Project design document form for small-scale CDM project activities

(Version 05.0)

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

PROJECT DESIGN DOCUMENT (PDD)	
Title of the project activity	5X0.8 MW Wind Power Project by Texmo Industries.
Version number of the PDD	04
Completion date of the PDD	14/08/2014
Project participant(s)	M/s Texmo Industries
Host Party	India
Sectoral scope and selected methodology(ies), and where applicable, selected standardized baseline(s)	01 (Energy Industry Renewable/Non Renewable Sources)
Estimated amount of annual average GHG emission reductions	8176

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

The project activity is a 5X0.8 MW wind power generation (WTGs) in the Tamilnadu region. This Project activity are located in two different districts, Tirupur district and Dindigul district, of Tamilnadu state The generated electricity from HTSC No 1689 and 1707 is wheeling to the Texmo manufacturing plant. The generated electricity from HTSC No 207 and 208 is selling to to the southern electricity grid.

All the windmills are financed by one private entity:

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Deleted: , with the purpose of selling the same to the southern electricity grid. WTGs are located in two different districts, Tirupur and Dindigul, of Tamilnadu state.¶

Project owner	WTG Capacity (MW)	WTG Loc no.	HTSC Number	Make
Texmo Industries	0.8	204	U 1689	Enercon
	0.8	205		Enercon
	0.8	224	U 1707	Enercon
	0.8	154	D 207	Enercon
	0.8	166	D 208	Enercon

The purpose of the project activity is to generated electricity from a environmentally clean source i.e. Wind and export it to the Southern Grid which is dominated by fossil fuel based power plants with 54% of total share in installed capacity[1]. Therefore the Project activity will reduce the same amount of emission which otherwise would have been occurred by these fossil fuel based power plants connected to the Southern Grid.

Project Contribution towards Sustainable Development:

Ministry of Environment and Forests, Govt. of India has stipulated the social well being, economic well being, environmental well-being and technological well being as the four indicators for sustainable development for Clean Development Mechanism (CDM) projects.[2]

1. **Social well being:**
   - Due to the project activity Rural and infrastructural development in the surrounding areas of the project will occur.
   - The project activity has assisted in higher interaction amongst the local villagers thereby increasing the flow of information in the villages thereby increasing levels of awareness and knowledge in the community.

2. **Environmental well being**
   - Reduction in the consumption of fossil fuels in the grid for generating additional electricity equivalent to that generated by the wind mills.
3. **Economic well being**
   - Assisting in economic development of remote villages by making investment in surrounded area.
   - As a result of huge amount of investment, lot of ancillary and utility units have open up, which provided employment opportunities to local people, thus bringing about economic well being.

[1] http://www.cea.nic.in/power_sec_reports/executive_summary/2008_07/8.pdf

[2] http://www.cdmindia.nic.in/host_approval_criteria.htm

4. Technological well being

- The successful implementation of project activity encourages other entrepreneurs to adopt this technology and invest in wind energy.

A.2. Location of project activity

A.2.1. Host Party

India

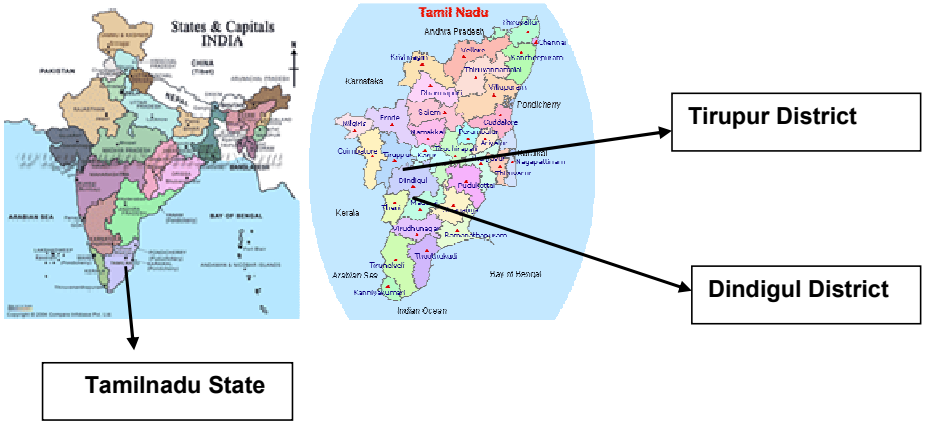
A.2.2. Region/State/Province etc.

Tamilnadu

A.2.3. City/Town/Community etc.

Installed Capacity (MW)	WTG Loc no.	Village	Taluka	District
0.8	204	Gathelrev	Dharapuram	Tirupur
0.8	205	Gathelrev	Dharapuram	Tirupur
0.8	224	Chinnaputhur	Dharapuram	Tirupur
0.8	154	Kzhumankondan	Palani	Dindigul
0.8	166	Kzhumankondan	Palani	Dindigul

A.2.4. Physical/Geographical location



A.3. Technologies and/or measures

Type: I Renewable Energy Projects
Category: I-D Grid Connected Renewable Energy Generation
Version: 17 valid from 17 June 2011

Sectoral Scope: I- Energy Industry (Renewable/non-renewable)

Project consists of 5X 0.8 MW WTGs. The technology is supplied by Enercon India Ltd. Wind energy technology: Power generation using wind power uses basic wind energy to rotate the turbines. Rotating wind turbine is connected to the rotor hub, which connects to the rotor hub of a multi phase generator which eliminates the need of a gearbox. Generation happens at variable frequency and voltage and is rectified to DC, stepped up by a chopper and converted to AC by an inverter. This electricity is exported to the grid.

Important parts of a wind power generator are:

- Nacelle
- Hub
- Rotor
- 3-phase generator
- Tower
- Main Shaft

Main specifications of the E-53 800kW Enercon make WTG are given below :

Parameter	Specification
Rated Capacity	800 kW
Rotor Diameter	48 m
Hub height	74.85m
Type	Upwind Rotor with active pitch control
Direction of Rotation	Clockwise
Number of blades	3
Swept area	1810m2
Blade material	Fibreglass (reinforced epoxy) with integral lightning control system
Rotor seed	16-31.5 rpm (min-max)
Tip Speed	41-78 m/s
Pitch control	Three synchronized blade pitch system with battery back-up
Generator	Synchronous type
Hub	Rigid
Bearings	Tapered roller bearings
Braking system	3 independent aero brakes with back up supply
Yaw control	Active through adjustment gears, friction damping
Cut-in wind speed	2 m/s
Cut out wind speed	14 m/s
Tower type	Tubular tower
Life	20 years[3]

[3] TNERC Tariff order dated 20th March 2009

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 Party)	M/s Texmo Industries (Partnership firm)	No

A.5. Public funding of project activity

Project activity has not received any public funding or any other official development assistance (ODA). No public funding from any annex I country

A.6. Debundling for project activity

As per '**Guidelines on assessment of de-bundling for SSC project activities'**(version 3) Annex 13 to EB 54, para 2, 'A proposed small-scale project activity shall be deemed to be a de-bundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity :

(a) With the same project participants;
(b) In the same project category and technology/measure;
(c) Registered within the previous 2 years; and
(d) Whose project boundary is within 1 km of the project boundary of the proposed small- scale activity at the closest point.
Project proponents hereby confirm that there is no small scale project activity with them that is registered or is under application for registration within previous two years, in same project category/technology and whose project boundary is within 1 km of the project boundary of the proposed project activity.
Texmo has invested in a wind project but it is not situated in Tamilnadu.

