Project design document form for CDM project activities

(Version 06.0)

Complete this form in accordance with the Attachment "Instructions for filling out the project design document form for CDM project activities" at the end of this form.

PROJECT DESIGN DOCUMENT (PDD)	
Title of the project activity	Wind Power Project at Tadas, Karnataka
Version number of the PDD	09
Completion date of the PDD	03/09/2015
Project participant(s)	ReNew Wind Energy (Karnataka) 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; "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".
Estimated amount of annual average GHG emission reductions	84,835 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 63 numbers of Enercon make E-53, 800 kW Wind Turbine Generators (WTGs) by ReNew Wind Energy (Karnataka) Private Limited (RNWEKPL) at Tadas in Haveri & Darwada district of Karnataka, India. The total installed capacity of the project activity is 50.4 MW and Enercon (India) Limited is the supplier of WTGs for this project activity. The project activity is expected to generate 94,570 MWh of electricity per year. The net electricity generated from this project activity will be supplied to individual customers in the Southern grid through open access sale for first 10 years of operation to improve the financial viability of project. The model of power sale is group captive model. From 11 years onwards it is assumed that power will be sold to grid under preferential tariff till entire lifetime of project activity.

The Enercon make E-53, 800 kW WTGs are direct drive horizontal axis wind turbine with variable rotor speed. The hub heights of WTGs are 60 m/73 m and the rotor diameter is 52.9 meters. The project is environmentally safe as it uses renewable sources for electricity generation and also technologically sound as it uses latest advanced technology[1] with 3 independent pitch control systems with emergency power supply, rotor brake, rotor lock.

The project activity is a grid connected renewable energy project that supplies electricity to the Southern grid, thus it comes under the sectoral scope Sectoral Scope[2]: 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 individual customers in the Southern grid through open access sale. 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 63 new WTGs of 800 kW 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 84,835 tCO_2e and a total 593,845 tCO_2 of over the first crediting period of 7 years.

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[3]:

Social well-being:
Since, the project activity is in a rural area of Karnataka, 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 Tadas, both during construction and operation phases of the project activity.

[1] http://www.enercon.de/en-en/59.htm

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

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

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

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 Southern 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 Karnataka and encourages setting up such projects in near future.

Proposed action plan for Action Plan for Sustainable Development:
RNWEKPL 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: Southern India / Sate: Karnataka / District: Haveri, Darwada

A.2.3. City/Town/Community etc.
Mandal: Haveri / Site Name: Tadas, Villages-Hirebendigeri, Kabunoor, Basavanal, Hulagur, Nelagudda, Kamaddli, Bu Koppa, etc.

