



Voluntary Carbon Standard

Project Description

Date: 08-September-2009

Version: 2.0

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1 Description of Project:

1.1 Project title

Bundled Wind Power project in Tamil Nadu managed by Enercon India Limited – II

1.2 Type/Category of the project

The project activity involves generation by 36 MW of installation of Wind Electric Generators (WEGs) in the state of Tamilnadu. The project will harness the wind resource for electricity generation and will displace the electricity generated from the grid which comprises mainly the thermal generated resource.

The project is part of the UNFCCC Clean Development Mechanism program, which is a GHG program that has been approved by the VCS Board. Accordingly, under the VCS program, as per the modalities and procedures for large-scale CDM project activities, the type and category of the project activity is as under:

Sectoral Scope: 1, Energy industries (renewable/ non-renewable sources)

Project Category: ACM0002, Version-10, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

The project is a **bundled project** activity having six investors. The project involves a total of 45 nos. of WEGs of 800 KW each. The investor wise detail is provided in Annexure 2 and Annexure 3 of the PD.

1.3 Estimated amount of emission reductions over the crediting period including project size:

The project is estimated to reduce emission reductions equivalent to 69,747 tCO₂e per year and total of 697,470 tCO₂e in the crediting period of 1-April-2006 to 31-March-2016.

Period	VCUs (tonnes of CO ₂ e)
01Apr 06 to 31 Mar 07	69,747
01Apr 07 to 31 Mar 08	69,747
01Apr 08 to 31 Mar 09	69,747
01Apr 09 to 31 Mar 10	69,747
01Apr 10 to 31 Mar 11	69,747

01Apr 11 to 31 Mar 12	69,747
01Apr 12 to 31 Mar 13	69,747
01Apr 13 to 31 Mar 14	69,747
01Apr 14 to 31 Mar 15	69,747
01Apr 15 to 31 Mar 16	69,747
Total	697,470

The project activity falls in the category “Projects” as the number of emission reductions are in the range of 5000 to 10,000,000.

1.4 A brief description of the project:

The project under consideration is set up to produce clean power from the wind electric converters. The generated electricity is wheeled using the state transmission system for captive consumption. The Project leads to reduced greenhouse gas (GHG) emissions because it displaces electricity from fossil fuel based electricity generation plants. The project is helping in bridging the demand supply gap by using wind as a source of generating electrical energy.

The project activity consists of the 45 machines of Enercon make of 800 KW each, totaling to the capacity of 36 MW. The Project considered harnessed renewable resources in the region, thereby displacing non-renewable natural resources thereby ultimately leading to sustainable economic and environmental development. Enercon (India) Ltd (“Enercon” or “EIL”) is the equipment supplier and the operations and maintenance contractor for the Project.

1.5 Project location including geographic and physical information allowing the unique identification and delineation of the specific extent of the project:

The project under consideration is located at Pushpathur site in Dindigull district and Chinnakkampalayam in Erode district of Tamil Nadu. The location is provided in the Annexure-3.

1.6 Duration of the project activity/crediting period:

Project Start date: The start date is considered as 08/03/2006, being the date of commissioning of first turbine included in the Bundle.

Crediting period start date: 01 Apr 2006

VCS Project crediting period: The project proponent has chosen renewable crediting period. The first renewable crediting period for the project activity is considered for the period of 10 years from 1 April 2006 to 31 March 2016.

1.7 Conditions prior to project initiation:

The project activity is located in the Southern grid which is dominated by fossil fuel fired thermal power stations. The grid is also doomed by power deficit and hence the addition of renewable wind energy generation will help in the sustaining and catering to the power demand.

The electricity generated from the wind power project will be wheeled for captive consumption. The electricity consumption at the industrial location will be replaced to the extent the wind power project generates electricity and will replace the electricity that would otherwise have been generated by other grid connected power stations and by addition of new generating stations.

India has two regional grids i.e. NEWNE (North, Eastern, Western and North-Eastern) and Southern grid. The project is located in the southern region and hence the baseline for the project activity will be emissions that would have occurred by the operation of grid connected power stations and by the addition of new generating stations. The detail of the baseline calculation is provided in the section 4.1 of the PD.

1.8 A description of how the project will achieve GHG emission reductions and/or removal enhancements:

The Project is wind based renewable energy source, zero emission power project connected to the Tamil Nadu state grid, which forms part of the Southern regional electricity grid. The Project will displace fossil fuel based electricity generation that would have otherwise been provided by the operation and expansion of the fossil fuel based power plants in Southern regional electricity grid.

1.9 Project technologies, products, services and the expected level of activity:

The Project involves 45-wind energy converters (WECs) of Enercon make (800 kW E-48) with internal electrical lines connecting the Project with local evacuation facility. The WECs generate 3-phase power at 400V, which is stepped up to 22 KV. The Project can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V $\pm$ 12.5%. The other salient features of the state-of-art-technology are:

- Gearless Construction - Rotor & Generator Mounted on same shaft eliminating the Gearbox.

- Variable speed function – has the speed range of 18 to 33 RPM thereby ensuring optimum efficiency at all times.
- Variable Pitch functions ensuring maximum energy capture.
- Near Unity Power Factor at all times.
- Minimum drawl (less than 1% of kWh generated) of Reactive Power from the grid.
- No voltage peaks at any time.
- Operating range of the WEC with voltage fluctuation of -20 to +20%.
- Less Wear & Tear since the system eliminates mechanical brake, which are not needed due to low speed generator, which runs at maximum speed of 33 rpm and uses Air Brakes.
- Three Independent Braking System.
- Generator achieving rated output at only 33 rpm.
- Incorporates lightning protection system, which includes blades.
- Starts Generation of power at wind speed of 3 m/s.

Enercon (India) Ltd has secured and facilitated the technology transfer for wind based renewable energy generation from Enercon GmbH, has established a manufacturing plant at Daman in India, where along with other components the “Synchronous Generators” using “Vacuum Impregnation” technology are manufactured.

The technical life of the project activity is 20 years and the project is expected to generate 75,244 MWh each year at the Plant Load Factor of 23.86%.

1.10 Compliance with relevant local laws and regulations related to the project:

Renewable energy projects are not mandated in India by any enforced law or other regulatory framework. However, for guidance on voluntary wind energy based electricity generation, there are policies introduced/incentives declared by the state governments. These policies have been considered for the project activity and are available at <http://www.windpowerindia.com/govtinc.html> .

For the implementation of the project, the project proponent has obtained land lease deeds/sale deeds and has secured TNEB clearance for commissioning of the WEGs in the state of Tamilnadu.

1.11 Identification of risks that may substantially affect the project’s GHG emission reductions or removal enhancements:

The risks that may affect the project's GHG emission reductions are given below:

- Wind electricity generation is risky and unpredictable due to the variability involved in wind resources as well as its forecasting. This variability is due to the variability in the wind speed and wind pattern, which in turn depends on weather cycle, climatic conditions, etc.
- The project is dependent on the utility provider for grid availability. If there is a grid failure, the project will be unable to supply the generated electricity to the grid.

1.12 Demonstration to confirm that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.

The project activity is primarily a renewable power generation facility which does not emit any kind of GHG emissions. Hence the project activity has not been implemented to create GHG emissions for the purpose of the subsequent removal or destruction of GHG emissions.

1.13 Demonstration that the project has not created another form of environmental credit (for example renewable energy certificates).

The project has not created another form of environmental credit in the given crediting period (from 1-April-2006 to 31-March-2016). A letter from the project proponent has been submitted to the validator to demonstrate that the project has not created another form of environmental credit.

1.14 Project rejected under other GHG programs (if applicable):

Not applicable.

1.15 Project proponents roles and responsibilities, including contact information of the project proponent, other project participants:

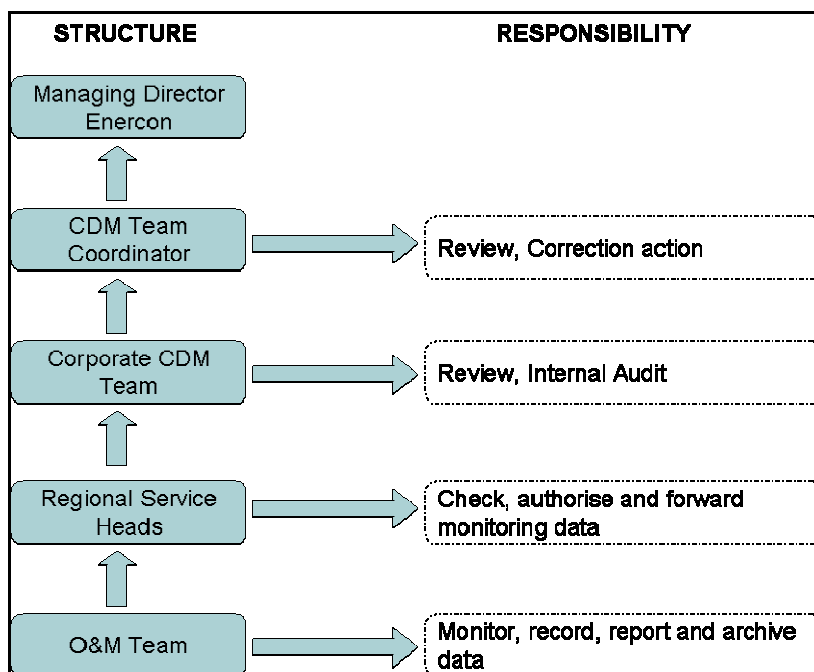
Enercon India Limited ("EIL") is the project proponent for this activity and has been duly authorized by the individual investors to take up the said project activity for VCS development. Enercon India Limited will be responsible for all the communications and actions in relation to the project being validated in accordance with the VCS standard.