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

B.1. Reference of methodology and standardized baseline

Title: Grid Connected Renewable Energy Generation

Version 17, with effect from 17/06/2011

Reference: AMS ID

TYPE I: Renewable Energy Projects

Category D: Electricity generation for a system

Sectoral Scope: 01 (Energy Industry Renewable/Non Renewable Sources)

Tools referred:

1. Guidelines on the demonstration of additionality of small-scale project activities (EB 68 Annex 27, Version 09)

2. Guidelines for the Reporting and Validation of Plant Load Factors - Annex 11 of EB 48

3. Tool to calculate emission factor for an electricity system Version – 2.2.1

B.2. Project activity eligibility

The Project activity entails the installation of 4 MW (5*0.8) windmills in the state of Tamil Nadu. The capacity of the project 4 MW is well below the qualifying capacity of 15 MW for small scale project.
The project complies with the AMS ID version 17 as justified below.

Applicability criteria	Justification
This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid. (b) Supplying electricity to an identified consumer facility via national / regional grid through a contractual arrangement such as wheeling.	The generated electricity from HTSC No 1689 and 1707 is supplying electricity to the consumer facility via regional grid . The generated electricity from HTSC No 207 and 208 is supplying electricity to the southern electricity grid. Hence this methodology is applicable for this project activity.
Illustration of respective situations under which each of the methodology (i.e.. AMS-1D, AMS-1F and AMS- 1A) applies is included in table 2.	Illustration has been provided in next table, Project activity Project exports electricity to a Southern Grid hence it falls under the methodology AMS ID.

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Deleted: The project is a wind power project which supplies the electricity to the Southern regional Grid. Hence applicable to this category (a). ¶

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This methodology is applicable to project activities that (a) install a new power plant at a site where there was no renewable energy power plant operating 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).	Project activity is a Greenfield Project Activity since it's a new installation of 4 MW capacity in Tamil Nadu. This Project activity does not involve any capacity addition, retrofit or replacement of an existing plant.
Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m2; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m2.	Project is wind power generation hence is not eligible under this category.
If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel1, the capacity of the entire unit shall not exceed the limit of 15 MW.	There is no renewable component added, nor co-firing is required for the proposed project activity. The renewable project capacity is 4 MW, well below the limit of 15 MW.
Combined heat and power (co-generation) systems are not eligible under this category.	The project activity is wind generation project and not a combined heat and power (co-generation) system.
In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	Project activity is a Greenfield Project Activity since it's a new installation of 4 MW capacity in Tamil Nadu.
In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	Project is not a retrofit or replacement. Hence it is not eligible under this category.

Table 2: Applicability of AMS-I.D, AMS-I.F and AMS-I.A based on project types

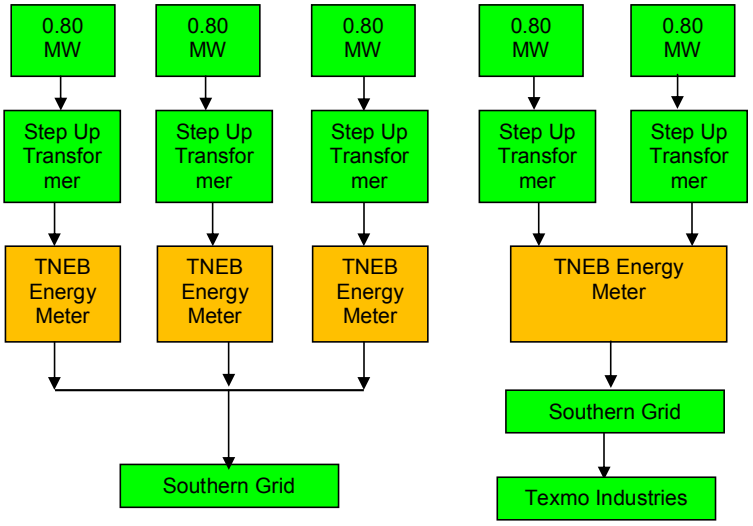
	Project type	AMS-I.A	AMS-I.D	AMS-I.F
1	Project supplies electricity to a national/regional grid		√	
2	Project displaces grid electricity consumption (e.g. grid import) and/or captive fossil fuel electricity			√

	generation at the user end (excess electricity may be supplied to a grid)			
3	Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)		√	
4	Project supplies electricity to a mini grid system where in the baseline all generators use exclusively fuel oil and/or diesel fuel			√
5	Project supplies electricity to household users (included in the project boundary) located in off grid areas	√		

B.3. Project boundary

Project boundary comprises of all machinery and electrical installation from Wind power generator to individual metering point. Each metering point is given a High Tension Serial connection no. (HTSC). The details of HTSC no have been given below:

WTG location no.	HTSC no.	Village
204&205	U 1689	Gethalrev
224	U1707	Chinnaputhur
154	D 208	Kzhumankondan
166	D 207	Kzhumankondan



*In case where more than one machines have the same HTSC no. there project boundary delineates individual WTGs to the common meter.
The GHG emission sources considered for the project boundary and their explanations are as follows:

Source	Gas	Included	Justification / explanation
(BASELINE) Electricity Generation of Indian Southern Grid	CO2	Yes	Major emission sources
	CH4	No	Excluded for simplification. This is conservative
	N2O	No	Excluded for simplification. This is conservative
(PROJECT ACTIVITY) Wind Electricity Generation	CO2	No	As renewable wind power project, hence not applicable
	CH4	No	The proposed project is wind power project, hence not applicable
	N2O	No	The proposed project is wind power project hence not applicable

B.4. Establishment and description of baseline scenario

As per guidelines for baseline in Para 10 & 11 of approved methodology, AMS I.D, The baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.
The baseline emissions are the product of electrical energy baseline EGy,BL , expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor.