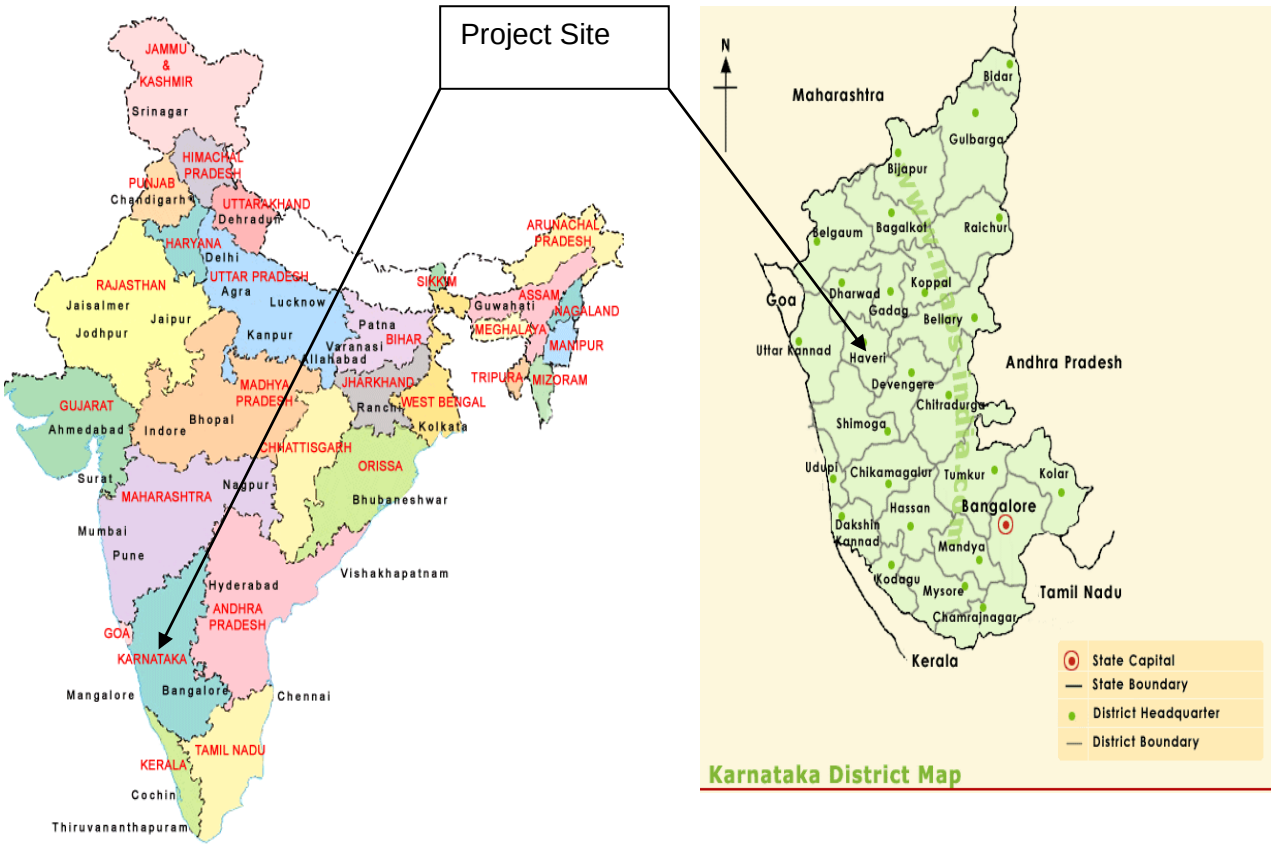
A.2.4. Physical/Geographical location

Project activity is located in Tadas of Haveri & Darwada districts in the state of Karnataka, India. The project site is well connected with major cities in Karnataka. Haveri & Darwada the district head quarter and a prominent town, is at 50 Km distance. This is also the nearest railway and Air connectivity point.

Wind turbine-wise detailed co-ordinates are tabulated below. The 63 turbines of the project will be selected from the below mentioned 88 turbine locations, and will be finalized during implementation.

WTG Location					
Sr No.	Turbine ID	Coordinates	Sr No.	Turbine ID	Coordinates
1	96 A	E 52.1705; N 16.67327	45	439	E 52.8963; N 16.74504
2	305	E 52.6028; N 16.65302	46	440	E 52.8837; N 16.74767
3	373	E 52.9340; N 16.68784	47	441 A	E 52.9068; N 16.73991
4	377	E 52.9135; N 16.70042	48	442	E 52.8935; N 16.73796
5	378	E 52.8794; N 16.70240	49	443	E 52.9067; N 16.73493
6	379	E 52.8811; N 16.70536	50	444	E 52.8052; N 16.73125
7	380	E 52.9042; N 16.70959	51	445	E 52.7940; N 1673398
8	381	E 52.9193; N 16.71320	52	446	E 52.7903; N 16.72854
9	382	E 52.9548; N 16.71623	53	447	E 52.8059; N 16.72503
10	383	E 53.0023; N 16.71231	54	448	E 52.8032; N 1672215
11	384 A	E 52.9876; N 16.70452	55	449	E 52.8430; N 16.71984
12	385 B	E 53.0114; N 16.70072	56	450 A	E 52.9290; N 16.71896
13	386	E 53.0218; N 16.69699	57	451	E 52.9531; N 1672353
14	389 A	E 53.1343; N 16.71175	58	452	E 52.9679; N 16.72661

15	390 B	E 53.1248; N 16.71635	59	453 A	E 52.8005; N 16.69007
16	391 A	E 53.1065; N 16.72071	60	454	E 52.7488; N 16.69260
17	392 A	E 53.1104; N 16.72416	61	455	E 52.7025; N 16.69552
18	393	E 53.0656; N 16.72762	62	456	E 52.7329; N 16.69962
19	394	E 53.0748; N 16.73067	63	457 A	E 52.6695; N 16.69940
20	395	E 53.0832; N 16.73380	64	458	E 52.6942; N 16.70351
21	396	E 53.1354; N 16.73499	65	459	E 52.6937; N 16.70675
22	397	E 53.1443; N 16.73221	66	460	E 52.6369; N 16.70739
23	398	E 53.1257; N 16.72921	67	461	E 52.6450; N 16.71050
24	399	E 53.1549; N 16.72611	68	462	E 52.6561; N 16.71347
25	400 A	E 53.2366; N 16.72274	69	463	E 52.6460; N 1671615
26	401	E 53.2017; N 16.73364	70	464	E 52.6137; N 16.71876
27	421	E 52.6975; N 16.77312	71	465	E 52.6239; N 16.72186
28	422	E 52.7058; N 16.77664	72	466 A	E 52.6240; N 16.72484
29	423	E 52.5799; N 16.77633	73	467	E 51.7299; N 16.70852
30	424	E 52.5707; N 16.77359	74	468	E 51.7242; N 16.71120
31	425	E 52.5736; N 16.77071	75	469	E 52.1495; N 16.69466
32	426	E 52.5651; N 16.76809	76	470	E 52.1993; N 16.66590
33	427	E 52.5999; N 16.76583	77	471 B	E 51.9195; N 16.66232
34	428	E 52.5980; N 16.76252	78	484 A	E 52.8235; N 16.67867
35	429	E 52.6651; N 16.76222	79	485	E 52.8048; N 16.67453
36	430	E 52.6541; N 16.75949	80	486	E 52.9393; N 16.74372
37	431	E 52.6477; N 16.75663	81	487 A	E 52.8699; N 16.73050
38	432	E 52.6904; N 16.75071	82	506	E 51.9188; N 16.66061
39	433	E 52.6874; N 16.74602	83	520	E 53.1173; N 16.57886
40	434	E 52.7355; N 16.74220	84	523	E 51.6741; N 16.71841
41	435	E 52.7779; N 16.74344	85	544	E 52.0391; N 16.73694
42	436	E 52.7927; N 16.73963	86	548 A	E 52.0766; N 16.72975
43	437	E 52.7543; N 16.73770	87	554 A	E 52.0591; N 16.75330
44	438	E 52.8002; N 16.73698	88	557	E 52.2073; N 16.73962