Organization:	Enercon (India) Limited
Street/P.O.Box:	Enercon Tower, A-9, Veera Industrial Estate, Veera Desai Road, Andheri (W)
Building:	
City:	Mumbai

State/Region:	Maharashtra
Postfix/ZIP:	400 053
Country:	India
Telephone:	+91-22-6692 4848
FAX:	+91-22 - 67040473 / 66921175
E-Mail:	yogesh.mehra@enerconindia.net
URL:	www.enerconindia.net
Represented by:	
Title:	Managing Director
Salutation:	Mr.
Last Name:	Mehra
Middle Name:	
First Name:	Yogesh
Department:	Corporate
Mobile:	
Direct FAX:	+91-22-6692 1177
Direct tel:	+91-22-6702 2832
Personal E-Mail:	yogesh.mehra@enerconindia.net

Roles and Responsibility:

Enercon (India) limited is operation and maintenance contractor for the project. The Project is operated and managed by Enercon (India) Ltd. The operational and management structure implemented by Enercon is as follows:



1.16 Any information relevant for the eligibility of the project and quantification of emission reductions or removal enhancements, including legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and temporal information.):

Eligibility of the project

- The eligibility and applicability of the methodology is detailed in section 2.2 of the PD.

Quantification of Emission Reductions

Estimated amount of emission reduction for crediting period of 10 years

Years	Annual estimation of emission reductions in tonnes of CO ₂ e
01Apr 06 to 31 Mar 07	69,747
01Apr 07 to 31 Mar 08	69,747
01Apr 08 to 31 Mar 09	69,747
01Apr 09 to 31 Mar 10	69,747
01Apr 10 to 31 Mar 11	69,747

01Apr 11 to 31 Mar 12	69,747
01Apr 12 to 31 Mar 13	69,747
01Apr 13 to 31 Mar 14	69,747
01Apr 14 to 31 Mar 15	69,747
01Apr 15 to 31 Mar 16	69,747
Total estimated reductions (tonnes of CO ₂ e)	697,470
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tonnes of CO ₂ e)	69,747

Legislative

- There is no legal or regulatory requirement for setting wind power projects.

Technical

- Increased interest in wind energy projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future

Economic

- The project activity requires temporary and permanent, skilled and semi-skilled manpower at the wind park; this will create additional employment opportunities.
- The generated electricity will be fed into the western regional grid through local grid, thereby improving the grid frequency and availability of electricity to the local consumers (villagers & sub-urban habitants) which will provide new opportunities for industries and economic activities to be setup in the area thereby resulting in greater local employment, ultimately leading to overall development.

Sectoral

- The project activity falls in the Sectoral Scope 1, Energy Industries (Renewable/Non-Renewable Sector).

- The project activity is Greenfield renewable grid connected generation facility that will displace electricity from grid connected generating stations.

Social

- The project activity has led to the development of supporting infrastructure such as road network etc., in the wind park location, which also provides access to the local population.
- Use of a renewable source of energy reduces the dependence on imported fossil fuels variation thereby leading increased energy security.

Environmental

- The project activity involves use of renewable energy source for electricity generation instead of fossil fuel based electricity generation, thereby reducing emission reductions.
- Being a renewable resource, using wind energy to generate electricity contributes to resource conservation. Thus the project causes no negative impact on the surrounding environment contributing to environmental well being.

Geographic and Site-Specific

- Geographic location is detailed in section 1.5 of the PD

1.17 List of commercially sensitive information (if applicable):

The documents that we have provided to the DoE do not contain commercially sensitive information.

2 VCS Methodology:

2.1 Title and reference of the VCS methodology applied to the project activity and explanation of methodology choices:

Sectoral Scope: 1, Energy industries (renewable/ non-renewable sources)

Project Category: ACM0002, Version-10, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

The tools referenced in this methodology are:

1. Tool to calculate the emission factor for an electricity system, version 01.1 (<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v1.1.pdf>).
2. CDM Tool for demonstration and assessment of additionality version 5.2.

2.2 Justification of the choice of the methodology and why it is applicable to the project activity:

The approved consolidated baseline and monitoring methodology ACM 0002, Version 09 is the choice of the baseline and monitoring methodology and it is applicable because:

S. No	Applicability conditions of ACM0002	Project Under Consideration
1.	Methodology is applicable to electricity capacity additions from: 1. Run-of-river hydro power plants; hydro power projects with existing reservoirs where volume of the reservoir is not increased 2. Wind Sources 3. Geothermal Sources 4. Solar Sources 5. Wave and tidal sources	The project represents electricity capacity additions from wind sources
2.	Methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site.	The project is the green field project activity.
3.	The Methodology is applicable when the geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available	The geographical and system boundaries of the Southern electricity grid can be clearly identified and information on the characteristics of the grid is available from the Central Electricity Authority. http://www.cea.nic.in/planning/c%20and%20e/

		Government%20of%20India%20website.htm
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The details above justify the applicability of ACM0002 for this project.

2.3 Identifying GHG sources, sinks and reservoirs for the baseline scenario and for the project:

- ✓ The sources, sinks and reservoir controlled by the project proponent would be the mitigation of CO₂ which would have otherwise been liberated from the fossil fuel based power plants.
- ✓ There are no sources sinks and reservoir related to the GHG project
- ✓ There are no sources sinks and reservoir affected by the GHG project

	Source	Gas	Included?	Justification/Explanation
Baseline	CO ₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.	CO ₂	Yes	In the baseline scenario the electricity would have been sourced from the Southern grid, which in turn would be connected to fossil fuel, fired power plants that emit CO ₂ .
		CH ₄	No	No methane generation is expected to be emitted.
		N ₂ O	No	No nitrous oxide generation is expected to be emitted.
Project Activity	Electricity generation from the power activity	CO ₂	No	Zero-emissions grid connected electricity generation from renewable energy
		CH ₄	No	No methane generation is expected to be emitted.
		N ₂ O	No	No nitrous oxide generation is expected to be emitted.

2.4 Description of how the baseline scenario is identified and description of the identified baseline scenario:

According to ACM0002, for project activities that do not modify or retrofit an existing electricity generation facility, the baseline scenario is the following:

Electricity delivered to the grid by the project 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 below.

As the Project does not modify or retrofit an existing generation facility, the baseline scenario is the generation by the operation of grid-connected power plants and by the addition of new generation sources. This is estimated using calculation of Combined Margin multiplied by electricity delivered to the grid by the Project.

Variable	Data Source
EGy – Electricity generated	Records maintained by project proponent
Parameter	Data Source
EF _{OM,y} = Operating Margin Emission Factor (tCO ₂ /MWh)	CEA Database for CO ₂ emissions, version 04
EF _{BM,y} = Build Margin Emission Factor (tCO ₂ /MWh)	CEA Database for CO ₂ emissions, version 04
EFy – Grid Emission Factor	Calculated as the weighted average of the operating margin and build margin

2.5 Description of how the emissions of GHG by source in baseline scenario are reduced below those that would have occurred in the absence of the project activity (assessment and demonstration of additionality):

As per VCS 2007.1, the project is considered additional based on one of the following tests:

Test 1: The project test

Test 2: Performance test

Test 3: Technology test

The project proponent has chosen to use ‘the project test’ to prove the additionality of the project activity. The project test prescribes the following steps for proving additionality:

Step 1: Regulatory Surplus

Setting up of wind energy project is not mandated by any enforced law, statute or other regulatory framework in India.

Step 2: Implementation Barriers

The Implementation Barrier analysis set out below demonstrates in a conservative and transparent manner that the project activity is financially unattractive. We have used the CDM tool for demonstration and assessment of additionality version 5.2. The Tool prescribes the following steps for proving additionality:

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations**Sub-step 1a: Define alternatives to the project activity:**

The baseline alternative for the project activity is pre-defined in ACM0002 as generation of equivalent amount of electricity by operation of grid-connected power plants and by addition of new generation sources. Accordingly, the realistic and credible alternatives to the project activity are:

The Project is not undertaken as a CDM project activity.

The project is not implemented, in which case equivalent amount of electricity would be generated through operation of grid-connected power plants and addition of new generation sources,

Outcome of Step 1a: Alternatives (a) and (b) above have been identified as realistic and credible alternative scenario(s) to the project activity

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

Setting up of wind energy project is not mandated by any enforced law, statute or other regulatory framework in India. However, for guidance on voluntary wind energy based electricity generation, there are policies introduced/incentives declared by the state governments. These policies have been considered for project activity and are available at <http://www.windpowerindia.com/govtinc.html> .

Step 2: Investment Analysis**Sub-step 2a: Determine appropriate analysis method**

Option I – Simple cost analysis is not applicable as the project activity sells electricity to the Utility and obtains economic benefits in the form of electricity tariffs.

Sub-step 2b: Option I. Apply simple cost analysis

Not applicable

Sub-step 2b: Option II. Apply investment comparison analysis

The project faces investment barrier. This has been illustrated in the following paragraphs.

As per Guidance on assessment of investment analysis issued in EB 41 (paragraph 11) the Weighted Average Cost of Capital (WACC) can be considered as appropriate benchmark for project IRR. It is also worthwhile to note that the captioned project is a greenfield wind power generation project that generates and supplies electricity to the state grid, therefore the project has more than one possible project developer. The guidance under Para 13 also states that in cases where the project has more than one potential developer, the benchmark cannot be based on internal cost of equity or WACC and shall be based on publicly available data sources which can be clearly validated by the DOE. According to the EB's guidance under investment analysis, we have not used company or project specific parameters for the calculation of the benchmark (such as company WACC, project and company specific interest rates, etc.). Accordingly, the weighted average cost of capital has been calculated based on parameters that are standard in the market, considering the specific characteristics of the project type. The WACC has been derived based on the cost of capital of all listed power generating companies.