$BE_y = EG_{BL,y} X EF_{CO2,grid,y}$

Where,
BE_y Baseline Emissions in year y; t CO2
$EG_{BL,y}$ Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)
$EF_{CO2,grid,y}$ Emission Factor in year y; t CO2/MWh
Further as per para 12:
Emission factor must be calculated in a transparent and conservative manner as follows:

(a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculate the Emission Factor for an electricity system'.
OR
(b) The weighted average emissions (in kg CO2e/MWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Option (a) has been considered to calculate the grid emission factor as per the 'Tool to calculate the emission factor for an electricity system' as per the methodology as data is available from an official source.
Guideline states that calculations must be based on data from an official source (where available) and made publicly available. CO2 Baseline Database for the Indian Power Sector, Version 5,Nov 2009[4], published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.
For calculation of the Emission Factor AMS ID refers to the **Tool to calculate the emission factor for an electricity system, version 02.2.1[5]**:

[4] http://www.cea.nic.in/planning/c%20and%20e/government%20of%20india%20website.htm

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

As per the "Tool to calculate the emission factor for an electricity system" version 2, the following steps has been followed.
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) method.
STEP 4. Calculate the operating margin emission factor according to the selected method.
STEP 5. Calculate the build margin emission factor.
STEP 6. Calculate the combined margin (CM) emissions factor.

STEP 1. Identify the relevant electricity systems
If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used. Keeping this into consideration, as of 2007-08, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into two regional grids. They are the southern grid and the NEWNE (North, East, West and North-East) grid. Since the project supplies electricity to the southern grid, emissions generated due to the electricity generated by the southern grid as per CM calculations will serve as the baseline for this project.

STEP 2. Choose whether to include off-grid power plants in the project electricity system (optional).
Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

Option I: Only grid power plants are included in the calculation.
Option II: Both grid power plants and off-grid power plants are included in the calculation.

The Project Participant has chosen only grid power plants in the calculation i:e **Option I**.

STEP 3. Select a method to determine the operating margin (OM).
The calculation of the operating margin emission factor (EFOM,y) is based on one of the following methods:
(a) Simple OM, or
(b) Simple adjusted OM, or
(c) Dispatch data analysis OM, or
(d) Average OM.
The simple OM method (option a) can only be used if low cost/ must-run resources constitute less than 50% of total grid generation in: 1) average of the five most recent years, or 2) based on long-term averages for hydroelectricity production.

	Share of Must-Run (Hydro/Nuclear) (% of Net Generation)				
	2004-2005	**2005-06**	**2006-07**	**2007-08**	**2008-09**
NEWNE	NA*	18.0%	18.5%	19.0%	17.3%
South	**21.6%**	**27.0%**	**28.3%**	**27.1%**	**22.8%**
India	18.0%	20.1%	20.9%	21.0%	18.6%

Data for NEWNE grid in the CEA database has been included from 2005-06 onwards

The above data clearly shows that the percentage of total grid generation by low cost/must run plants (on the basis of average of five most recent years) for the southern grid is less than 50 % of the total grid generation. Thus Simple Operating margin has been used for calculation.

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

- Ex ante option: If the *ex ante* option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation. For off-grid power plants, use a single calendar year within the 5 most recent calendar years prior to the time of submission of the CDM-PDD for validation. without requirement to monitor and recalculate the emissions factor during the crediting period;
- Ex post option: If the ex post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring. If the data required to calculate the emission factor for year y is usually only available later than six months after the end of year y, alternatively the emission factor of the previous year y-1 may be used. If the data is usually only available 18 months after the end of year y, the emission factor of the year proceeding the previous year y-2 may be used. The same data vintage (y, y-1 or y-2) should be used throughout all crediting periods.

Ex-ante option to calculate emission reduction has been chosen for the project activity.

STEP 4. Calculate the operating margin emission factor according to the selected method.
(a) Simple OM
The simple OM emission factor is calculated as the generation-weighted average CO2 emissions per unit
net electricity generation (tCO2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.
The simple OM may be calculated:
Option A: Based on the net electricity generation and a CO2 emission factor of each power unit;
Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system.
Option A has been chosen to calculate the weighted average of the operating margin emission factor. Three year data vintage has been employed:

Net Generation in Operating Margin (GWh)

Year	MWh (Southern)
2006-2007	109,116
2007-2008	114,702
2008-2009	121,471

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

Year	tCO_2/MWh (Southern)
2006-2007	0.9991
2007-2008	0.9906
2008-2009	0.9729

Generation weighted average of the simple operating Margin = 0.9871 (tCO2/ MWh)

Step 5: Calculate the build margin emission factor

As per the Tool to calculate the emission factor for an electricity system:

The sample group of power units *m* used to calculate the build margin consists of either:

(a) The set of five power units that have been built most recently

OR
(b) The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

Project participants should use the set of power units that comprises the larger annual generation. Power plant registered as CDM project activities should be **e**xcluded from the sample group.
Under the above guidelines built margin has been calculated in accordance with the Grid Tool, the build margin is calculated in this database as the average emissions intensity of the 20% most recent capacity additions in the grid based on net generation. Depending on the region, the build margin covers units commissioned in the last five to ten years.
In terms of vintage of data, project participants can choose between one of the following two options:

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

Option 2: For the first crediting period, the build margin emission factor shall be updated annually, *ex post*, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated *ex ante*, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

Ex-ante method of calculation of emission reduction has been choosen for the project.

The build margin emissions factor is the generation-weighted average emission factor (tCO2/MWh) of all power units *m* during the most recent year *y* for which power generation data is available.

Option 1 as described above is chosen in the project activity. BM is calculated ex-ante based on the most recent information available at the time of submission of PDD.

The EFBM, y is estimated as **0.8179 tCO2/MWh** (With sample group constituting most recent capacity additions to the grid comprising 20% of the system generation)

Step 6. Calculate the combined margin (CM) emissions factor

The combined margin emissions factor is calculated as follows:
$EF = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM}$
Where the weights W_{OM} and W_{BM}, are 75% and 25% respectively for wind energy projects, and $EF_{OM,y}$ and $EF_{BM,y}$ are calculated as described in Steps 1 and 2 above and are expressed in tCO2/MWh.

Baseline Emission factor (southern): (0.9871)* 0.75 + (0.8179)* 0.25
= 0.9447 tCO2/MWh

B.5. Demonstration of additionality

Additionally of the project activity has been derived according to Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities. According to the Attachment A, project proponents are required to demonstrate that the project activity would not have occurred due to at least one of the following barriers:

A. Investment Barrier
B. Technology Barrier
C. Barriers due to Prevailing Practice
D. Other Barriers.

The project faced an investment barrier to its implementation hence according to the "Guidelines on the demonstration of additionality of small-scale project activities" (EB 68 Annex 27, Version 09), investment barrier has been used to demonstrate additionality. As per the guideline, "Best practice examples include but are not limited to, the application of investment comparison analysis using a relevant financial indicator, application of a benchmark analysis or a simple cost analysis"

With reference to the Guidance 19 of Annex 05 of EB 62, *If 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, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate."*

Also the guideline says that *"The purpose of an investment analysis in the context of the CDM is to determine whether the project is less financially attractive than at least one alternative in which the project participants could have invested. In cases where the alternative requires investment anyhow and baseline emissions are based on that alternative, the only means of determining that the project activity is less financially attractive than at least one alternative is to conduct an investment comparison analysis. The benchmark approach is therefore suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest.*"

Also as per the Guidance 12 of Annex 05 of EB 62, "*In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Required/expected returns on equity are appropriate benchmarks for an equity IRR.*

In reference to the guidance above, as the baseline scenario for the project activity is to supply the electricity to the grid, for which no investment is required by the Project Participant, hence benchmark approach (Cost of equity) is best suited approach for PP.