A.3. Technologies and/or measures

The project activity involves installation of 63 numbers of Enercon make E-53, 800 KW WTGs. The total installed capacity of the project activity is 50.4 MW. The net electricity generated by the project activity will be supplied to Southern 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[4] of WTGs installed in the project activity are shown below-

General	
Rated power	800 kW
Rotor diameter	52.9 m
Hub height	60 m / 73 m
Wind class (IEC)	IEC/NVN Class S, (vav = 7.5 m/s, vext = 57 m/s)
Turbine concept	Gearless, variable speed, single blade adjustment
Rotor	
Type:	Upwind rotor with active pitch control
Rotational direction	Clockwise
No. of blades	3
Swept area	2,198 m²
Blade material	GRP (epoxy resin); integrated lightning protection
Rotational speed	Variable, 12 - 28.3 rpm
Pitch control	ENERCON single blade pitch system, one independent pitch system per rotor blade with allocated emergency supply
Drive train with generator	
Hub	Rigid
Main bearing	Tapered roller bearing pair
Generator	ENERCON direct-drive annular generator
Grid feeding	ENERCON inverter
Brake systems	3 independent pitch control systems with emergency power supply, rotor brake, rotor lock
Yaw control	Active via adjustment gears, load-dependent damping
Cut-out wind speed	28 - 34 m/s (with ENERCON storm control)
Remote monitoring	ENERCON SCADA

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 63 new WTGs of 800 kW 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.

[4] http://www.enercon.de/en-en/59.htm

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 (Karnataka) 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.

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[5],
Title : "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"
Version : 13
Approved in : EB 66

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

b) ACM0002, Version 13, 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

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 grid connected 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	The project activity involves the installation of a wind power plant. Hence, it meets the requirement.

[5] http://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT

	plant/unit, wave power plant/unit or tidal power plant/unit;	
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 project activity;	Not applicable to the Project activity as the project is a Greenfield setup and does not involve capacity additions, retrofits or replacements.
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	The project is not a retrofit,

	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 implementation of the project activity and undertaking business as usual maintenance".	replacement or capacity addition. Hence this condition is not applicable.

B.3. Project boundary

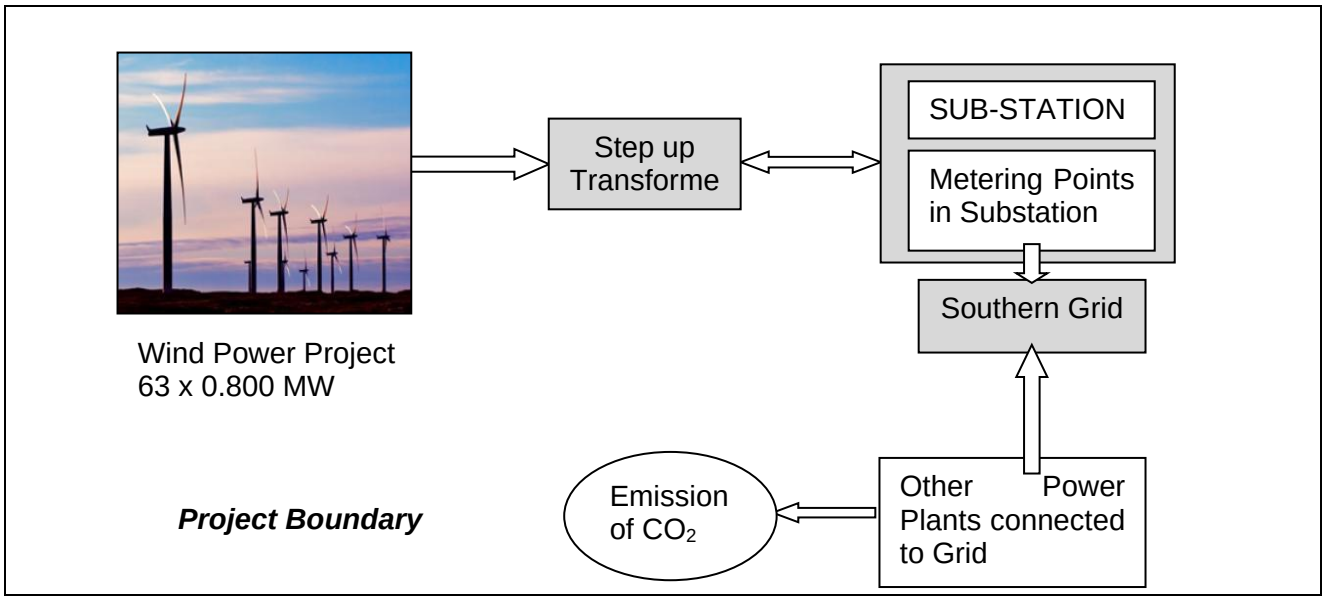
The spatial extent of the Project boundary includes the project power plant and all the power plants physically connected in the Southern Grid. The greenhouse gases and the emission sources included in or excluded from the project boundary are shown in table below:

Source		GHGs	Included?	Justification/Explanation
Baseline scenario	Grid connected electricity generation	CO_2	Yes	In the baseline scenario, electricity would be sourced from the Southern 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 63 wind turbines of 0.800 MW capacity each, step up transformer, substation and the Southern grid. The project boundary also includes all power plants connected to this Southern 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 ACM0002 version 13, if the Project activity is the installation of a new grid-connected renewable power plant/ unit, the baseline scenario is the following:

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 Appendix 4. 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 65. 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[6], Version 13 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".