Weighted average cost of capital (WACC) is calculated as weighted average cost of equity and cost of debt as illustrated below

$$WACC = [D / (D+E)] * [\text{Cost of Debt}] + [E / (D+E)] * [\text{Cost of Equity}]$$

Where:

D: Percentage of Debt used in the Project

E: Percentage of Equity used in the Project

Cost of Debt:

Cost of debt is defined as the rate at which lenders agree to lend money to a project. The guidance to investment analysis clarify that the benchmark for projects with more than one potential developer should not be based on project specific parameters but should represent the standard in the market. Prime Lending Rate is defined as the benchmark rate for all bank loans. Historically, the PLR is the rate at which banks lend to the best borrower—one who is the safest or the least likely to default on the loan. Accordingly, the bank prime lending prevailing at the time of decision making has been considered as the cost of debt. The prime lending rate at the time of decision making is taken as PLR.

Cost of Equity:

The cost of equity has been determined using the Capital Asset Pricing Model (CAPM) considering Beta values of all power generating companies in India that were listed at the time of this investment.

Sub-step 2c: Calculation and comparison of financial indicators (only applicable to Options II and III):

As the project activity is a bundled activity and the period of decision making for all the sub projects included in the bundle is not common. Therefore we have calculated the benchmark for each of the sub project included in the bundle. The benchmark for each of the sub project included in the bundle works out to be:-

SI	Investor Name	WACC
1	Premier Spg & Wvg Mills Pvt Ltd	13.68%
2	Premier Fine Yarns Pvt Ltd	13.35%
3	Coimbatore Twisted (Premier Mills)	13.68%
4	Coimbatore Polytex (Premier Mills)	13.68%
5	Bannari Amman Spinning Mills	11.89%

The table below summarizes the key assumptions for the sub-project (**Premier Fine Yarns Pvt Ltd**) that has maximum Project IRR amongst all the sub-projects included in the bundle.

Project:	Premier Fine Yarns Pvt Ltd
Location :	Tamilnadu

Assumptions for Financial Model

Reference No	2
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Capacity of Machines in kW	800
Number of Machines	10
Project Capacity in MW	8.00
Project Commissioning Date	Mar-07
Purchase Order Date	Apr-06
Project Cost per MW (Rs. In Millions)	53.53

VCS Project Description

Operations		
Plant Load Factor - 1st to 5th year	23.86%	TNERC-Palaghat Pass
Derating of 1% after every 10 years	1.00%	TNERC Order
Insurance Charges @ % of capital cost	0.18%	Normative
Operation & Maintenance Cost base year @ % of capital cost	1.87%	Supplier's Offer
% of escalation per annum on O & M Charges	6.0%	Supplier's Offer

Tariff		
Base year Tariff - Rs./Kwh	3.65	TNERC Order
Banking Charges	5%	TNERC Order
Wheeling Charges in % of Electricity	5%	TNERC Order

Project Cost	Rs Million	
Land and Infrastructure, Generator & Electrical Equipments, Mechanical Equipments, Civil Works, Instrumentation & Control, Other Project Cost, Pre operative Expenses, etc.		
Total Project Cost	428	Supplier's Offer

Means of Finance		Rs Million
Own Source	20%	86
Term Loan	80%	343
Total Source		428
Terms of Loan		
Interest Rate	11.25%	
Tenure	10	Years

Income Tax Depreciation Rate (Written Down Value basis)		
on Wind Energy Generators	80%	IT Act
On other Assets	10%	IT Act
Book Depreciation Rate (Straight Line Method basis)		
On all assets	4.50%	Straight Line Method
Book Depreciation up to (% of asset value)	90%	TNERC Order

Income Tax		
Income Tax rate	30%	IT Act
Minimum Alternate Tax	10%	IT Act
Surcharge	10%	IT Act
Cess	2%	IT Act

Working capital		
O & m expenses (no of days)	365	O&M Contract

The highest return for any investor within the bundled project activity was found to be 8.67 % without consideration of Carbon revenue. This is below the benchmark and illustrates that additional revenue from emission reductions is required for the project. Below mentioned is the project IRR for all the investors in this bundled project activity without VER revenues.

SI	Investor Name	Project IRR
1	Premier Spg & Wvg Mills Pvt Ltd	8.51%
2	Premier Fine Yarns Pvt Ltd	8.67%
3	Coimbatore Twisted (Premier Mills)	7.45%
4	Coimbatore Polytex (Premier Mills)	8.54%
5	Bannari Amman Spinning Mills	8.21%

Sub-step 2d: Sensitivity analysis (only applicable to Options II and III):

There are three critical parameters to which the project activity is sensitive:-

- Capital Cost
- Tariff
- Plant Load Factor
- O & M cost

Capital Cost

The capital cost for the project activity is taken from the offer provided by the WTG supplier and hence capital cost is subjected to the variation of +/-10%. Therefore we have considered it appropriate to conduct sensitivity on capital cost.

SI	Investor Name	Benchmark	10% decrease in Capital Cost	Base Case
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1	Premier Spg & Wvg Mills Pvt Ltd	13.68%	10.52%	8.51%
2	Premier Fine Yarns Pvt Ltd	13.35%	10.70%	8.67%
3	Coimbatore Twisted (Premier Mills)	13.68%	9.37%	7.45%
4	Coimbatore Polytex (Premier Mills)	13.68%	10.41%	8.54%
5	Bannari Amman Spinning Mills	11.89%	10.26%	8.21%

Tariff

Tariff for the project activity is taken from the tariff order issued by Tamilnadu State electricity Commission. As per national tariff policy [by Ministry of Power] dated 6 January 2006, the cross-subsidy surcharge should be brought down progressively and, as far as possible, at a linear rate to a maximum of 20% of its opening level by the year 2010-11. [Source:

<http://www.orierc.org/new1/documents/National%20Electricity%20Tariff%20Policy.pdf>

. The industrial tariff is ought to come down in coming years as mandated by the NTP, we have considered the present tariff for calculating the returns from the wind power project as a conservative measure for the energy offset from the grid.

Therefore it is unlikely that the project would displace a tariff of INR 3.65 per Kwh on the entire generated electricity. Therefore we have considered it appropriate not to conduct sensitivity on HT Tariff.

Plant Load Factor

Sensitivity Analysis of the project IRR to the Plant Load Factor has been carried out considering variation of + 10% in the generation. The sensitivity has been done on all the investors and is being presented in the table below.

SI	Investor Name	Benchmark	Base Case	10% increase in PLF

1	Premier Spg & Wvg Mills Pvt Ltd	13.68%	8.51%	10.36%
2	Premier Fine Yarns Pvt Ltd	13.35%	8.67%	10.53%
3	Coimbatore Twisted (Premier Mills)	13.68%	7.45%	9.21%
4	Coimbatore Polytex (Premier Mills)	13.68%	8.54%	10.25%
5	Bannari Amman Spinning Mills	11.89%	8.21%	10.10%

O & M Cost

Sensitivity Analysis of the project IRR to the O & M cost has been carried out considering variation of -10% in the cost of O & M. The sensitivity has been done on all the investors and is being presented in the table below

SI	Investor Name	Benchmark	Base Case	10% decrease O & M Cost
1	Premier Spg & Wvg Mills Pvt Ltd	13.68%	8.51%	8.90%
2	Premier Fine Yarns Pvt Ltd	13.35%	8.67%	9.22%
3	Coimbatore Twisted (Premier Mills)	13.68%	7.45%	7.83%
4	Coimbatore Polytex (Premier Mills)	13.68%	8.54%	8.94%
5	Bannari Amman Spinning Mills	11.89%	8.21%	8.56%

O & M Advance

Sensitivity Analysis of the project IRR to the O & M advance has been carried out considering 90 days advance, 180 days advance and 365 days advance. The sensitivity has been done on all the investors and is being presented in the table below

SI	Investor Name	Benchmark	Base Case [365 Days]	O & M advance [180 days]	O & M advance [90 days]
1	Premier Spg & Wvg Mills Pvt Ltd	13.68%	8.51%	8.61%	8.66%
2	Premier Fine Yarns Pvt Ltd	13.35%	8.67%	8.77%	8.82%
3	Coimbatore Twisted (Premier Mills)	13.68%	7.45%	7.50%	7.53%
4	Coimbatore Polytex (Premier Mills)	13.68%	8.54%	8.64%	8.69%
5	Bannari Amman Spinning Mills	11.89%	8.21%	8.29%	8.33%

O & M Escalation

Sensitivity Analysis of the project IRR to the O & M escalation has been carried out at 5%, 6% and 7%. The sensitivity has been done on all the investors and is being presented in the table below

SI	Investor Name	Benchmark	Base Case O&M Escalation [6%]	O&M Escalation [5%]	O&M Escalation [7%]
1	Premier Spg & Wvg Mills Pvt Ltd	13.68%	8.51%	8.80%	8.18%
2	Premier Fine Yarns	13.35%	8.67%	8.94%	8.37%

	Pvt Ltd				
3	Coimbatore Twisted (Premier Mills)	13.68%	7.45%	7.72%	7.13%
4	Coimbatore Polytex (Premier Mills)	13.68%	8.54%	8.83%	8.04%
5	Bannari Amman Spinning Mills	11.89%	8.21%	8.46%	7.93%

Step 3: Barrier analysis

Not Opted for.