Expected cost of equity (CoE) has been taken as the benchmark. Since the project is financed completely through equity, cost of equity is more appropriate benchmark. CoE for the project has been calculated as per the below mentioned formula:

Cost of Equity (Re): Capital Asset Pricing Model (CAPM) is used, which is well accepted methodology, for estimating the expected return on equity. As per CAPM, the required return on equity investment is the return of risk free security plus beta times the difference between market return and risk free return.
Cost of Equity can be estimated as below –

Re = Rf + Beta x (Rm – Rf)

Where:
Re = Cost of Equity
Rf = Rate of risk free investment

Beta = Indicator measuring volatility of a security relative to the asset class (Market)
Rm = Expected market return

Rate of risk free investment (Rf): This is a return from a security that is free from default risk. Typically long term government bonds are considered free from default risk. For the project activity, the Weighted Average government bond rate available at the time of investment decision has been used for calculation of benchmark. For this purpose, "Month-end Yield to Maturity of SGL Transaction in Central Government Dated Securities for Various Residual Maturities[6] has been used for risk-free rate of return".

Expected market Return (Rm): Compounded annual growth rate of the Equity indices are indicator of expected market return. For the sake of transparency, a comparative analysis was conducted for BSE Sensex, BSE 100 and BSE 200, as their base years gave data vintage for a period of close to or more than 20 years, which is the investment horizon for the current project activity. The analysis revealed that, for a particular index, returns increase with the holding period of investment[7]. Apparently, returns are more conservative for BSE 200 compared to BSE Sensex and BSE 100. While BSE 200 returns were estimated to be 13% for a holding period of 19.9 years, the corresponding figures for BSE Sensex and BSE 100 were 16.53% and 14.42%, against holding periods of 29.9 and 24.9 years, respectively. Out of the three, PP found it appropriate to choose BSE 200 since its holding period was almost equal to 20 years and the returns were the most conservative among the three indices.

Additionally, BSE-200 covers a wide range of companies, including 16[8] companies under power sector, which accounts for 8% (16/200). On the other hand, BSE Sensex constituent companies include only 2 power sector companies, thus representing 6.66% (2/30), which is lower compared with BSE-200, although BSE 100 has an 8% representation for the power companies. Thus, BSE 200 rightly represents the power sector in light of conservative returns, and, hence, an appropriate choice.

Beta: Beta is the measure of the expected volatility of a particular stock relative to a well-diversified market portfolio. The beta of equity is calculated as the covariance between its return and the return on a well-diversified market portfolio, divided by the variance of the return of the well-diversified market portfolio.

Companies involved in power generation with sufficient data availability, and which were listed on the BSE at the time of decision making, have been considered for beta calculation. The beta of these companies was computed by regressing the stock return on BSE Sensex. However, with a view to push the beta closer to one, as a mark of conservativeness, Bloomberg equation[9] was used to arrive at an adjusted beta.

While calculating the beta, uniformity of data vintage across all the companies was a major concern, since selected companies have varying trading histories. Therefore, a uniform data vintage of three years has been used for all the companies while calculating beta. This is based on

[6] http://rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=10091

[7] This has also been testified by a research (http://web.iese.edu/jestrada/PDF/Research/Others/TimeDiv.pdf) which concludes that time diversifies risk.

[8] http://www.bseindia.com/about/abindices/preface.asp Please click on any index and download the list of constituent companies for all the indices.

[9] http://www.ba.metu.edu.tr/~adil/ba4829/Damodaran-beta.pdf. *Discussion on Post-Regression Beta Adjustments in Practice on page 11. According to Damodaran, it is a normal practice to adjust beta post regression to make it more conservative. As an illustration, Bloomberg uses adjusts the raw beta using the equation: Adjusted beta = Regression Beta (0.67) + 1.00 (0.33). This effectively pushes all regression beta estimates closer to one.*

a research paper titled "Estimating Risk Paramters [10]" by the renowned scholar Aswath, who is a Professor of Finance at the Stern School of Business at New York University and an authority on the subject. On page 9 of this paper, Damodaran states, “Risk and return models are silent on how long a time period one needs to use to estimate betas. Services use periods ranging from two years to five years for beta estimates, with varying results. In choosing a time period for beta estimation, it is worth noting the trade off involved. By going back further in time, we get the advantage of having more observations in the regression, but this could be offset by the fact that the firm itself might have changed its characteristics, in terms of business mix and leverage, over that period. Our objective is not to estimate the best beta we can over the last period but to obtain the best beta we can for the future”.

Based on the example given in the article, it was observed that the beta is the lowest for 3 year period at 1.04 followed by 1.13 for 5 year period, 1.09 for 7 year period and 1.18 for 10 year period. Hence, a data vintage of three years for beta calculation was appropriately used.

The following was the result for beta analysis:

Company Name	Raw Beta BSE 200	Bloomberg adjusted beta for BSE 200
Reliance Infra	1.65	1.43
JP Hydro	1.67	1.45
NTPC	0.70	0.80
BF Utilities	2.13	1.76
CESC	0.96	0.98
Neyveli Lignite	1.66	1.44
Tata Power	1.16	1.11
BETA	1.42	1.28

The average value of adjusted beta, 1.28, has been used to arrive at an appropriate benchmark for the project activity.
Cost of Equity is calculated as follows:

Company Name	**Market Risk Premium (rm – rf)**	**Risk free return**	**Beta (β)**	**Cost of Equity (Re) [11]**
Texmo Industries	5.95	7.0512%	1.28	14.67%

The benchmark is compared with equity IRR of the project activity to demonstrate additionality. IRR is the most common financial indicator used by bankers as well as investors to meet the financial viability of the project. The equity IRR has been computed by taking into account the cash outflows (capital investment in the project) and cash inflows comprising profit after tax, depreciation, interest on term loan and salvage value (in the terminal year). The equity Internal Rate of Return (IRR) is compared with the benchmark to prove that the proposed CDM project activity is unlikely to be financially attractive without CER revenues. The followings parameters/assumptions were used for the IRR analysis:

Parameters	**Value**	**Value**	**Source**
Location	Tirupur	Dindigul	

[10] The article can be accessed at http://pages.stern.nyu.edu/~adamodar/pdfiles/papers/beta.pdf

[11] Cost of Equity(R_e) = Market Risk Premium x β + Risk free return (Government Securities)