[6] http://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[7] 2003
- National Electricity Policy[8] 2005
- Tariff Policy[9] 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 Southern 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[10]", Version 6.1.0.

"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[11]" 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)[12], 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 05, EB 62), In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR

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

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

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

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

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

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

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%[13] 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%+5.9%= **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 has been calculated to be **13.10%.**

IRR input parameters:

Particulars	Value	Unit	Source
No. of wind turbines	63	Nos	Enercon Offer
Capacity of each wind turbine	0.8	MW	Enercon Offer
Capacity of the project	50.4	MW	Calculated
PLF	21.42%		Third party PLF study report
Net electricity supplied to the grid	94.57	Million kWh	Calculated
Wheeling and Banking Charges for 1st 10 years	7.00%		KERC Tariff Order
Wheeling and Banking Charges beyond 10 years	0.00%		No charges for sale under preferential tariff sale
Net electricity sold to third parties through grid (first 10 years)	87.95	Million kWh	Calculated
Net electricity sold to grid under preferential tariff rate (11th year onwards)	94.57	Million kWh	Calculated
Project cost	2,790.90	INR Million	Enercon Offer
Debt	70%	INR Million	KERC Tariff Order
Debt Contribution	1,953.63	INR Million	Calculated
Equity Contribution	837.27	INR Million	Calculated
;Free O&M	2	years	Enercon Offer
Operation and Maintenance ;Cost (from 3rd year)	0.60	INR Million per WTG	Enercon Offer
Operation and Maintenance Cost	37.80	INR Million	Calculated
Escalation in O & M (from	5.00%	%	Enercon Offer / KERC Tariff Order

[13]Annual average percentage change over next ten years' value as sourced from RBI report dated 23rd January 2012, (http://rbi.org.in/scripts/PublicationsView.aspx?id=14022)

3rd year onwards)			
Working capital: O & M Expenses for	0	Month	KERC Tariff Order
Receivables equivalent to 1.5 Months of energy charges for sale of electricity	2.00	Month	KERC Tariff Order
Maintenance Charges	0.00%	% of O&M	KERC Tariff Order
Service Tax on O&M	12.36%	%	http://220.227.161.86/26232idtc15702.pdf
Tariff (Open Access) upto 10th Year	5.50	Rs/kWh	HT 2(a) i tariff in state 2012 for industrial consumers
Preferential Tariff applicable from 11th year onwards	3.70	Rs/kWh	Page 31, KERC RE tariff order_2009
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
Interest on working capital	13.25%	%	KERC Tariff Order
Moratorium	0	Year	KERC Tariff Order
Debt repayment	10	Years	KERC Tariff Order
Salvage value	10%	%	CERC Notification
MAT rate	19.93%	%	Indian IT Act for FY 2011-12
Interest Rate Margin Money	11.75% 25.00%	% %	KERC Tariff Order http://www.banknetindia.com/banking/metlend.htm

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.

Change in net generation	**+10.00%**	**0.00%**	**-10.00%**
Equity IRR	16.41%		9.91%
Change in Total Project Cost	**+10.00%**		**-10.00%**
Equity IRR	10.51%	13.10%	16.45%
Change in O&M Cost	**+10.00%**		**-10.00%**
Equity IRR	12.77%		13.42%
Change in tariff	**+10.00%**		**-10.00%**
Equity IRR	16.41%		9.91%
Change in Debt Contribution	**+10.00%**		**-10.00%**
Equity IRR	13.48%		12.78%

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, O&M costs and debt contribution in

financing. 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 above considered favourable scenarios. The favourable scenarios where the Equity IRR will cross the benchmark have been explained below:

Electricity Generation Variation:

The Equity IRR will touch the benchmark considering a positive variation of 13.70%. The PLF has been considered in the financial analysis sourced from 3rd party PLF study report, in line with EB48, Annex 11, and a positive variation of 13.70% is not practically feasible and reasonable scenario. However actual PLF in the site is also in the same range covered under the sensitivity analysis and never reached a level of 13.70% positive variation.

Project Cost Variation:

The Equity IRR will touch the benchmark considering a negative variation of project cost of 13.10%. 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 13.10% is not feasible.

O&M Cost Variation:

The Equity IRR will cross the benchmark considering a negative variation of O & M expenditure 156%. The O&M cost has been considered from the offer of the supplier. 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:

The Equity IRR will cross the benchmark considering a variation of 13.70%. The tariff has been considered based on retail tariff for industrial consumers for first 10 years and from 11th year it will be preferential tariff provided to wind power developers, a positive variation to the tune of 13.70% is not reasonable for the project, as increase of 13.70% in preferential tariff is not realistic.