Step 4: Common practice analysis

Wind electricity diffusion in Tamil Nadu

We analyze the extent to which wind energy projects have diffused in the electricity sector in Tamil Nadu. In 2004 – 05, electricity generation from wind sources was 2,426¹ GWh and the total electricity available at bus bar in the state of Tamil Nadu was 51,486² GWh. Thus wind generation works out to 4.7% of total electricity available to the state of Tamil Nadu. Clearly, electricity generation from wind is not a common practice in Tamil Nadu.

Analysis of similar projects within comparable regulatory regime and investment climate

Over the years there have been two different regulatory / investment regimes in the state of Tamil Nadu for wind power projects.

Regime 1 – Central regime (MNES policy)

- Projects installed prior to September 2001
- Wind power projects were governed by MNES policy with tariff set at Rs. 2.25 per unit for the base year 1994-95 with a 5% annual escalation, wheeling and banking charges of 2%, etc.

¹ Table 3.4 titled “Gross Electrical Energy Generation (Utilities Only) Primemoverwise, Regionwise / Statewise During 2004-05” in chapter 3 of the CEA general review 2006 available at http://www.cea.nic.in/power_sec_reports/general_review/index_general_Review.html

² Table 5.3 titled “Statewise System Losses During 2004-05” in chapter 5 of the CEA General review 2006 available at http://www.cea.nic.in/power_sec_reports/general_review/index_general_Review.html

Regime 2 – State regime (TNEB and TNERC policies / orders)

- Projects installed after September 2001
- Wind power projects were governed by (a) TNEB order of 2001 with fixed tariff of Rs. 2.70 per unit, wheeling and banking charged of 5%, etc. (b) TNERC order of 2006 with fixed tariff of Rs. 2.9 per unit, etc.

The different tariffs under regime 1 and regime 2 are presented below:

Electricity tariff (Rs/kWh)	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	Average
REGIME 1 MNES Policy ³	3.60	3.72	3.83	3.94	4.05	4.17	4.28	4.39	4.50	4.62	4.11
REGIME 2 TNEB order 2001 ⁴	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
TNERC Order 2006 ⁵	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90

Wind projects prior to September 2001 were governed by the MNES policy. However this regime was superseded by the state policy and post September 2001 all project fell into the state regime (regime 2). As can be seen above, Regime 1 projects are of a different regulatory and investment environment and hence cannot be compared to the proposed project activity which falls under the Regime 2.

The candidate CDM project activity is a large scale project and hence an analysis of all private wind farm owners with an installed capacity of 15 MW or above, in the state of Tamil Nadu, under the Regime 2 i.e. after September 2001, has been presented below.

Name of Owner ⁶	Capacity MW in the Regime 2 ⁷	CDM ⁸	Web-links and Explanation
Soundararaja	33.85	Yes	Installations are under the CDM PDDs titled

³ Rs.2.25 for 1994-95 and 5% annual escalation thereafter

⁴ Rs.2.70 for 2001 fixed for next 10 years

⁵ Rs. 2.90 for 2006, fixed for next 10 years

⁶ The data on private wind farm owners with greater than 15 MW installed capacity has been taken from <http://www.windpowerindia.com/statpriv.html>.

⁷ The capacity of installations under the Regime 2, i.e. commissioned after September 2001 and before the project start date, in the state of Tamil Nadu, has been sourced from the Directory of Indian Windpower 2008.

⁸ The CDM status of the projects has been taken from the CDM pipeline in <http://cdm.unfccc.int>, MoEF site and other publicly available sources.

VCS Project Description

Mills Ltd.			1) 10.005 MW captive grid connected wind power project by the members of IWPA at Coimbatore http://cdm.unfccc.int/UserManagement/FileStorage/3COOHDRD G8SZBFGC437328KXEIBKCV 2) 40.68 MW grid connected electricity generation project by Indian Wind Power Association at Tirunelveli in Tamil Nadu. http://cdm.unfccc.int/UserManagement/FileStorage/J9R5JA7N8U1SS5YVOAT77VR38US32P 3) Bundled Wind power project in Tamil Nadu, India, co-ordinated by Tamil Nadu Spinning Mills Association (TASMA-II) http://cdm.unfccc.int/UserManagement/FileStorage/6QDL0CJW95NYIX8U14H3STGKAF2BEV 4) 21.00 MW grid connected electricity generation project by Indian Wind Power Association at Tirunelveli in Tamil Nadu http://cdm.unfccc.int/UserManagement/FileStorage/UMHY7TQXXEBNNYBUIC017UDWWZXTCT
KPR Mill Pvt. Ltd.	32.25	Yes	The installations are under two CDM PDDs 1) 19.27 MW Grid connected wind electricity generation project by KPR Mills in Tamil Nadu http://cdm.unfccc.int/Projects/Validation/DB/KBAXDG75UAPOH4J4P20YB2AIQKM36G/view.html 2) 19.8 MW grid connected Wind farm project by KPR Mill Private Limited, Tamil Nadu, India http://cdmindia.nic.in/cdmindia/projects/PCN_474_07.pdf
Vishal Export Overseas Ltd	29.275	Yes	All the installations were envisaged to be CDM projects as reported publicly http://www.projectsmonitor.com/detailnews.asp?newsid=9284 as well as in the company's annual report Page 18 http://vishalexports.co.in/annual%20reports/Annau%20Report-2005-06.pdf.
Shanmugavel Group	25.5	Yes	The installations are under the PDD titled 1) "Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning Mills Association (TASMA)" http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG
Grace Infrastructure (P) Ltd.	25	Yes	Installations under CDM PDD titled 1)"31 MW Wind energy project in, India by Grace Infrastructure Pvt Ltd" http://www.global-warming.de/files/new_mediagallery/2008-05-09Grace.pdf
Best & Co.	25	Yes	The installations are all under the CDM PDD titled 1) "Bundled Wind power project in Tamil Nadu, India, co-ordinated by Tamil Nadu Spinning Mills Association (TASMA-II)" http://cdm.unfccc.int/UserManagement/FileStorage/6QDL0CJW95NYIX8U14H3STGKAF2BEV
Madras Cement Ltd.	24.55	Yes	Installations under the CDM PDD titled 1) "41.6 MW grid connected electricity generation project by Madras Cements Limited in Tamil Nadu." http://cdm.unfccc.int/UserManagement/FileStorage/8VW717YLM7QAINAKXV3USR446DSWZX

VCS Project Description

Premier Fine Yarns Pvt. Ltd.	22.85	Yes	The installations are under the CDM PDDs 1) "Premier Group Wind Power Project in the State of Tamil Nadu, India." http://cdmindia.nic.in/cdmindia/projects/PCN_141_06.pdf 2) "Bundled wind power project in Tamil Nadu managed by Enercon India Limited-II" http://cdmindia.nic.in/cdmindia/projects/PCN_785_07.pdf
Sapthagiri Distilleries	21	Yes	The installations are under CDM project titled 1) "53.75 MW Bundled wind Power project in Tamil Nadu and Karnataka by KBD Group, India" http://cdm.unfccc.int/UserManagement/FileStorage/QN0BCHDRZ8PI17S2JEMLVW9TYFGO65
TCS Textiles Ltd.	20.75	Yes	The installations are under the PDD titled 1) "Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning Mills Association (TASMA)" http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG 2) "19.80 MW bundled wind energy project in Tirunelveli and Coimbatore districts in Tamilnadu, India" http://cdm.unfccc.int/UserManagement/FileStorage/F6UP274DD1DCT3XJTKRJCJZDZNPZY7
Ashok Leyland Fin. Ltd	20.025	Yes	The installations are in the CDM PDD titled 1) "56.25 MW bundled wind energy project in Tirunelveli and Coimbatore districts in Tamilnadu, India." http://cdm.unfccc.int/Projects/Validation/DB/37X42BG16GG63VK5L84D6WZ0UM8YGG/view.html
NEG-Micon (I) P. Ltd.	18.55	No	
Suzlon Infrastructure Limited	17.5	Yes	The installations are under the PDDs 1) "16.25 MW grid connected electricity generation project at Coimbatore in Tamil Nadu" http://cdm.unfccc.int/UserManagement/FileStorage/FM6BIMO4FTLNNUKVLSTLYJLM14NRCM 2) "38.75 MW grid connected electricity generation project at Tirunelveli in Tamil Nadu" http://cdm.unfccc.int/UserManagement/FileStorage/Y5UO445ZIR7VMGE34PQUUDGRTHCKRSB 3) "23.75MW grid connected electricity generation project at Tirunelveli in Tamil Nadu" http://www.sgsqualitynetwork.com/tradeassurance/ccp/projects/512/PDD%2023.75MW%20grid%20connected%20electricity%20generation%20project%20at%20Tirunelveli%20in%20Tamil%20Nadu..pdf
Rasi Seeds (P) Ltd.	16.25	Yes	The installations are under the CDM PDDs titled 1) "Bundled Wind power project in Tamil Nadu, India, co-ordinated by Tamil Nadu Spinning Mills Association (TASMA-II)" http://cdm.unfccc.int/UserManagement/FileStorage/6QDL0CJW95NYIX8U14H3STGKAF2BEV 2) "Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning Mills Association (TASMA)" http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII

			12SBXNF29XDKVT2BCEWG
Bannari Amman Spinning Mills Ltd.	16.2	Yes	The installations are under the CDM PDDs titled 1) "STL Wind Power Project" http://www.dnv.com/focus/climate_change/upload/version%20%20-%20pdd%20%20sept%2005.pdf 2) Eco Friendly Electricity Export to Grid http://cdm.unfccc.int/UserManagement/FileStorage/5YH92G186JW12SR91FFB9RC302T651
Arvind A Traders	15.6	Yes	The installations are under the PDDs titled 1) "16.45 MW bundled grid connected renewable energy project in Tamil Nadu, India" http://www.tuvdotcom.com/pi/web/PinDownload.xml?strUrlId=3&strUserId=&TUVdotCOMID=9105043814&strType=UserManualDownload&strDocumentID=19694&strTypeID=8&menuOption=process&isManualNeeded=true&isPictureNeeded=false&isRatingNeeded=false&isSecureNeeded=false&isIDNeeded=false&isTypeNeeded=true&isHolderNeeded=true 2) 37.6 MW Bundled Wind Power Project in Nagercoil, Tamilnadu http://www.dnv.com/focus/climate_change/Upload/Nagercoil%20PDD.pdf
Loyal Textile Mills Ltd	15.35	Yes	The installations are under the PDD titled 1) "22.25 MW Captive Wind Power Project in Tamil Nadu" http://cdm.unfccc.int/UserManagement/FileStorage/TPAONMX73CHPZ69AQ5CSP9BI1UKU99
Jayajyoti & Co. Ltd	15	Yes	The installations are under the PDD titled 1) "Bundled Wind power project in Tamilnadu, India co-ordinated by the TamilNadu Spinning Mills Association (TASMA)" http://cdm.unfccc.int/UserManagement/FileStorage/AE2042RXII12SBXNF29XDKVT2BCEWG

It can be seen almost all private wind farm installations, in the similar regulatory and investment climate as that of the project activity and with capacity of over 15 MW in the state of Tamil Nadu, are CDM projects. There is only one private wind farm owner having a non-CDM project. The essential difference between this project and the candidate CDM project has been presented in the sub-step 4(b).

The analysis presented in the table above, shows that almost all similar project activities (except one) are CDM projects, i.e. and non-CDM large scale wind energy investments is not a common practise in the region.

Thus, it is clear that similar activities are not widely observed or commonly carried out and that almost all similar projects have been undertaken only with the help of carbon

revenues. The only non CDM large scale investment in the state of TamilNadu is an 18.55 MW installation of NEG Micon (I) Limited.

NEG Micon is a windmill manufacturing company (unlike the project developer who does not have any prior experience in the wind sector). Typically WEG manufacturing companies install wind farms with the motive of selling to individual customers at a later date and CDM development may be undertaken under the name of the individual customers. Further, NEG Micon was taken over by Vestas in the year 2006 and the company no longer exists, hence the current status of these installations in terms of ownership as well as CDM development is not traceable.

Thus it is clear that similar activities are not widely observed or commonly carried out and that almost all similar projects have been undertaken only as CDM project. The only non CDM large scale similar investment has been undertaken by a WEG manufacturer whose risks and barriers cannot be compared to the project developer who has had no prior experience in wind power projects.

Based on the above considerations, the project activity is considered to be additional.

3 Monitoring:

3.1 Title and reference of the VCS methodology (which includes the monitoring requirements) applied to the project activity and explanation of methodology choices:

Sectoral Scope: 1, Energy industries (renewable/ non-renewable sources)

Project Category: ACM0002, Version-9, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”.

The approved consolidated baseline and monitoring methodology ACM0002 is the choice of the baseline and monitoring methodology because:

- The project represents electricity capacity additions from wind sources;
- The project is a Greenfield electricity generation from wind sources;
- The geographical and system boundaries of the grid can be clearly identified and information on the characteristics of the grid is available.

The monitoring requirements for the project activity includes:-

- Metering procedures
- Calibration Frequency
- Data Archiving

- Monitoring roles and responsibility

All the above requirements are listed in detail in section 3.2 of the PD.

3.2 Monitoring, including estimation, modelling, measurement or calculation approaches:

Purpose of monitoring

The purpose of monitoring is to measure the electricity generated and to verify the emission reductions from the project activity.

Types of data and information to be reported, including units of measurement

The approved monitoring methodology requires monitoring of the electricity generated from the project activity. The monitoring methodology and unit of measurement are described in Sections 3.3.

Origin of the data

The Project is operated and managed by Enercon India Limited. The organization follows the documentation practices to ensure the reliability and availability of the data for operation of the wind power project. The monitored data can be found from the monthly JMR reports.

Monitoring, including estimation, modelling, measurement or calculation approaches

The monitoring approach, including modelling and measurement is given in section 3.4 and calculation approach for individual parameters are described in section 4 of the PD.

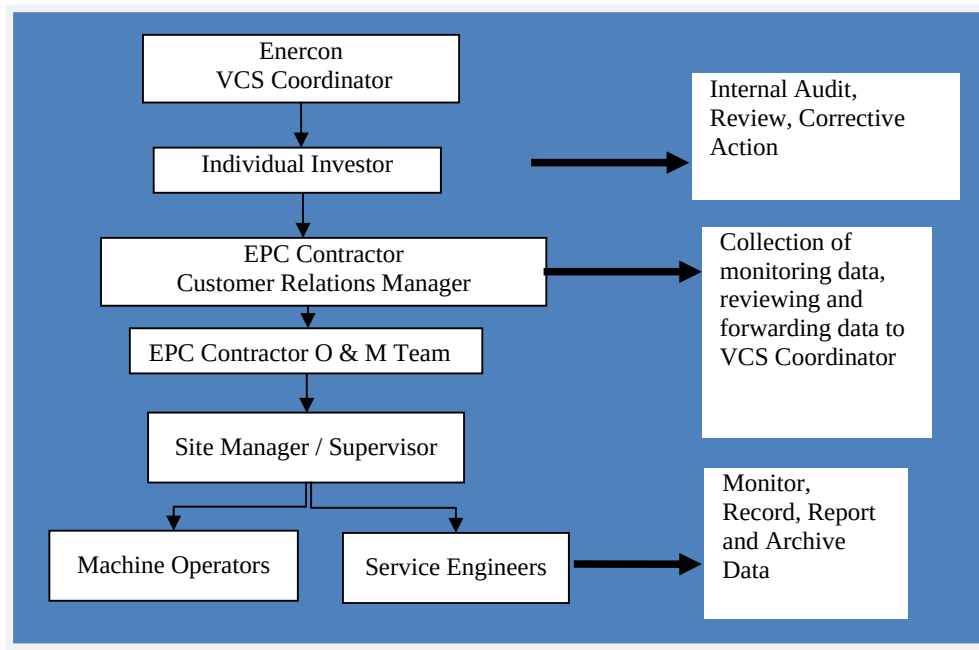
Monitoring times and periods, considering the needs of intended users

Monitoring will be done as:

- a. Meter reading: Meter readings are taken jointly by the representatives of TNEB and the power producer. Such meter readings shall be treated as the accurate and final measurement of the energy supplied to TNEB by the power producer for preceding month for the period of payment. The detailed procedure is explained in section 3.4 of the PD.
- b. Frequency: The meter reading will be taken in the first week of every month.
- c. Recording: The recording of the meter reading will be done in the hard copy format once in a month in the form of JMR certificates.
- d. Archiving Policy: The data will be archived for a period of 2 years after the end of the crediting period in the hard copy format.

Monitoring roles and responsibilities

The operational and management structure implemented by Resurge and EPC contractor is as follows:



The authority and responsibility of project overall project coordination in relation to the VCS validation would be with the project proponent. EPC Contractor is responsible for apportioning of the electricity generated.

Managing data quality

The accuracy of monitoring parameter is ensured by adhering to the calibration and testing procedure as described in the QA/QC procedures described for each parameter in Section 3.3 below. The project will adhere to all the mandatory regulatory and statutory requirements at the state as well as national level. The data will be archived for a period of 2 years after the end of the crediting period in the hard copy format.

3.3 Data and parameters monitored / Selecting relevant GHG sources, sinks and reservoirs for monitoring or estimating GHG emissions and removals:

As per ACM0002, version 09, the emission reductions are calculated as electricity supplied to the grid multiplied by the emission factor. The net electricity exported to the grid is calculated as:-

$$EG_{y, \text{ net}} = EG_{y, \text{ export}} - EG_{y, \text{ import}}$$

Data / Parameter:	EG, Export
Data unit:	MWh/year (Mega-watt hour/year)

Description:	Electricity exported to the grid by the project activity in year y
Source of data to be used:	Electricity exported by the project activity to the grid as per as per JMR.
Value of data	Annual electricity supplied to the grid by the Project = 36.0 MW (Capacity) x 23.86 % (PLF) x 8760 (hours) MWh = 75,244 MWh
Brief description of measurement methods and procedures to be applied:	The Energy generated at the wind farm will be metered and measured by tNEB on monthly basis at the sending end sub-station of the Wind Farm. The monitoring of 'electricity exported to the grid' would be as per the details provided in wheeling and banking agreement.
QA/QC procedures applied:	Every month these meter readings are jointly recorded by TNEB representative and plant personnel. The meters at the sub station are the two-way meters and are in the custody of TNEB. Since the readings are taken at the point of supply of power to the grid, the transmission and distribution losses and the minimum reactive power consumption has already been taken into account.
Any comment:	Apportioned values are calculated

Data / Parameter:	EG, import
Data unit:	MWh/year (Mega-watt hour/year)
Description:	Electricity imported from the grid
Source of data to be used:	Electricity exported by the project activity to the grid as per as per JMR.
Value of data	0 MWh (assumed)
Brief description of measurement methods and procedures to be applied:	The Energy generated at the wind farm will be metered and measured by tNEB on monthly basis at the sending end sub-station of the Wind Farm. The monitoring of 'electricity exported to the grid' would be as per the details provided in wheeling and banking agreement.
QA/QC procedures applied:	Every month these meter readings are jointly recorded by TNEBL representative and plant personnel. The meters at the sub station are the two-way meters and are in the custody of TNEB. Since the readings are taken at the point of supply of power to the grid, the transmission and distribution losses and the minimum reactive power consumption has already been taken into account.
Any comment:	Apportioned values are calculated

Data / Parameter:	EG_y, net
Data unit:	MWh (Mega-watt hour)
Description:	Net electricity supplied to the grid by the Project
Source of data to be used:	Calculated from EG _{export} and EG _{import} as (EG _{export} – EG _{import})
Value of data applied for the purpose of calculating expected emission reductions	Net electricity is calculated as following: = 75244 -0 = 75244 MWh
Description of measurement methods and procedures to be applied:	Net electricity supplied to the grid will be calculated by the two-way export Trivector meter. The Net electricity is recorded as following: (Net Electricity = Net Export – Net Import) The procedures for metering and meter reading will be as per the provisions of the wheeling and banking arrangement.