Location No	204,205,224	154 &166	
Operational			
No of WTGs	3	2	Techno Commercial Offer
Capacity of each WTG (MW)	0.8	0.8	Techno Commercial Offer
Installed Capacity (MW)	2.4	1.6	Techno Commercial Offer
PLF applicable	24.03%	25.70%	PLF Study Report
Deration in PLF after 10th year (i.e from 11th year onwards)	1.00%	1.00%	TNERC Order dated 20/03/09
Net Annual generation (GWh)	5.052	3.602	Calculated
Tariff (INR/kWh)	3.50	3.39	H.T Bill of Texmo Industries at the time of decision making. & TNERC Order dated 20/03/09
Expenses			
O&M expenses/WTG (million INR) (1st year free)	0.655	0.655	Techno Commercial Offer
Base O&M expenses (million INR)	1.97	1.31	Techno Commercial Offer
Annual Escalation in O&M expenses	7.50%	7.50%	Techno Commercial Offer
Base Insurance Cost (@0.75% of 85% of Project cost till 5th year), 0.5% decrease every year after 5th year	0.8224	0.5483	Page 19,TNERC Order dated 20/03/09
Project cost			
Project cost /WTG in million	43	43	Techno Commercial Offer
Project cost	129	86	Techno Commercial Offer
Tax			
Salvage value	10%	10%	TNERC Order dated 20/03/09
Tax depreciation	80%	80%	Income tax act
Depreciation	4.5%	4.5%	Calculated
Income Tax	33.90%	33.90%	Assessment and Rate of Income Tax
Tax holiday / years	10	10	Income Tax Act, 1961
MAT	11.33%	11.33%	Assessment and Rate of Income Tax

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Project	Post-tax Equity IRR (without CDM)	Post-tax Equity IRR (with CDM)	Post-tax Cost of equity (Benchmark)
(204,205,224)	9.20%	11.64%	14.67%
(154, 166)	9.77%	12.70%	14.67%

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Hence, from the above table it can be concluded that investors of this wind power project activity are not even able to achieve even their conservative benchmark IRR under normal conditions. The CDM benefit helps the project in achieving the benchmark and makes the project financially viable. Therefore the project is financially additional.

Sensitivity analysis

A sensitivity analysis has been carried out to provide an analysis of variations in important parameters affecting the project financially, and their impact on the equity IRR. The results of the analysis are as mentioned in Table below:

Loc No	Equity IRR	Project Cost	PLF	O & M Cost	Tariff	Benchmark
		-10%	+10%	-10%	+10%	
(204,205,224)	9.20%	10.90%	11.03%	9.49%	11.03%	14.67%
(154, 166)	9.77%	11.51%	11.62%	10.04%	11.62%	14.67%

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It can be seen that the equity IRR does not cross the benchmark even after considerable variation in the project cost. Hence the project is financially additional.

Demonstration of Parallel and continuing actions as per the ' guidelines on the demonstration and assessment of prior consideration of the CDM' annex 22 to EB 49.

A detailed chronology of the project is provided below to demonstrate project implementation along with parallel steps for availing CDM. As the project has been timely intimated to UNFCCC prior consideration can be demonstrated.

WTG ID No	Date	CDM activity	Project activity	Proof
204 & 205	25-Mar-09	Decision to invest in 5X800 KW WTGs based on risk aversion by CDM revenue is taken by the PP. Investment to be done in phases starting from April 2009		Minutes of meeting
	11-Apr-09		Purchase order was raised for the WTGs	Copy of the purchase order
	17-Jul-09		Land Sale Deed was signed	Land Sale deed
	20-Aug-09		Received TNEB approval	TNEB approval
	26-Aug-09	Contract was signed for CDM consultancy for 2X0.8 MW WTGs		Copy of Contract with the CDM consultants
	12-Sep-09		WTG got commissioned	Commissioning certificate

	03-Oct-09	UNFCCC and NCDMA was intimated about CDM consideration by Texmo Industries		Email communication by the PP to UNFCCC
	05-Oct-09	UNFCCC accepted the CDM intimation		Website listing of the project
	05-Dec-09	Local stakeholder meeting was arranged for 5X0.8 MW WTGs of Texmo		Local Stakeholder meeting documents
154	25-Mar-09	Decision to invest in 5X800 KW WTGs based on risk aversion by CDM revenue is taken by the PP. Investment to be done in phases starting from April 2009		Minutes of meeting
	12-Sep-09		Purchase order was raised for the WTG	Copy of the purchase order
	21-Nov-09	Contract was signed for CDM consultancy for 3X0.8 MW WTGs		Copy of Contract with the CDM consultants
	05-Dec-09	Local stakeholder meeting was arranged for 8*0.8 MW WTGs of Texmo		Local Stakeholder meeting documents
	18-Dec-09		WTG got commissioned	Commissioning certificate
	25-Feb-10	UNFCCC and NCDMA was intimated about CDM consideration by Texmo Industries		Email communication by the PP to UNFCCC
166	25-Mar-09	Decision to invest in 5X800 KW WTGs based on risk aversion by CDM revenue is taken by the PP. Investment to be done in phases starting from April 2009		Minutes of meeting
	12-Sep-09		Purchase order was raised for the WTG	Copy of the purchase order
	29-Sep-09		WTG got commissioned	Commissioning certificate
	21-Nov-09		Contract was signed for CDM consultancy for 3X0.8 MW WTGs	Copy of Contract with the CDM consultants
	05-Dec-09		Local stakeholder meeting was arranged for 8X0.8 MW WTGs of Texmo	Local Stakeholder meeting documents
	25-Feb-10	UNFCCC and NCDMA was intimated about CDM consideration by Texmo Industries		Email communication by the PP to UNFCCC

224	25-Mar-09	Decision to invest in 5X800 KW WTGs based on risk aversion by CDM revenue is taken by the PP. Investment to be done in phases starting from April 2009		Minutes of meeting
	12-Sep-09		Purchase order was raised for the WTG	Copy of the purchase order
	25-Sep-09		WTG got commissioned	Commissioning certificate
	21-Nov-09		Contract was signed for CDM consultancy for 3X0.8 MW WTGs	Copy of Contract with the CDM consultants
	05-Dec-09		Local stakeholder meeting was arranged for 8X0.8 MW WTGs of Texmo	Local Stakeholder meeting documents
	25-Feb-10	UNFCCC and NCDMA was intimated about CDM consideration by Texmo Industries		Email communication by the PP to UNFCCC

It can be seen that project proponents have taken real and continuing actions for the project development. Hence it is seen that project owners were aware of CDM benefits and continuous and real actions were taken by them.

B.6. Emission reductions

B.6.1. Explanation of methodological choices

As per Paragraph 10 of methodology I.D. Version 17 the ex-ante baseline emissions are calculated based on the net energy provided to the grid by renewable generating unit multiplied by an emission factor for the displaced grid electricity (in tCO2e /MWh). The methodology provides following approaches for baseline calculations.