Debt Percentage:

The Equity 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%)
50.4 MW	25.2 MW- 75.6 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 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	9	0[14]	9
Hydro[15]	51	31[16]	20
Biomass[17]	18	16[18]	2
Wind	27	1	26
Nuclear[19]	0	0	0
Solar[20]	0	0	0
Tidal-Mechanical &Thermal	0	0	0
Geothermal	0	0	0
Total	**105**		**57**

From the above list N_{all} = (9+20+2+26)
= 57

Step 3: Within plants identified in Step 2, 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.

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 $N_{diff.}$

Out of the 26 wind projects included in N_{all}, 22 projects are installed in different states of India other than Karnataka, and are part of N_{diff}, as each state in India provides different investment climate to projects in terms of tariff rates and other regulations as determined by respective State Electricity Regulatory Commission (SERC) from time to time.

Thus 22 wind power projects within the applicable geographical area and within the applicable output range are part of N_{diff}.

The total no of projects in N_{diff} is = (9+20+2+22)
= 53

Step 4: Step 4: Calculate factor **$F = 1-N_{diff}/N_{all}$**

[14] http://www.iges.or.jp/en/cdm/report_cdm.html

[15] CEA Database Version 7.0

[16] http://www.iges.or.jp/en/cdm/report_cdm.html

[17] The list of references: a. http://www.nedcap.gov.in/Biomass_Energy.aspx?ID=31
b. http://www.credacg.org/bpg_projects_commissioned.htm
c. http://www.kredltest.in/Bioreport.aspx
d. http://www.kredltest.in/cogenreportallnew.aspx
e. http://peda.gov.in/eng/cogeneration.html

f. http://www.teda.in/index.php?r=site/index&id=2O8i9U4E3U

g. http://neda.up.nic.in/PRAGATI/PRAGATI-INDEX.HTM;

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.

[18] http://www.iges.or.jp/en/cdm/report_cdm.html

[19] CEA Database Version 7.0

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

F = 1-(53/57)
F = 0.07

The proposed project is not common practice as the factor **F<0.2,** 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 for the Project with serious CDM consideration; Resolution by Board of Directors	23/03/2012
2	Signing of MoU with Technology Supplier (Start Date)	06/04/2012
3	Appointment of CDM Consultant	16/04/ 2012
4	Appointment of DoE	02/05/2012
5	CDM Prior Consideration submission to UNFCCC & NCDMA, (INDIA)	16/06/2012
6	Local Stakeholder consultation	04/07/2012
7	Expected commissioning of the project	31/10/2012

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[21]" 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 Karnataka, the Southern 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 Southern 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 Appendix 4.

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

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

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 Appendix 4. 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

As per the tool[22], page no. 6, option A has been selected for calculation of simple OM, based on the net electricity generation of each power unit and an emission factor for each power unit, as follows:

$$EF_{grid,OMsimple,y} = \frac{\sum_m EG_{m,y} \cdot EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where:

$EF_{grid, OMsimple,y}$	= Simple operating margin CO_2 emission factor in year y (tCO_2/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_2/MWh)
m	= All power units serving the grid in year y except low-cost / must-run power units
y	= The relevant year as per the data vintage chosen in Step 3

As per Appendix 4, the last 3 year generation values are 0.9729, 0.9415 & 0.9419.

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

The 3-year generation-weighted average was taken and the same has been derived as $EF_{grid,OM,y}$ = 0.9515

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 0.8971

Therefore, $EF_{grid,BM,y}$ = 0.8971

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), "*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:*

$PE_y = PE_{FF, y} + PE_{GP, y} + PE_{HP, y}$ (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) 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 SOUTHERN 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 SOUTHERN 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 Southern grid
Source of data	CO_2 baseline database (Version 7.0)
Value(s) applied	0.7339
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 Southern 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 Southern grid
Source of data	CO_2 baseline database (Version 7.0)
Value(s) applied	0.9515
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 Southern grid viz. 2008/09, 2009/10 and 2010/11.
Purpose of data	Calculation of combined margin emission factor of Southern 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 Southern grid
Source of data	Calculated as per the procedure described in PDD section B.6.1
Value(s) applied	0.8971
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:

$EF_{grid, CM, y} = w_{OM} * EF_{grid, OM, y} + w_{BM} * EF_{grid, BM, y}$
$= 0.75 * 0.9515 + 0.25 * 0.7339$
$= 0.8971\ tCO_2e/MWh$

Thus for ex-ante emission reduction calculations, the baseline emission factor for the grid = 0.8971 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 ($EG_{PJ,y}$)

$EG_{PJ,y}$ = 94,570 MWh

Hence, substituting values in equation 1,

BE_y= 94,570 MWh * 0.8971
= 84,835 tCO_2e

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,
$ER_y = BE_y – PE_y – LE_y$
= 84,835 - 0 - 0
= 84,835 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	84,835	0	0	84,835
Year 2	84,835	0	0	84,835
Year 3	84,835	0	0	84,835
Year 4	84,835	0	0	84,835
Year 5	84,835	0	0	84,835
Year 6	84,835	0	0	84,835
Year 7	84,835	0	0	84,835
Total	593,845	**0**	**0**	593,845
Total number of crediting years	**7**			
Annual average over the crediting period	**84,835**	**0**	**0**	**84,835**