QA/QC procedures to be applied:	QA/QC procedures will be implemented pursuant to wheeling and banking agreement.
Any comment:	

Data / Parameter:	EG, Gross,y
Data unit:	MWh
Description:	Total electricity generation by the wind mills during the year y
Source of data to be used:	Controller attached with each WEC.
Value of data applied for the purpose of calculating expected emission reductions	65167.563MWh (for year 2008-09) <i>(Details of panel generation is given in Panel generation excel sheet, which is sourced from Enercon website)</i>
Description of measurement methods and procedures to be applied:	This data is the controller data for year 2008-09 and can be verified from the website of Enercon (India) Limited.
QA/QC procedures to be applied:	QA/QC procedures will be as implemented by TamilNadu state utility. The meters used are calibrated annually to ensure accuracy of data.
Any comment:	The data (Total electricity generation by the wind mills) will be archived on electronic media as well as on paper. The data will be kept for two years after the end of the crediting period or the last issuance of VERs for this project activity, whichever occurs later -Not used for emission reduction calculation

3.4 Description of the monitoring plan

The general conditions set out for metering, recording, meter readings, meter inspections, Test & Checking and communication are as per the PPA signed with TNEB. However, the procedures adopted for metering details vary with the EPC contractor. The paragraphs below present the procedure adopted by the respective EPC contractors:

Metering: Electricity supplied to the grid is metered through the two-way export meter installed by TNEB at the high voltage side of the step up transformer installed at the Project Site.

Metering Equipment: Metering equipment is an electronic trivector meter of accuracy class 0.5 required for the Project. The meter is installed and owned by TNEB. The metering equipment is maintained in accordance with electricity standards prevalent in Tamil Nadu.

Meter Readings: The monthly meter reading is taken jointly by the parties for the last month. At the conclusion of each meter reading an appointed representative of TNEB and Enercon sign a document indicating the number of Kilowatt-hours indicated by the meter.

Inspection of Energy Meters: The two-way export meter and all associated instruments, transformers installed at the Project are of 0.5 accuracy classes. The 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: The meter is tested for accuracy with reference to a portable standard meter. The portable standard meter is also owned by TNEB. The meter is deemed to be working satisfactorily if the errors are within specifications for meters of 0.5 accuracy classes. The consumption registered by the meter alone holds good for the purpose of metering electricity supplied to the grid as long as the error in the meter is within the permissible limits.

If during the meter test checking,

The meter is found to be beyond permissible limits of error, the meter shall be immediately calibrated and the correction applied to the reading registered by the meter to arrive the correct reading of energy supplied for metering electricity supplied to the grid for the period from the last month's meter reading up to the current test. Meter reading for the period thereafter till the next monthly reading shall be as per the calibrated meter.

4 GHG Emission Reductions:

4.1 Explanation of methodological choice:

According to the approved methodology ACM0002, version 09 , Emission Reductions are calculated using "Tool to calculate emission factor for the electricity system"

$$ER_y = BE_y - PE_y - L_y$$

Where:

BE_y Baseline Emissions in year y (t CO₂e/yr)

PE_y Project Emissions in year y (t CO₂e/yr)

L_y Leakage Emissions in year y (t CO₂e/yr)

The combined emission factor is fixed ex-ante for the project activity and is calculated in accordance with the prescribed tool.

Details of Baseline data:

Data of Operating and Build Margin for the three financial years from 2005-06 to 2007-08 has been obtained from –

The CO₂ Baseline Database for the Indian Power Sector

Ministry of Power: Central Electricity Authority (CEA)

Version 4.0

Dated: October 2008

Key baseline information is reproduced in annexure 1.

The detailed excel sheet is available at:

<http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>

4.2 Quantifying GHG emissions and/or removals for the baseline scenario:

Ex-ante calculation of emission reductions is equal to ex-ante calculation of baseline emissions as project emissions and leakage are nil.

Baseline emission factor (Combined Margin) (EF_y)

= 0.92694 tCO₂e/MWh

Annual electricity supplied to the grid by the Project (EG_y)

= 36.0 MW (Capacity) x 23.86% (PLF) x 8,760 (hours) MWh

= 75244.896 MWh

Annual Baseline Emissions Reduction: ER_y = EF_y * EG_y

= 0.92694 tCO₂e/MWh x 75244.896 MWh

= 69,747tCO₂e

4.3 Quantifying GHG emissions and/or removals for the project:

The project activity is a Greenfield wind power project and hence does not emit any carbon emissions.

4.4 Quantifying GHG emission reductions and removal enhancements for the GHG project:

The project activity reduces carbon dioxide through displacement of grid electricity generation with fossil fuel based power plants by renewable-wind electricity. The emission reduction ER_y due to project activity during a given year y is calculated as the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (LE_y) as per the formula given below:

$$ER_y = BE_y - PE_y - LE_y$$

As described in Section 4.3, the project emissions and leakage emissions for this project activity are nil. Hence, ex-ante calculation of emission reductions is equal to ex-ante calculation of baseline emissions as project emissions and leakage are nil.

Hence, $ER_y = BE_y$

As calculated in Section 4.2, baseline emissions are calculated as follows:

$$BE_y = EG_y * EF_y$$

The electricity generated will depend on the installed WEG capacity. The installed capacity will change for the first crediting period, and will increase progressively as additional WEGs are installed throughout the first year. After the first crediting, the installed capacity will remain constant. Accordingly, the emission reductions for the first crediting period will be less than the emission reductions calculated for the subsequent periods.

The VCUs for the crediting period are summarized in the table below.

Period	VCUs (tonnes of CO ₂ e)
01Apr 06 to 31 Mar 07	69,747
01Apr 07 to 31 Mar 08	69,747
01Apr 08 to 31 Mar 09	69,747
01Apr 09 to 31 Mar 10	69,747
01Apr 10 to 31 Mar 11	69,747
01Apr 11 to 31 Mar 12	69,747
01Apr 12 to 31 Mar 13	69,747
01Apr 13 to 31 Mar 14	69,747
01Apr 14 to 31 Mar 15	69,747
01Apr 15 to 31 Mar 16	69,747
Total	697,470

5 Environmental Impact:

As per the Schedule 1 of the EIA notification dated 14th September 2006 (<http://envfor.nic.in/legis/eia/eia-2006.htm>), given by the Ministry of Environment and

Forests (Government of India) under the Environment (Protection) Act 1986, EIA is not a regulatory requirement in India for wind energy projects.

Thus the project activity doesn't fall under the list of activities requiring EIA. The project activity will not involve any negative environmental impacts, as the WEGs are installed for generation of power using wind which is a clean source of energy.

6 Stakeholder's comments:

The comments from local stakeholders were invited through two local stakeholder meeting conducted at Shanmuganantha Bhavan Hall, Palani Taluk, Dindigull district on 05th of September, 2007 and another meeting conducted at Rotary centenary hall, Dharapuram, Erode, Tamil Nadu on 04th December 2006. Advertisements for public stakeholder meetings were published in Dinamani on 21st August 2007 inviting the local stakeholders for the meeting and another advertisement was placed in Dinamani on 18th November 2006 inviting the local stakeholders for the meeting..

The local stakeholder consultation meeting had representatives from the nearby villages, representatives of Enercon and representative of Aditya Environmental Services (consultant to Enercon). The minutes of the meeting are set out in **Annexure-4**.

7 Schedule:

The Schedule of project activities is given in **Annexure-2**. The project activity will implement monthly monitoring as well as reporting for monitoring of electricity exported, imported from the grid and calculation of net electricity supplied to the respective Grid Substation.

8 Ownership:

8.1 Proof of Title:

Enercon India Limited ("EIL" or "Project Proponent") has been duly authorized by individual investors to take any actions as may be required from time to time for VCS validation and verification activities on their behalf and has entered into a contractual agreement with the individual investors that grants all reductions/removals to the proponent.

The authority letters (between the investors and Enercon (India) Limited) supporting the statement above have been provided to the DOE. Additionally, copies of PPA have been provided to the DOE as proof of title.

8.2 Projects that reduce GHG emissions from activities that participate in an emissions trading program (if applicable):

As of now, the project activity is not registered under any other GHG program.