Baseline for the project activity is power generated from renewable energy source multiplied by the grid emission factor of the respective grid calculated in transparent and conservative manner.

(a) Combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology “Tool to calculate the emission factor for an electricity system”.

OR

b) The weighted average emissions (in kgCO2equ/MWh) of the current generation mix.

To Calculate the Emission Factor, option (a) has been adopted by using the methodology AMS I D Version 17.

"The combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the ‘Tool to calculate the emission factor for an electricity system"

Baseline Emission - Emission which would have taken place due to use of electricity from grid in absence of project activity

(a) $BE_y = (EF_{CO2,grid,y})^* (EG_{BL,Y})$

(b) Where BE_Y = baseline emissions in year y (tCo_2)

(c) $EG_{BL,Y}$ = Quantity of net electricity supplied to the grid as a result of the implementations of the CDM project activity in year y (MWh)

(d) Project Emission (PE_y) in tCO_2e/ year =0

As per Para 20, AMS ID, Version 17, "For most renewable energy project activities, PEy = 0." Since, the project is a Wind Project, i.e., Renewable Energy Project, hence the Project Emission (PEy) = 0.

However, for the following categories of project activities, project emissions have to be considered following the procedure described in ACM0002, Version 16.

-Emissions related to the operation of geothermal power plants
- Emissions from water reservoirs of hydro power plants.
Since, the Project is a Wind Power Project, hence the above mentioned projects are not applicable

Energy generated by project activity is from wind energy which is a renewable form of energy. So the generation of energy is not associated with GHGs emission.

Leakage Emission (*LEy*)

As per Para 22, AMS I.D – Version 17:

"If the energy generating equipment is transferred from another activity leakage is to be considered".
It is denoted by LEy

Since, there is no transfer of generating equipment from another activity associated with the project, the Leakage (Ly) = 0.

Hence, the Project being a Wind Power Project, does not involve any emissions, therefore the Project Emission and Leakage = 0.

A consideration of the leakage effects generated by the project activity is not required as per the provisions of Type 1D Grid connected renewable electricity generation, Appendix B of the simplified modalities and procedures for small-scale CDM project activities, as the energy generating equipment used is not equipment transferred to another activity and there is no existing energy generating equipment on site.

Emission reductions

Emission reductions are calculated as follows:

ERy = BEy − PEy − LEy

Where:
*ER***y**= Emission reductions in year *y* (t CO2e/y)

*BE***y**= Baseline Emissions in year *y* (t CO2e/y)

*PE***y**= Project emissions in year *y* (t CO2/y)

LEy= Leakage emissions in year *y* (t CO2/y)

ERy= *BE y*-0-0

ERy=BEy

B.6.2. Data and parameters fixed ex ante

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

Data / Parameter	$EF_{OM,y}$
Unit	tCO2/MWh
Description	Operating Margin Grid Emission factor
Source of data	Calculated from CEA database http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
Value(s) applied	0.9871
Choice of data or Measurement methods and procedures	The value applied is taken from the CEA reviews of three years. The detailed calculation is shown in the baseline section above.
Purpose of data	Baseline Emission Calculation
Additional comment	

Data / Parameter	$EF_{BM,y}$
Unit	tCO2/MWh
Description	Built Margin Grid Emission factor
Source of data	CEA database http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
Value(s) applied	0.8179
Choice of data or Measurement methods and procedures	The value applied is taken from the CEA reviews of three years. The detailed calculation is shown in the baseline section above.
Purpose of data	Baseline Emission Calculation
Additional comment	

Data / Parameter	$EF_{CM,y}$
Unit	tCO2/MWh
Description	Combined Margin Grid Emission factor
Source of data	Calculated from operating and built margin , using 75%-25% weights used
Value(s) applied	0.94477
Choice of data or Measurement methods and procedures	The value applied is taken from the CEA reviews of three years. The detailed calculation is shown in the baseline section above.
Purpose of data	Baseline emission calculation.
Additional comment	

B.6.3. Ex ante calculation of emission reductions

Calculation of the Emission Reductions

According to Paragraph 23 of AMS I.D, Version 17, the emission reductions are calculated as follows:

ERy = BEy – PEy – LEy
Where,
ER y Emission reductions in year *y* (tCO2/y)
BE y Baseline Emissions in year *y* (tCO2/y)
PE y Project emissions in year *y* (tCO2/y)
LE y Leakage emissions in year *y* (tCO2/y)

As per Paragraph 20, AMS I.D, Version 17, "*For most renewable energy project activities, PEy = 0.*" Since, the project is a Wind Project, i.e., renewable, hence the Project Emission (*PEy)* = 0.

As per Paragraph 22, AMS I.D, Version 17, "*If the energy generating equipment is transferred from another activity, leakage is to be considered.*" Since, there is no transfer of generating equipment from another activity associated with the project, the Leakage (Ly) = 0.

Hence, the project, being a Wind Power Project, does not involve any emissions, therefore the ***Project Emission (PEy) = 0*** *and* ***Leakage (Ly) = 0***

Thus,
Emission Reduction (ERy) = BEy – PEy – LEy
= BEy - 0 - 0
= BEy tCO2e
In other words, the above equation can be simplified to:

Emission Reduction (ERy) = Baseline Emission (BEy)

Baseline emission :
BEy = EG BL,y * EFCO$_2$, grid, y
Where:
BEy = Baseline Emissions in year y tCO2

EGBL, y = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in the year y (MWh)
EF CO_2, grid, y = CO_2 Emission Factor of the grid in year y (tCO2e/MWh)

"The plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following options:
(a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval;
(b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company);

Option (b) has been chosen for calculation of PLF for the project activity.

Energy Baseline ***EG BL,y*** **= 8654** MWh/annum

Emission Factor has been calculated in section B.6.1 of the PDD

Combined Margin Emission factor *EFCO$_2$, grid, y* = 0.94477 tCO$_2$/MWh

Thus Baseline Emission = 8654 * 0.94477 = **8176** tCO$_2$/annum

Project emission (PEy) for Wind power generation as per para 20 of AMS ID ver. 17 is 0

Since project does not involve transfer of an energy generating equipment from another activity as a result of para 22 of AMS ID ver 17, (LEy) =0

Emission Reduction:
As per para 23 of AMS ID,

ERy= BEy-PEy-LEy .....(2)

Where,
ER y Emission reductions in year y (t CO$_2$e/y)
BE y Baseline Emissions in year y (t CO$_2$e/y)
PE y Project emissions in year y (t CO$_2$/y)
LEy Leakage emissions in year y (t CO$_2$/y)

