y}$ Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO_2e)
$PE_{HP, y}$ Project emissions from reservoirs of hydro power plants in year y (tCO_2e)

The project activity doesn't involve any fossil fuel consumption, hence $PE_y=0$
The project activity is not a geothermal power plant, hence $PE_{GP,y}= 0$
The project activity is not a hydroelectric power plant, $PE_{HP, y}= 0$

Thus the $PE_y= 0$

Leakage Emissions

The methodology ACM 0002 (Version 13.0.0) does not consider any leakage emissions.

Emission reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y – PE_y \quad (7)$$

Where:

ER_y Emission reductions in year y (tCO_2e)
BE_y Baseline emissions in year y (tCO_2e)
PE_y Project emissions in year y (tCO_2e)
LE_y Leakage emissions in year y (tCO_2e)

B.6.2. Data and parameters fixed ex ante

(Copy this table for each piece of data and parameter.)

Data / Parameter	W_{BM}
Unit	%
Description	Weightage of build margin emissions factor
Source of data	Latest version of the "Tool to calculate the emission factor for an electricity system" (Version02.2.1)
Value(s) applied	0.25
Choice of data or Measurement methods and procedures	Default values used as per the "Tool to calculate the emission factor for an electricity system" Version 02.2.1
Purpose of data	Calculation of combined margin emission factor of NEWNE grid
Additional comment	The value is ex-ante and will remain same throughout the crediting period of the project activity.

Data / Parameter	W_{OM}
Unit	%
Description	Weightage of operating margin emissions factor
Source of data	Latest version of the "Tool to calculate the emission factor for an electricity system" (Version02.2.1)
Value(s) applied	0.75
Choice of data or Measurement methods and procedures	Default values used as per the "Tool to calculate the emission factor for an electricity system" Version 02.2.1
Purpose of data	Calculation of combined margin emission factor of NEWNE grid
Additional comment	The value is ex-ante and will remain same throughout the crediting period of the project activity.

Data / Parameter	$EF_{grid,BM,y}$
Unit	tCO_2e/MWh
Description	Build margin for NEWNE grid
Source of data	CO_2 baseline database (Version 7.0)
Value(s) applied	0.8588
Choice of data or Measurement methods and procedures	Default values used as per the "Tool to calculate the emission factor for an electricity system" Version 02.2.1
Purpose of data	Calculation of combined margin emission factor of NEWNE grid
Additional comment	The value is ex-ante and will remain same throughout the crediting period of the project activity.

Data / Parameter	$EF_{grid, OM,y}$
Unit	tCO_2e/MWh
Description	Simple operating margin for NEWNE grid
Source of data	CO_2 baseline database (Version 7.0)

Value(s) applied	0.9842
Choice of data or Measurement methods and procedures	This value is calculated by taking weighted average of 3 years values for Simple Operating Margin of NEWNE grid viz. 2008/09, 2009/10 and 2010/11.
Purpose of data	Calculation of combined margin emission factor of NEWNE grid
Additional comment	The value is ex-ante and will remain same throughout the crediting period of the project activity.

Data / Parameter	**$EF_{grid, CM, y}$**
Unit	tCO_2e/MWh
Description	Emission factor for NEWNE grid
Source of data	Calculated as per the procedure described in PDD section B.6.1
Value(s) applied	0.9529
Choice of data or Measurement methods and procedures	This value is calculated using $EF_{grid,OM,y}$ and $EF_{grid,BM,y}$ values as per Version 02.2.1 of methodological tool to calculate the emission factor for an electricity system
Purpose of data	Calculation of Baseline emission of the project activity
Additional comment	The value is ex-ante and will remain same throughout the crediting period of the project activity.

B.6.3. Ex ante calculation of emission reductions

Detailed Calculations:

Baseline emissions (BE_y)

According to equation (1), the baseline emissions are to be calculated as follows:

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

According to equation (5), Combined margin CO_2 emission factor for grid connected power generation ($EF_{grid,CM,y}$) is calculated as follows:

$EF_{grid, CM, y} = w_{OM} * EF_{grid, OM, y} + w_{BM} * EF_{grid, BM, y}$
$= 0.75 * 0.9842 + 0.25 * 0.8588$
$= 0.9529\ tCO_2e/MWh$

Thus for ex-ante emission reduction calculations, the baseline emission factor for the grid = 0.9529 tCO_2e/MWh

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

$EG_{PJ,y}$ = 170,553 MWh

Hence, substituting values in equation 1,

BE_y= 170,553 MWh * 0.9529
= 162,514 tCO2e

Leakage emissions
No leakage emissions are considered.