Annexure-1: Baseline Information

The Operating Margin data for the most recent three years and the Build Margin data for the Southern Electricity Grid as published in the CEA database Version 04 are as follows:

Simple Operating Margin

	tCO ₂ e/MWh
Simple Operating Margin - 2005-06	1.0057

Simple Operating Margin - 2006-07	0.9991
Simple Operating Margin - 2007-08	0.9906

Net Generation in Operating Margin (GWh)

	tCO ₂ e/GWh
Net Generation - 2005-06	100978
Net Generation - 2006-07	109116
Net Generation - 2007-08	114702

Simple Operating Margin = $(1.0057 \times 100978 + .9991 \times 109116 + 0.9906 \times 114702) / \text{Sum}$
 $(100978 + 109116 + 114702)$

= 0.998157

Build Margin

	tCO ₂ e/MWh
Build Margin for the year 2007-08	0.7133

Combined Margin calculations

	Weights	tCO ₂ e/MWh
Operating Margin	0.75	0.998157
Build Margin	0.25	0.7133
Combined Margin	$= (0.75 \times 0.998157) + (.25 \times 0.7133)$ = 0.92694	

Detailed information on calculation of Operating Margin Emission Factor and Build Margin Emission Factor is available at www.cea.nic.in.

Annexure 2: Schedule of Activities

S. No	Name of Investors	WEG ID No.	P.O. Date	Date of Commissioning	Validation Contract Date
1	Premier Spg & Wvg Mills Pvt Ltd	PSWMPLPU-09 PSWMPLPU-08 PSWMPLPU-10 PSWMPLPU-05 PSWMPLPU-06 PSWMPLPU-07 PSWMPLPU-03 PSWMPLPU-02 PSWMPLPU-01 PSWMPLPU-04	20/06/2006	11/05/2007	18/11/2008
2	Premier Fine Yarns Pvt Ltd	PMPLPU-03 PMPLPU-04	27/04/2006	07/03/2007	18/11/2008

S. No	Name of Investors	WEG ID No.	P.O. Date	Date of Commissioning	Validation Contract Date
		PMPLPU-01 PMPLPU-02 PMPLPU-05 PMPLPU-06 PMPLPU-07 PMPLPU-08 PMPLPU-09 PMPLPU-10			
3	Coimbatore Twisted (Premier Mills)	CTPLPU-01	20/06/2006	14/03/2007	18/11/2008
4	Coimbatore Polytex (Premier Mills)	CPPLPU-03 CPPLPU-02 CPPLPU-01 CPPLPU-04	20/06/2006	16/04/2007	18/11/2008

S. No	Name of Investors	WEG ID No.	P.O. Date	Date of Commissioning	Validation Contract Date
		CPPLPU-05 CPPLPU-06 CPPLPU-07 CPPLPU-10 CPPLPU-08 CPPLPU-09			
5	Bannari Amman Spinning Mills	BASMLDH-01 BASMLDH-02 BASMLDH-03 BASMLDH-04 BASMLDH-05 BASMLDH-06 BASMLDH-07 BASMLDH-08	09/28/2005	08/03/2006	18/11/2008

S. No	Name of Investors	WEG ID No.	P.O. Date	Date of Commissioning	Validation Contract Date
		BASMLDH-09			
		BASMLDH-10			
		BASMLDH-11			
		BASMLDH-12			
		BASMLDH-13			
		BASMLDH-14			

Annexure 3

SI NO.	Customer Name	EB Substation	Latitude			Longitude			UIN
			Deg	Minutes	Second	Deg	Minutes	Second	
1	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	32.00	5.05	77.00	25.00	20.91	PSWMPLPU-09
2	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	32.00	9.20	77.00	25.00	35.41	PSWMPLPU-08
3	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	32.00	24.92	77.00	25.00	1.08	PSWMPLPU-10
4	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	34.00	22.31	77.00	25.00	37.47	PSWMPLPU-05
5	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	34.00	49.80	77.00	26.00	35.98	PSWMPLPU-06
6	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	34.00	57.15	77.00	26.00	52.68	PSWMPLPU-07
7	Premier Spinnings and Weaving Mills Pvt.Ltd.	Melkaraipatti (110/22KV)	10.00	34.00	35.66	77.00	24.00	6.33	PSWMPLPU-03

VCS Project Description Template

8	Premier Spinnings and Weaving Mills Pvt .Ltd.	Thalaiyoothu (110/22KV)	10.00	34.00	58.52	77.00	24.00	3.72	PSWMPLPU-02
9	Premier Spinnings and Weaving Mills Pvt .Ltd.	Thalaiyoothu (110/22KV)	10.00	34.00	34.42	77.00	23.00	41.60	PSWMPLPU-01
10	Premier Spinnings and Weaving Mills Pvt .Ltd.	Thalaiyoothu (110/22KV)	10.00	34.00	29.82	77.00	24.00	38.05	PSWMPLPU-04
11	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	23.98	77.00	24.00	45.82	PMPLPU-03
12	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	31.11	77.00	24.00	40.85	PMPLPU-04
13	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	6.07	77.00	25.00	30.66	PMPLPU-01
14	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	11.92	77.00	25.00	23.14	PMPLPU-02
15	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	43.81	77.00	25.00	35.03	PMPLPU-05
16	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	56.76	77.00	25.00	39.05	PMPLPU-06
17	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	51.10	77.00	25.00	13.65	PMPLPU-07
18	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	54.39	77.00	25.00	4.11	PMPLPU-08

VCS Project Description Template

19	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	33.00	55.90	77.00	24.00	49.46	PMPLPU-09
20	Premier Fine Yarns P Ltd	Thalaiyoothu (110/22KV)	10.00	34.00	15.28	77.00	24.00	60.00	PMPLPU-10
21	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	34.00	32.85	77.00	25.00	45.31	CPPLPU-03
22	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	34.00	35.89	77.00	25.00	26.63	CPPLPU-02
23	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	34.00	43.51	77.00	25.00	21.33	CPPLPU-01
24	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	34.00	51.46	77.00	25.00	45.95	CPPLPU-04
25	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	35.00	3.85	77.00	25.00	45.85	CPPLPU-05
26	Coimbatore Polytex Pvt.Ltd	Thalaiyoothu (110/22KV)	10.00	35.00	37.18	77.00	25.00	26.49	CPPLPU-06
27	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	35.00	44.64	77.00	25.00	33.42	CPPLPU-07

VCS Project Description Template

28	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	35.00	55.20	77.00	26.00	9.54	CPPLPU-10
29	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	36.00	2.31	77.00	25.00	32.83	CPPLPU-08
30	Coimbatore Polytex Pvt.Ltd	Melkaraipatti (110/22KV)	10.00	36.00	14.23	77.00	25.00	30.99	CPPLPU-09
31	Coimbatore Twisters Pvt. Ltd.	Melkaraipatti (110/22KV)	10.00	34.00	8.51	77.00	25.00	33.48	CTPLPU-01
32	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	11.96	77.00	25.00	2.73	BASMLDH-01
33	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	19.64	77.00	24.00	57.79	BASMLDH-02
34	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	33.46	77.00	24.00	54.42	BASMLDH-03

VCS Project Description Template

35	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	50.65	77.00	24.00	35.47	BASMLDH-09
36	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	45.00	3.08	77.00	24.00	35.14	BASMLDH-10
37	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	45.00	13.14	77.00	24.00	30.85	BASMLDH-11
38	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	50.84	77.00	24.00	19.45	BASMLDH-13
39	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	57.94	77.00	24.00	15.10	BASMLDH-14
40	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	45.00	21.51	77.00	24.00	20.58	BASMLDH-12

41	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	42.34	77.00	25.00	2.58	BASMLDH-04
42	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	49.72	77.00	24.00	58.89	BSAMLDH-08
43	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	45.00	2.42	77.00	24.00	53.92	BASMLDH-07
44	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	42.99	77.00	25.00	15.38	BASMLDH-05
45	Bannari Amman Spinning Mills Ltd.	Chinnaputhur (110/22 KV)	10.00	44.00	50.68	77.00	25.00	10.05	BASMLDH-06

Appendix 4: Minutes of Stakeholder Consultation meeting

1) Minutes of Clean Development Mechanism meeting held at SHANMUGANANTHA BHAVAN HALL, Pushpathur, Palani Taluk, Dindigul District on 05.09.07.

Meeting presided by:

1. Mr. Ramasamy, Village Administrative Officer.
2. Mr. Velusamy, Village Administrative Officer.
3. Mr. J. Dhamayanthi, Thangavel Panchayat President, Kozhumankondan Village.
4. Mr. T. Swaminathan, Panchayat President, Melkaraipatti Village.
5. Mr. Anandan, Manager Enercon India Limited.

Agenda of the meeting is fixed as follows:

1. Welcome speech by the organizers.
2. Introduction to 'Clean Development Mechanism' by the Organizers.
3. Description of the project by Enercon.
4. Speech of Invitees.
5. Vote of thanks.

Welcome Speech:

Mr. R. Anandan from Enercon India Ltd welcomed the village community members, elected representatives of Public, Govt. officials, suppliers and regulators and other stakeholders who had come to take part in the '**Local Stakeholders consultation meeting**' in order to understand the concerns and opinions regarding the Wind Power Projects established in that region.

Introduction to 'Clean Development Mechanism' by the Organizers

The leading advocate in the district took charge of the stage and explained about the Kyoto protocol, CDM and their implications both in global and local perspective, to the villagers. He opined that wind energy doesn't spoil our environment moreover wind power projects in remote villages have increased employment opportunities and per capita income to such villagers.