Using equation (1) & (2) we get,

***ERy*= 8176 tCO$_2$/annum**

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

Year	Baseline emissions (t CO$_2$e)	Project emissions (t CO$_2$e)	Leakage (t CO$_2$e)	Emission reductions (t CO$_2$e)
2012-13	8176	0	0	8176
2013-14	8176	0	0	8176
2014-15	8176	0	0	8176
2015-16	8176	0	0	8176
2016-17	8176	0	0	8176
2017-18	8176	0	0	8176
2018-19	8176	0	0	8176
2019-20	8176	0	0	8176
2020-21	8176	0	0	8176
2021-22	8176	0	0	8176

Total	81760	0	0	81760
Total number of crediting years	10			
Annual average over the crediting period	8176	0	0	8176

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	EGexport
Unit	MWh
Description	Net electricity export by all WTGs
Source of data	Monthly generation statement(s) measured by the individual electronic Tri vector meter installed at the metering point for each WTG. The value inclusive of transformer loss as the metering point is at secondary side of the 400 V/22KV transformer. The cumulative will give the net electricity export by all WTGs.
Value(s) applied	8654
Measurement methods and procedures	The total electricity exported to the grid is measured by the electronic Tri vector meter at the metering point. Unit will be measured on monthly basis jointly by the representative of TNEB and the PP.
Monitoring frequency	Monthly
QA/QC procedures	Meter Accuracy: 0.5 Calibration schedule: Annually Calibration Procedure: As per TNEB Norms
Purpose of data	Baseline Emission Calculation
Additional comment	-

Data / Parameter	EGimport
Unit	MWh
Description	Net electricity import by all WTGs
Source of data	Monthly generation statement(s) measured by the individual electronic Tri vector meter installed at the metering point for each WTG. The cumulative will give the net electricity import by all WTGs
Value(s) applied	0
Measurement methods and procedures	The total electricity import by each WTG is measured by the electronic Tri vector meter at the metering point. Unit will be measured on monthly basis jointly by the representative of TNEB and the PP.
Monitoring frequency	Monthly
QA/QC procedures	Meter Accuracy: 0.5 Calibration schedule: Annually Calibration Procedure: As per TNEB Norms
Purpose of data	Baseline Emission Calculation
Additional comment	-

B.7.2. Sampling plan

Not Applicable

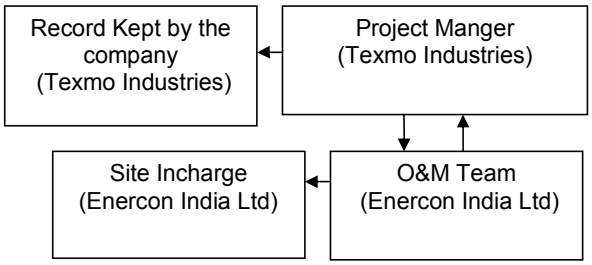
B.7.3. Other elements of monitoring plan

Wind based electricity generation is not associated with any kind of leakages. Hence, the sole parameter for monitoring is the electricity supplied to the grid. The WTGs are located two different districts in Tamilnadu. TNEB is the sole authority for whole State electricity grid operations (Transmission, Distribution, Metering, Meter calibrations, Issuance of Generation Certificate etc). Also the operation and maintenance entity for all WTGs are same, Hence the monitoring plan for both district will be identical. Monitoring plan for 5X0.8 MW WTGs by Texmo Industries at Villages viz. Gethlrev, Chinnaputhur and Kzhumankondan is given below:

Units to be measured ; Monitoring is done for the sole purpose of measuring yearly project export and import (kWh).

Metering arrangements and procedure: Each Wind Turbine has a local control system (LCS) in the Control Panel, which records the generation from that Turbine. A number of such Wind Turbines are connected to the common metering point, known as HTSC (High Tension Service Connection), High Tension Serial Connection Number which may have been assigned to individual WTGs or two or more WTGs. The monthly meter reading at the HTSC meter (Main Meter) is taken jointly by TNEB and Company representative. Generation at WTGs are measured at the WTG High Tension Serial Connection Number which may have been assigned to individual WTGs or may record the aggregate generation by two or more WTGs, at the step up side of the transformer.
Export and import measurement is done on monthly basis jointly by TNEB officials in presence of the PP representatives. The same forms the basis of Joint Meter billing. On the basis of these reading, net electricity (billable electricity or EGBL) will be calculated and the statement will be issued to respective PP.
As the JMR is taken on a fixed date, the start date of crediting period would be considered as the first- immediate-JMR-date after the date of registration of the Project.
In this way, the things will be well cycled throughout the end of the crediting period. Hence proper crediting of generation data will be achieved for monitoring and verification.

Data Reviewing and Reporting Structure:



Data uncertainty: Each meter is quality checked by a backup meter. Both the meters are of 0.5 class accuracy. Transmission lines from the individual WTGs are stepped up from 400V at the generator to 22kV at the step up side of the transformer. In case of main meter is found beyond the permissible limits, it will be replaced immediately. In case of Malfunctioning of the controller, the WTG will automatically shut-down. So, these WTG controllers have good accuracy class and it is very sensitive to any error. In case of any emergency (Failure with the Main Meter / or any emergency leading to unintended emission), last three months generation average would be

considered for the current month. Also the comparative reading from the nearest WTG located in the site would be considered for verifying the reading.

Data Storage:

Enercon India has a SCADA based monitoring system including:

- Graphical visualization of WTG system
- Historical and Real time trending
- Statistical analysis tool
- Powerful analysis tool
- Built-in reporting system

Enercon has a SAP managed information management system which regularly updates daily and cumulative generation on Enercon website which PP can access through online accounts.

At any time PP is in possession of following data of it's WTG:

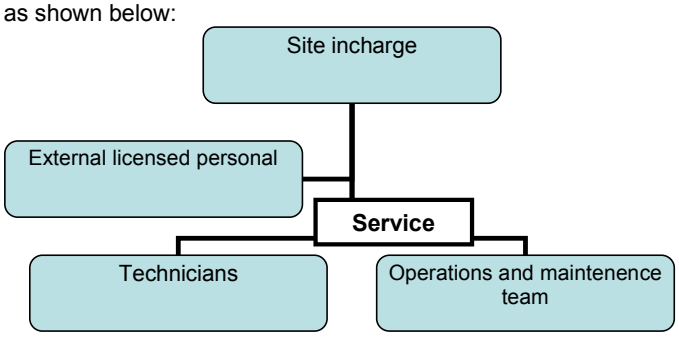
- Daily Generation reports, including main and check meter readings at the WTG HTSC
- Monthly generation reports
- Yearly performance report
- Performance graphs

Daily reading of main and check meter is taken by site incharge and updated daily between 12-5 am in the morning.
Further monthly bills of electricity are stored as hard copy by the PP and technology supplier for 2 years after the end of project life.

Quality Assurance : Enercon India ensures adherence to high quality through following measures:

- Scheduled maintenance (Four Per Annum)
- WEC Up gradation
- Remote monitoring
- Breakdown maintenance
- Regular Reporting to customer
- Round the clock remote monitoring.
- Liasoning with local EB officials
- Substation utility services, maintenance.