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	Joint meter reading OR break up sheet provided by KPTCL (referred as 'Form B')
Value(s) applied	94,570
Measurement methods and procedures	The JMR is usually taken once in month for the feeder meters. The JMR gives electricity export, import and losses till common substation. By using these data, net export by the WTGs in the Project activity will be calculated (as in some case net export is not explicitly reported in JMR). 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 and transmission losses mentioned in the Form B. The emission reduction would be computed on the basis of *EGfacility,y .* Net export ($EG_{facility,y}$) = $EG_{export,y}$ - ($EG_{export,y}$ *Transmission loss %)-115% $EG_{import,y}$
Monitoring frequency	Continuous measurement and monthly recording.
QA/QC procedures	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	Baseline emissions calculation
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	$EG_{export,y}$
Unit	MWh
Description	The quantity of electricity supplied by the project plant/unit to the grid in year *y*
Source of data	Joint meter reading OR break up sheet provided by KPTCL (referred as 'Form B') J
Value(s) applied	94,570
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 energy meters at the common feeders 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/ 0.5s (as per state regulation) Measurement by: electricity meters (feeder meters) Monitoring: Continuous measurement and monthly recording. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The operators/ O&M team will be responsible for measurement Archiving: Crediting Period + 2 years Calibration Frequency24: Once in 5 year. As determined by state utility, once in five years is the CEA norm of calibration[23]
Monitoring frequency	Continuous measurement and monthly recording.
QA/QC procedures	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	Baseline emissions calculation
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.

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

arameter	$EG_{import,y}$
Unit	MWh
Description	The quantity of electricity imported by the project plant/unit from the grid in year *y*
Source of data	Joint meter reading OR break up sheet provided by KPTCL (referred as 'Form B')
Value(s) applied	0
Measurement methods and procedures	The electricity imported shall be continuously monitored using energy meters. For measuring the electricity imported by the project activity, the state electricity board has installed energy meters at the common feeders 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. Measurement by: electricity meters (feeder meters) Recording: Electronic and paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The operators/ O&M team will be responsible for measurement Calibration Frequency: As determined by state utility, once in five years is the CEA norm of calibration[24] Accuracy class of meters: 0.2s/ 0.5s (as per state regulation) Archiving: Crediting Period + 2 years
Monitoring frequency	Continuous measurement and monthly recording.
QA/QC procedures	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	Baseline emissions calculation
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.

[24] 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 Appendix 5.
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.

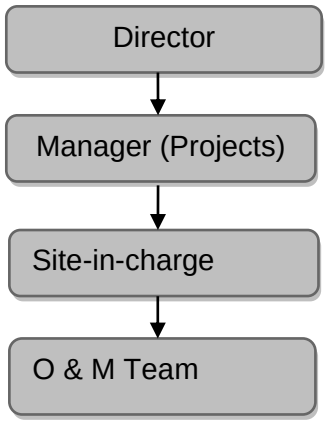
B.7.2. Sampling plan

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, O&M contractors 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 O&M contractor.

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.

Here 16 MW (20 WTG's) are connected in one feeder, 16 MW (20 WTG's) in second feeder and 18.4 MW (23 WTG's) are connected in third feeder. All three are connected in KPTCL substation, transmission losses are calculated between substation and feeders (procedure is in form B) and net energy export is calculated by:

($EG_{facility,y)}$ = $EG_{export,y}$ - ($EG_{export,y}$ *Transmission loss %)-115% $EG_{import,y}$

B.8. Date of completion of application of methodology and standardized baseline and contact information of responsible persons/ entities

Date of Completion: 28/11/2012

Contact Person:

Parag Sharma

Chief Operating Officer

ReNew Wind Energy (Karnataka) 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 06/04/2012. This is the date of signing of Supply Agreement with Technology Supplier.

C.1.2. Expected operational lifetime of project activity

25 years, 00 months[25]

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

31/12/2012 (or date of registration with UNFCCC whichever is later)

C.2.3. Length of crediting period

7 years, 00 months

[25] Supply agreement for WTGs

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

As per the Schedule 1 of the EIA notification dated 1/12/2009[26], 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

RNWEKPL had identified stakeholders for their wind power project in Tadas, Hubli, District Darwada, Karnataka. The identified stakeholders have been invited through prior written personal invitations for the schedule consultation as taken place on 04/07/2012 at specified venue..

Following stakeholders were invited via personal invitation letters.
1. Representatives from Enercon (India) Pvt.Ltd.
2. Employees of RNWEKPL
3. Panchayats representatives.
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, Enercon (India) Limted. 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:[27]
1. Number of turbines going to be commissioned
2. Any possible impacts of the turbines foundation / erection on ground water

All the above queries have been suitable and satisfactorily replied / clarified by Enercon (India) 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.

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

[27] 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)are 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 (Karnataka) 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 SOUTHERN 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

- **Metering:** Electricity supplied to the grid is metered at the metering point connecting 63 machines of the project activity. The meter reading is taken in the presence of representatives of Enercon (O&M Contractor for the project activity) and KPTCL.

- **Metering Equipment:** Metering system for the project activity consists of main and check meter. Both the meters are two-way trivector meters capable of recording import and export of electricity

- **Meter Readings:** The electricity supplied to the grid is recorded by taking a Joint Meter Reading (JMR) in the presence of Officials from the Utility and Enercon, O&M contractor, on behalf of project owner. The Joint meter reading contains the value of energy imported and exported. Thus the monitoring parameters for the project activity are the electricity import and electricity export to the grid as mentioned in the JMR. The readings are then adjusted for the transmission loss in the JMR, which can be crosschecked with the value mentioned in the invoices.