Therefore, $LE_y = 0$ tCO_2e/annum

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,
$ER_y = BE_y - PE_y - LE_y$
$= 162,514 - 0 - 0$
$= 162,514$ tCO2e

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	162,514	0	0	162,514
Year 2	162,514	0	0	162,514
Year 3	162,514	0	0	162,514
Year 4	162,514	0	0	162,514
Year 5	162,514	0	0	162,514
Year 6	162,514	0	0	162,514
Year 7	162,514	0	0	162,514
Total	1,137,598	0	0	1,137,598
Total number of crediting years	7			
Annual average over the crediting period	162,514	**0**	0	162,514

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter	$EG_{facility,y}$
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	170,553
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* . $EG_{facility,y} = Eexport,y – Eimport,y$
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.

[29] As per CEA publication in Gazette of India, dated, 17th March 2006; a copy of the same is submitted to the DOE

Data / Parameter	$EG_{export,y}$
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	170,553
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.

[30] As per CEA publication in Gazette of India, dated, 17th March 2006; a copy of the same is submitted to the DOE

Data / Parameter	$EG_{import,y}$
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.

[31] As per CEA publication in Gazette of India, dated, 17th March 2006; a copy of the same is submitted to the DOE

Data / Parameter	EG_{WTG}
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.

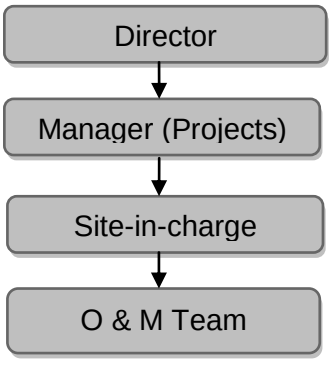
B.7.2. Sampling plan

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.

B.7.4. Date of completion of application of methodology and standardized baseline and contact information of responsible persons/ entities

Date of Completion: 05/09/2014

Contact Person:

Parag Sharma

Chief Operating Officer

ReNew Wind Energy (Jath) Pvt. Ltd.

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. 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.1.2. Expected operational lifetime of project activity

20 years, 00 months[32]

C.2. Crediting period of project activity

C.2.1. Type of crediting period

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

C.2.2. Start date of crediting period

01/01/2013 (or date of registration with UNFCCC whichever is later)

C.2.3. Length of crediting period

7 years, 00 months

[32] 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.

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

As per the Schedule 1 of the EIA notification dated 1/12/2009[33], 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. Solicitation of comments from local stakeholders

RNWEJPL had identified stakeholders for their wind power project in Jath, Sangli District, Maharastra. 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. Panchayats 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 & economical 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:[34]

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. Report on 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.

[33] http://moef.nic.in/downloads/rules-and-regulations/3067.pdf

[34] Stakeholder Consultation Meeting - Minutes of the Meeting; has been submitted to the DoE

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 and responsible persons/ entities

Project participant and/or responsible person/ entity	☒ Project participant ☐ Responsible person/ entity for application of the selected methodology (ies) and, where applicable, the selected standardized baselines to the project activity
Organization name	ReNew Wind Energy (Jath) Private Limited
Street/P.O. Box	MG Road
Building	601-604, 6th Floor, DLF Corporate Park
City	Gurgaon
State/Region	Haryana
Postcode	122001
Country	India
Telephone	+91- 124 – 4896670/80
Fax	-
E-mail	parag@renewpower.in
Website	www.renewpower.in
Contact person	
Title	Chief Operating Officer
Salutation	Mr.
Last name	Sharma
Middle name	-
First name	Parag
Department	-
Mobile	-
Direct fax	-
Direct tel.	+91- 124 – 4896670/80
Personal e-mail	parag@renewpower.in

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 methodology and standardized baseline

Please refer PDD Section B.2 for details.

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

The latest data available has been used for the estimation of the baseline emissions. The Central Electricity Authority (CEA) under the Ministry of Power, Government of India, has estimated the Build Margin and the Simple Operating Margin for NEWNE grid, the details of which is available on the following website and is detailed below as well:
http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm

Version 7.0 of the database has been used.