Operation and Maintenance: Each Wind power project site has a O&M office where the site incharge monitors the performance of WTG through a central Monitoring System. O&M structure is as shown below:



Physical or technical Problems are identified real time through the CMS and are tackled through dedicated O&M team by reaching at physical location through a dedicated transportation system. Enercon proved four scheduled maintenance services per annum. EIL has ISO 9001 corporation for it's all manufacturing units, corporate office, projects & service sites. Training is another important aspect. Enercon training academy is ISO 9001 certified.
External licensing personals monitors TNEB regulation so as to ensure the standards are up to the mark.

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

Date of Completion: 14-08-2014,

Mr Damayanti Ramachandran
Partner
Texmo Industries
PB No. 5303, Mettupalyam Road
Coimbatore, Tamilnadu, India.
Telephone:+91-422-2642357
Mail: pmp@texmo.net

SECTION C. Duration and crediting period

C.1. Duration of project activity

C.1.1. Start date of project activity

Start date of the project activity is 11/04/2009, which is the date on which purchase order was raised for WTG no's 204 & 205.

C.1.2. Expected operational lifetime of project activity

Expected lifetime of the project activity is 20 years.

C.2. Crediting period of project activity

C.2.1. Type of crediting period

Fixed crediting period 10 years was selected for this project activity.

C.2.2. Start date of crediting period

Starting date will be 16/11/2012 or the date of registration of project activity by UNFCCC whichever is later.

C.2.3. Length of crediting period

10 years

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

As per the Schedule 1 of Ministry of Environment and Forests (MoEF - Government of India) notification dated September 14, 2006, - 39 activities are required to undertake environmental impact assessment studies[12]. Proposed project does not fall under the list of activities requiring EIA hence no EIA study was required and conducted. EIA are not required.

SECTION E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

In order to get the views of the local stakeholders and respond to their concerns (if any), a stakeholder meeting was organized by the project participant. The meeting was open to all and invitations were sent through the paper advertisement on the local newspaper .Some of the identified stakeholders were invited personally.
PP has a total 6.4 MW (8x0.8 MW) capacity wind power project in the state of Tamilnadu state. Project Activity (5*8 MW) , and remaining 3x0.8MW WTG has been registered under VCS (http://mc.markit.com/br-reg/public/project.jsp?project_id=100000000000539)

Therefore Local Stake Holder Meeting was held jointly for all machines (0.8 MW * 8) i.e. 6.4 MW
Out of which 5x0.8 MW is under CDM)

One stakeholder meeting was organized for all 5X0.8MW machines:
Date of advertisement: 27 Nov 2009
Date of meeting: 5 Dec 2009
Location of meeting: Kozhumankundam village, Palani Taluk, Dindigul District

Local language of communication was used. Meeting was attended by 28 Persons, Which includes:

- Local villagers
- Enercon Employed locals
- Officials of the TNEB
- Representative of project developer
- Representative of Enercon O&M team
- Village administrative officers

Some of the local stake holders who were present at the meeting were:

S.No.	Name of the Stakeholder	Occupation / Designation	Village / Organization
1	S. Ramasamy	Farmer	Kozuhmankonadan
2	T. Pradeep	Sr. Engineer	Panampatti
3	K Shivakumar	Farmer	Dharapuram

[12] http://envfor.nic.in/legis/eia/so1533.pdf

4	Balasubhramanyam	Agriculture	Kozuhmankonadan

Villagers were explained about the project activity, technology employed and its implications. They were asked to present write their comment and express their views on the same.

E.2. Summary of comments received

Impacts and views of villagers were compiled with the help of a questionnaire. Each villager was given a copy of the questionnaire which contained questions indicative of villager's view of impact of the project on the social, economic, technical and environmental well-being of the region and their view of project owner. Along with this they were asked to write in all their comments.
Majority stakeholder's felt that setting up of the wind mill has led to generation of revenue in the region and has led to general growth of the village. Most of stakeholder found this initiative by Texmo Industries satisfactory. In general the wind mill installation by Texmo Industries is considered as a good step. Some stakeholders felt that there was less awareness about such projects in the region. It was also felt that more such project needs to be introduced in the region.
The following information is the synthesis of the questionnaire feedback by the local Stakeholders

- The meetings have clarified the doubts on the issues relating to the wind project development.
- In the villages near by project sites, local community are very much encouraging the project and happy with it due to the employment opportunities created.
- Development of approach road for the project site would indirectly help the nearby community to have a better infrastructure and implicitly helps to develop remote rural areas.

Due to the local development, land prices have increased and thus improved living standard

E.3. Report on consideration of comments received

No negative comments were received hence no action was required, however minor queries were resolved onsite.

SECTION F. Approval and authorization

Host Country Approval from the host party (India) was received.

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	Texmo Industries
Street/P.O. Box	PB No. 5303, Mettupalyam Road
Building	
City	Coimbatore
State/Region	TamiNadu
Postcode	
Country	India
Telephone	
Fax	+91-422-6610300
E-mail	pmp@texmo.net
Website	
Contact person	Mr Damayanti Ramachandran
Title	Partner
Salutation	
Last name	Ramachandran
Middle name	
First name	Damayanti
Department	Accounts
Mobile	
Direct fax	+91-422-6610300
Direct tel.	+91-422-2642357
Personal e-mail	pmp@texmo.net

Appendix 2. Affirmation regarding public funding

No public funding is involved in the project activity

Appendix 3. Applicability of methodology and standardized baseline

Please Refer Section B.2

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

Please Refer Section B.6.1

Appendix 5. Further background information on monitoring plan

Please Refer Section B.7.2

Appendix 6. Summary of post registration changes

As per registered PDD the HTSC No 1689 and 1707 was selling the electricity to Southern regional grid. Now HTSC No 1689 and 1707 is wheeling the generated electricity to the Texmo Industries via southern Regional Grid.

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Document information

Version	*Date*	*Description*
05.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the project design document form for small-scale CDM project activities (these instructions supersede the "Guidelines for completing the project design document form for small-scale CDM project activities" (Version 01.1)); • 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-SSC-PDD* to *CDM-PDD-SSC-FORM*; • Editorial improvement.
04.1	11 April 2012	Editorial revision to change history box by adding EB meeting and annex numbers in the Date column.
04.0	13 March 2012	EB 66, Annex 9 Revision required to ensure consistency with the "Guidelines for completing the project design document form for small-scale CDM project activities"
03.0	15 December 2006	EB 28, Annex 34 • The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.
02.0	08 July 2005	EB 20, Annex 14 • The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.
01.0	21 January 2003	EB 07, Annex 05 Initial adoption.

Decision Class: Regulatory
Document Type: Form
Business Function: Registration
Keywords: project design document, SSC project activities