- **Inspection of Energy Meters:** All main and check energy meters (export and import) installed at the project are of 0.2%/0.5% accuracy class (as per the state regulation). Each meter is jointly inspected and sealed on behalf of the parties and is not to be interfered with by either party except in the presence of the other party or its accredited representatives.

- **Meter Test Checking**: There is a separate check and main meter. The Main and Check Meters are close to each other and will be tested for accuracy, with a standard meter, by the KPTCL's testing Division in an interval decided by KPTCL. The KPTCL will carry out the periodical testing (and calibration if required), sealing and maintenance of meters. The KPTCL will provide a copy of the test reports.

  If during the meter test checking,
  - the main meter is found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then the meter reading will be as per the main meter as usual. The check meter shall, however, be calibrated immediately.
  - the main meter is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible limit of error, then the meter reading for the month up to the date and time of such test shall be as per the check meter.
  - If both the main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the meters shall be immediately calibrated and the correction will be applied to the reading registered by the main meter to arrive the correct reading of energy supplied to the grid for the period up to last test.
  - If during any of the monthly meter readings, the variation between the main meter and the check meter is more than the permissible limit for meters, all the meters shall be re-tested and calibrated immediately and the correction will be applied to the reading registered by the main meter to arrive the correct reading of energy supplied to the grid for the period up to last test.
  - In case of the failures such as burning of the meter and the erratic display of the metered parameters and when the error found in testing the meters is beyond the permissible limit of error, the meter shall be calibrated immediately and the correction will be applied to the reading registered by the main meter to arrive the correct reading of energy supplied to the grid for the period up to last test.

The daily records for parameters such as power generation, frequency and voltage of the individual machines are noted by the SCADA system. These records are maintained by Enercon India Limited (the O&M contractor) and the PP.

Here 16 MW (20 WTG's) are connected in one feeder, 16 MW (20 WTG's) in second feeder and 18.4 MW (23 WTG's) are connected in third feeder. Both are connected in KPTCL substation, transmission losses are calculated between substation and feeders (procedure is in form B) and net energy export is calculated by:

($EG_{facility,y)}$ = $EG_{export,y}$ - ($EG_{export,y}$ *Transmission loss %)-115% $EG_{import,y}$ Import

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:

(i) *Apportioning Ratio=* Generation at WTG controller for apportioning Period/ 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

In registered PDD the sale of power from the project activity is considered to grid at preferential tariff of INR 3.70/Kwh, while in actual implementation the project is designed as Group Captive project for 1st 10 years of operation, in which power is sold to individual customers in the southern grid through open access sale. Hence tariff is different from the preferential tariff. In the group captive model (open access sale) 7% Wheeling and Banking charges are also applicable.

PLF in the registered PDD is considered from KERC tariff order which is 26.50% while in the third party PLF study report the PLF is 21.42% at P75 level. Hence the PLF is also revised according to the third party PLF study report. The actual PLF achieved during two consecutive and complete years of operation are 19.32% and 18.95% for the period June 2013- May 2014 and June 2014-May 2015 respectively, which is lower than the estimated PLF value. The spreadsheet for actual PLF calculation is attached as Annexure A.

The primary reason of the change is to improve the financial returns of the project on account of lower site specific PLF value reported by third party agency, the PLF in the third party report was much lower than estimated during project decision as per the KERC order. Besides this declining carbon market and lower CER revenues were also factors of these changes in order to improve the financial returns from the project.

The equity IRR is revised based on these changed input parameters and is 13.10% while in registered PDD it was 11.33%.

Changes in the Monitoring Plan:

1. In the registered PDD the net electricity supplied to grid is mentioned as measured parameter but in actual it is a calculated parameter.

The net energy export is calculated by:
($EG_{facility,y)}$ = $EG_{export,y}$ - ($EG_{export,y}$ *Transmission loss %)-115% $EG_{import,y}$

2. The calibration frequency in the registered PDD is mentioned as once in five year but in actual the meters are under the jurisdiction of KPTCL and their calibration is determined by KPTCL, however once in 5 year calibration of meters is the CEA norm of calibration.

3. The metering structure is defined in the revised PDD as:
Here 16 MW (20 WTG's) are connected in one feeder, 16 MW (20 WTG's) in second feeder and 18.4 MW (23 WTG's) are connected in third feeder. All three are connected in KPTCL substation.

4. Metering, metering equipment, meter readings, inspection of energy meters, meter test checking details are provided in Appendix 5 of the revised PDD, However some unnecessary apportioning information is removed from the Appendix 5 of revised PDD.