Weighted Average Emission Rate (tCO2/MWh) (incl. Imports) (2)

	2006-07	2007-08	2008-09	2009-10	2010-11
NEWNE	0.8245	0.8127	0.8334	0.8234	0.8010
South	0.7163	0.7223	0.7597	0.7483	0.7524
India	0.7972	0.7902	0.8137	0.8053	0.7876

Simple Operating Margin (tCO2/MWh) (incl. Imports) (1) (2)

	2006-07	2007-08	2008-09	2009-10	2010-11
NEWNE	1.0085	0.9999	1.0066	0.9777	0.9707
South	0.9991	0.9909	0.9729	0.9415	0.9419
India	1.0064	0.9980	0.9986	0.9695	0.9638

Build Margin (tCO2/MWh) (not adjusted for imports)

	2006-07	2007-08	2008-09	2009-10	2010-11
NEWNE	0.6313	0.5977	0.6755	0.8123	0.8588
South	0.7013	0.7133	0.8179	0.7634	0.7339
India	0.6485	0.6253	0.7090	0.8001	0.8300

Combined Margin in tCO2/MWh (incl. Imports) (1) (2)

	2006-07	2007-08	2008-09	2009-10	2010-11
NEWNE	0.8199	0.7988	0.8410	0.8950	0.9147
South	0.8502	0.8521	0.8954	0.8525	0.8379
India	0.8275	0.8117	0.8538	0.8848	0.8969

(1) Operating margin is based on the data for the same year. This corresponds to the *ex post option* given in "Tool to Calculate the Emission Factor for an Electricity System", Ver. 2.2.1 (p.6)

(2) Adjustments for imports from other Indian grids are based on operating margin of exporting grid.

For imports from other countries, an emission factor of zero is used.

See "Tool to Calculate the Emission Factor for an Electricity System", Ver. 2.2.1 (p.4), option b

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:

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

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

Net electricity export 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:

Generation at WTG controller for apportioning period

(i) *Apportioning Ratio*

Generation at WTG controller for period covered under Credit Note period

(ii) Apportioned Electricity Export = Apportioning Ratio x Electricity Export as per Credit Note
(iii) Apportioned Electricity Import = Apportioning Ratio x Electricity Import as per Credit Note
(iv)Apportioned Net Electricity Supplied to Grid =

Apportioned Electricity Export – Apportioned Electricity Import

Appendix 6. 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 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%

The revised version of PDD is 06 and revised date of PDD is 5 September 2014.

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

ReNew Wind Energy (Jath) Pvt. Ltd.
Corporate Office: Tower 4A, 6th Floor, DLF Corporate Park,
MG Road, Gurgaon-122002(NCR Delhi) Tel:+91 1244489 6670/80
Redg. Office: Flat No. S-2, Gobind Bhawan, Gali No.-4A, Tulsi
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)			

ReNew Wind Energy (Jath) Pvt. Ltd.
Corporate Office: Tower 4A, 6th Floor, DLF Corporate Park,
MG Road, Gurgaon-122002(NCR Delhi) Tel:+91 1244489 6670/80
Redg. Office: Flat No. S-2, Gobind Bhawan, Gali No.-4A, Tulsi
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.

ReNew Wind Energy (Jath) Pvt. Ltd.
Corporate Office: Tower 4A, 6th Floor, DLF Corporate Park,
MG Road, Gurgaon-122002(NCR Delhi) Tel:+91 1244489 6670/80
Redg. Office: Flat No. S-2, Gobind Bhawan, Gali No.-4A, Tulsi
Dass Street, Ansari Road, Darya Ganj, Delhi - 110002

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

ReNew Wind Energy (Jath) Pvt. Ltd.
Corporate Office: Tower 4A, 6th Floor, DLF Corporate Park,
MG Road, Gurgaon-122002(NCR Delhi) Tel:+91 1244489 6670/80
Redg. Office: Flat No. S-2, Gobind Bhawan, Gali No.-4A, Tulsi
Dass Street, Ansari Road, Darya Ganj, Delhi - 110002

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

ReNew Wind Energy (Jath) Pvt. Ltd.
Corporate Office: Tower 4A, 6th Floor, DLF Corporate Park,
MG Road, Gurgaon-122002(NCR Delhi) Tel:+91 1244489 6670/80
Redg. Office: Flat No. S-2, Gobind Bhawan, Gali No.-4A, Tulsi
Dass Street, Ansari Road, Darya Ganj, Delhi - 110002

- - - - -

- - - - -

Document information

Version	*Date*	*Description*
05.0	25 June 2014	Revisions 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;* • Editorial improvement.
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
Document Type: Form
Business Function: Registration
Keywords: project activities, project design document