Speech of Invitees

Mr.Ramasamy. Village Administrative Officer in his speech explained the impact of wind energy development projects in Pushpathur area, which includes Melkaraipatti, Muthunaickampatti, Kozhumankondan, Rajampatti, Kotadurai, Middapadi, Puspathur villages. He also explained to the stakeholders about the social, industrial and economic developments brought by the wind energy projects to the villages in Palani Tk. He further explained that the distribution of electricity to villages improved dramatically. He pointed out that there is no adverse impact on environment by wind energy projects.

Mr. Velusamy. Village Administrative Officer in his speech explained about the present socio-economic condition of Palani Taluka and he spoke about the recent developments. He thanked Enercon India limited for installing wind energy projects in Palani Taluk that resulted in the overall development & economic well being of the village community. He also explained that due to un-interrupted power supply, productivity of farm products has increased significantly.

Mr. J.Dhamayanthi Thangavel Panchayat President, Kozhumankondan Village spoke about the advancements in the villages after the installation of wind power projects. He opined that after coming-up of wind projects in these villages, the village roads were developed significantly and employment opportunities are being created by wind power projects such as casual labours, securities, drivers and technicians.

Mr. T.Swminathan. Panchayat President, Melkaraipatti Village voiced similar opinion in his speech, He said that wind power projects in these remote villages around Palani Taluk have brought prosperity to the villagers and also the transportation facility has been increased enormously due to the project installation activities. In his speech he categorically stated that the wind projects have not affected either ground water level or drinking water quality of this area. Grazing of cattle is also not affected because these projects are being installed on waste barren dry lands. He also pointed out that uncultivable lands are being purchased from the villagers for wind power projects which in turn help them economically.

Queries from EIL and responses from the proponent and the stakeholders

1. *What are the benefits of the wind power projects the stakeholders have observed?*

ANS. The wind power projects have improved the roads by making them motor able. The projects has also provide employment opportunities for the area. The supply of electricity has improved in terms of quantity and quality.

2. *Does the project help in improving the electricity supply to the villagers or the neighbourhood areas?*

ANS. The quality of electricity has been improved a lot with the decrease in fluctuation and power cuts. This also has resulted into good farm products.

3. *Has the project affected the grazing of local cattle?*

ANS. No. The cattle are not stopped to enter the project boundary for grazing.

4. *Has the project affected any migratory patterns of birds or fauna?*

ANS. The project does not fall under migratory patterns of birds or fauna.

5. *Has the project affected the Ground water level?*

ANS. Neither the Ground water level nor the quality of drinking water have been affected by the wind project works.

2. *During construction and erection has any incident of accident or damage occurred?*

ANS. As on date no such incidents of have occurred.

3. *Have you observed any noise disturbances from the project during construction and operation of the project?*

ANS. Disturbances of such kind have not occurred to this date.

7. *Do Enercon take care of safety issues?*

ANS. Enercon India Ltd is taking adequate safety measures and there are sufficient safety instruments in order to avoid any such incidents.

Vote of Thanks

Mr. Anandan of Enercon India Limited thanked all the attendees for sparing their time to participate in the meeting and requested them to continue their support towards the projects of Enercon India Limited. The representatives of the village and also the local population expressed their happiness and appreciation towards Enercon India Limited.

2) Minutes of Clean Development Mechanism meeting held at ROTARY CENTENARY HALL, Dharapuram Tk, Tamil Nadu on 04/12/2006.

Meeting presided by:

1. Mr.Muthukrishnan, Thasildhar ,Dharapuram Tk
2. Mr.Ganapathy, Deputy Thasildhar ,Dharapuram Tk
3. Mr.Kesavan, Executive Engineer. Wind Farm Projects Udumalpet.
4. Mr.Subramaniam Executive Engineer. Dharapuram.
5. Mr.Deivasikamani .Panchayat President, Chinnaputhur Village.
6. Mr.Senthil Kumar. Councilor. Town Panchayat .Chinnkampalayam .
7. Mr.Santhanam Panchayat President , Thalavaipattinam Village.
8. Mr.Anandan .Manager Enercon India Limited.

Agenda of the meeting is fixed as follows:

1. Welcome speech by the organizers.
2. Introduction to 'Clean Development Mechanism' by the Organizers.
3. Description of the project by Enercon.
4. Speech of Invitees.
5. Interactive session with the stake holders.
6. Vote of thanks.

Welcome Speech:

Mr. K.V.Suresh from Enercon India Ltd welcomed The Village community members, Elected Representatives of Public, Tamilnadu Electricity Board Officials, Suppliers and Regulators and other stake holders who had come to take part in the '**Local Stakeholders consultation meeting**' in order to understand the Concerns and Opinions of them regarding the Wind Power Projects established in that region.

Soon after the welcome speech **Mr. Govindarajan** took charge of the stage and addressed the delegates to speak about the project.

Introduction to 'Clean Development Mechanism' by the Organizers

Mr. Saravanan of Enercon explained about the Kyoto protocol and CDM to the villagers. He also brought to light that the ozone layer is getting depleted due to poisonous gases emitted by using fossil fuel energy sources. In his speech he also spoke about the carbon levels in the atmosphere is increasing. He opined that Wind energy is the boon to our environment and that it doesn't spoil our environment, more over wind power projects in remote villages has increased employment opportunities and per capita income to such villagers.

Speech of Invitees

Mr.Muthukrishnan Thasildar of Dharapuram in his speech explained the impact of wind energy development projects in Dharapuram area, which includes Chinnaputhur Chinnakampalayam, Thalvaipatinam, Govindapuram, Naranapuram, Gethalrev Villages. He also explained to the stakeholders about the social, industrial and economic Developments brought by the Wind Energy Projects to the Villages in Dharapuram Tk. He further explained that the Distribution of Electricity to Villages improved dramatically. He pointed out that there is no adverse impact of Wind Energy Projects.

Mr.Ganapathy, Deputy Thasildhar ,Dharapuram Tk in his speech explained about the Present Socio-Economic Condition of Dharapuram Tk and he compared the recent Developments to the olden days . He thanked Enercon India limited for installing Wind Energy Projects in Dharapuram Taluk Which resulted in the overall Development & Economic well being of the village community. He also explained that Due to Un-Interrupted power supply, Productivity of Farm Products had increased significantly.

Mr.Kesavan, Executive Engineer. Wind Farm Projects Udumalpet of TNEB explained about the Wind Power Plants and its importance. He also said that the demand for Electricity is always increasing and wind energy converters in this area are providing Electricity to meet out the demand.. He also told that the wind power projects are supplying the energy which would otherwise could have come from the other conventional sources. He opined that Wind Energy converters are producing Green Energy without causing any damage to the environment unlike conventional sources.

Mr.Subramaniam Executive Engineer. Dharapuram of TNEB in his speech explained about the benefits attained by the people around the villages. Lot of employment opportunities were created by the wind energy development projects and its allied activities .The supply of electricity in terms of quality and quantity have increased a lot due to wind

power projects he said. He thanked Enercon India Limited for producing Green Energy and to cater the needs of electricity demands of nearby industrialized towns.

Mr.Deivasikamani Panchayat President, Chinnaputhur Village spoke about the advancements in the villages after the installation of wind power projects. He opined that after coming-up of Wind projects in these villages, the roads were developed Significantly and employment opportunities are being created in wind power projects such as casual labours, securities , drivers and technicians.

Mr.Senthil Kumar. Councilor, Town Panchayat, Chinnkampalayam voiced similar opinion in his speech, He said that Wind power projects in these remote villages around Dharapuram Taluk have brought prosperity to the villagers and also the transportation facility has been increased enormously due to the project installation activities.

Mr.Santhanam Panchayat President, Thalavaipattinam Village. In his speech he categorically stated that the wind projects have not affected either Ground water Level or Drinking water quality of this area. Grazing of cattle is also not affected because these Projects are being installed on waste barren dry lands. He also pointed out that uncultivable lands are being purchased from the villagers for wind power projects which in turn help them economically; many marriages and educational expenses in the villages were possible only by selling such waste lands.

Queries and responses from the proponent and the stakeholders

1. *What are the benefits of the wind power projects the stake holders have observed?:*

Ans: The Wind Power Projects has increased the employment opportunities of this area. Village roads are motorable than ever before. The supply of electricity in terms of quality and quantity has increased.

2. *Has the project affected the Ground water level?*

Ans: Wind projects have not affected either Ground water Level or Drinking water quality of this area.

3. *Has the project affected the grazing of local cattle?*

Ans: The cattle grazing area has increased since the installation of Converters are in barren and uncultivable lands., the accessibility of cattle to the areas for grazing and drinking water has improved.

4. *Has the project affected any migratory patterns of birds or fauna?*

Ans: The project does not fall under migratory patterns of Birds or Fauna.

5. *During construction and erection has any incident of accident or damage occurred?*

Ans: As on date no such incidents of have occurred.

6. *Does the project help in improving the electricity supply to the villagers or the neighbourhood areas?*

Ans: The fluctuation of power supply has decreased and there is continuous uninterrupted supply of electricity to the farmers resulted in good amount of farm products

7. *Have you observed any noise disturbances from the project during construction and operation of the project?*

Ans: Disturbances of such kind has not occurred to this date

8. *Do Enercon take care of safety issues?*

Ans: Enercon India Ltd is taking adequate safety measures and there are sufficient safety instruments in order to avoid any untoward incidents.

Vote of thanks

Mr. Anandan, Manager Enercon India Limited thanked all the stakeholders, Village Public Representatives, Government Officials, Tamilnadu Electricity Board Officials for sharing their opinions and Concerns.