Annexure - 1

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 Tadas , Karnataka		
Project Proponent	ReNew Wind Energy (Karnataka) Private Limited		
Project Location	Site-Tadas, Haveri & Darwada District of Karnataka		
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	50.4 MW	1,02,975

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

Project Life (in years)	20
Estimation of 2% of CERs per year	2,060
Approximate market value of per CER (INR)	280
Approx amount of money available per year (INR)	5,76,660

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

Identified Villages	Total Population	Key issues for development
Hirebendigeri	1200-1300	Primary Heath Care, Education
Kabunoor	~2500-3000	Primary Heath Care, Education
Panigatti	~1200-1500	Primary Heath Care, Education
Basavanal	~4000-5000	Primary Heath Care, Education
Hulagur	~15000-16000	Primary Heath Care, Education
Nelagudda	~2500-3000	Primary Heath Care, Education
Kamaddli	~15000-16000	Primary Heath Care, Education
Bu Koppa	~2500-3000	Primary Heath Care, Education
Tarlaghatta	~4000-5000	Primary Heath Care, Education
kalkonda	~2000-2200	Primary Heath Care, Education
Ingalagi	~3000-4000	Primary Heath Care, Education
Belavalakoppa	~2000-2200	Primary Heath Care, Education
Thirth	~2000-2200	Primary Heath Care, Education
Hanamanahalli	~2000-2200	Primary Heath Care, Education
kadhahalli	~2000-2200	Primary Heath Care, Education
Kelakonda	~2000-2200	Primary Heath Care, Education
Hulsogi	~2000-2200	Primary Heath Care, Education
Mattikatti	~2000-2200	Primary Heath Care, Education
Jigulur	~2000-2200	Primary Heath Care, Education
Guranahalli	~2000-2200	Primary Heath Care, Education
Hire Budihal	~2000-2200	Primary Heath Care, Education

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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.	Hirebendigeri	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	27,460
2.	Kabunoor	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	27,460
3.	Panigatti	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	27,460
4.	Basavanal	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	27,460
5.	Hulagur	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	27,460
6.	Nelagudda	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	27,460
7.	Kamaddli	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	27,460

		5. Scholarship	
8.	Bu Koppa	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	27,460
9.	Tarlaghatta	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	27,460
10.	kalkonda	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	27,460
11.	Ingalagi	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	27,460
12.	Belavalakoppa	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	27,460
13.	Thirth	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	27,460
14.	Hanamanahalli	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	27,460
15.	kadhahalli	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support;	27,460

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		encouraging girl child for education 4. Adult education programme 5. Scholarship	
16.	Kelakonda	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	27,460
17.	Hulsogi	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	27,460
18.	Mattikatti	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	27,460
19.	Jigulur	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	27,460
20.	Guranahalli	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	27,460
21.	Hire Budihal	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	27,460

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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)			

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

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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 Tadas, Karnataka]
Project Location: [Village/Site-Tadas, District-Haveri, Darwada (KA)]

Commitment of the Project Proponent

The project proponent ReNew Wind Energy (Karnataka) Private Limited has committed to share 2% (Approximately 5, 76,660 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
Hirebendigeri	1200-1300	Primary Heath Care, Education
Kabunoor	~2500-3000	Primary Heath Care, Education
Panigatti	~1200-1500	Primary Heath Care, Education
Basavanal	~4000-5000	Primary Heath Care, Education
Hulagur	~15000-16000	Primary Heath Care, Education
Nelagudda	~2500-3000	Primary Heath Care, Education
Kamaddli	~15000-16000	Primary Heath Care, Education
Bu Koppa	~2500-3000	Primary Heath Care, Education
Tarlaghatta	~4000-5000	Primary Heath Care, Education
kalkonda	~2000-2200	Primary Heath Care, Education
Ingalagi	~3000-4000	Primary Heath Care, Education
Belavalakoppa	~2000-2200	Primary Heath Care, Education
Thirth	~2000-2200	Primary Heath Care, Education
Hanamanahalli	~2000-2200	Primary Heath Care, Education
kadhahalli	~2000-2200	Primary Heath Care, Education
Kelakonda	~2000-2200	Primary Heath Care, Education
Hulsogi	~2000-2200	Primary Heath Care, Education
Mattikatti	~2000-2200	Primary Heath Care, Education
Jigulur	~2000-2200	Primary Heath Care, Education
Guranahalli	~2000-2200	Primary Heath Care, Education
Hire Budihal	~2000-2200	Primary Heath Care, Education

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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.	Hirebendigeri	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	27,460
2.	Kabunoor	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	27,460
3.	Panigatti	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	27,460
4.	Basavanal	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	27,460
5.	Hulagur	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	27,460
6.	Nelagudda	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	27,460
7.	Kamaddli	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	27,460

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		5. Scholarship	
8.	Bu Koppa	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	27,460
9.	Tarlaghatta	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	27,460
10.	kalkonda	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	27,460
11.	Ingalagi	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	27,460
12.	Belavalakoppa	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	27,460
13.	Thirth	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	27,460
14.	Hanamanahalli	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	27,460
15.	kadhahalli	1.Periodical medical counseling session 2. Health Camp 3. Promotion of basic education through infrastructure development support;	27,460

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		encouraging girl child for education 4. Adult education programme 5. Scholarship	
16.	Kelakonda	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	27,460
17.	Hulsogi	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	27,460
18.	Mattikatti	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	27,460
19.	Jigulur	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	27,460
20.	Guranahalli	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	27,460
21.	Hire Budihal	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	27,460

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

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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 (Karnataka) Pvt. Ltd.

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Document information

Version	*Date*	*Description*
06.0	9 March 2015	Revisions 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; • Editorial improvement.
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.

Version	*Date*	*Description*

Decision Class: Regulatory
Document Type: Form
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