Voluntary Carbon Standard
Project Description Template

19 November 2007

[Date of the VCS PD:
3rd November 2009- Version 05]

Table of Contents

1 Description of Project:

1.1 Project title

Title: 15 MW Bundled grid-connected wind electricity generation project in Radhapuram Taluk of Tirunelveli District in Tamil Nadu, India

Version: 05

1.2 Type/Category of the project

According to the categorisation of Appendix B to the simplified modalities and procedures for small scale Clean Development Mechanism (CDM) project activities[1] the project activity under consideration fits into the type and category as mentioned below:

- Type: *Type I – Renewable Energy Projects*
- Category: *I.D.* '*Grid Connected Renewable Energy Generation', -Version 14*

For further details regarding the applicability criteria pertaining to the above-mentioned type and category in the context of the project activity, please refer to section 2.2 of the VCS PD.
Further, the project is not a grouped project as defined in Voluntary Carbon Standard 2007.1. (Under clause 5.6)

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

The total capacity of power generation of the bundled project activity under consideration is 15 MW and the average annual emission reductions from the bundle are estimated to be 25,305 tonnes CO_2 equivalent.
As per Voluntary Carbon Standard 2007.1, projects are divided into the following groups:

- *Micro project*: Less than 5,000 tonnes CO_2 equivalent emissions reductions per year
- *Projects: 5,000- 1,000,000 tCO_2e per year*
- *Mega Project*: More than 1,000,000 tonnes CO_2 equivalent emissions reductions per year

Since the project activity leads to annual emission reductions of 25,305 tonnes of CO2 equivalent, it falls under the category" Projects: 5, 000 – 1,000,000 tCO_{2e} per year

1.4 A brief description of the project:

The project activity under consideration entails generation of clean power by harnessing wind energy – a non-conventional renewable energy resource and export of the electricity generated to their high tension industry. The power generated from the wind energy generators (WEGs) would be transmitted to the high tension industry premises of the company /its subsidiary company by using the transmission lines of Tamil Nadu state Electricity Board. The project proponents have entered into a wheeling agreement[2] with Tamil Nadu Electricity Board for the same. The electricity exported from the project thereby replaces an equivalent amount of power generation at the grid connected power plants which are primarily fossil fuel based. Therefore the project activity results in an equivalent amount of CO_2 emission reduction which otherwise would have resulted from fossil fuel combustion related to electricity generation at the grid.

[1] http://cdm.unfccc.int/methodologies/SSCmethodologies

[2] Wheeling means the operation whereby the distribution system and associated facilities of a transmission Licensee or distribution Licensee, as the case may be , are used by another person for the conveyance of electricity on payment of charges to be determined under section 62 of the Electricity Act 2003.An agreement entered into with the state electricity utility with respect to wheeling is wheeling agreement

pg 3, http://www.srldc.org/var/ftp/OpenAccess/serc/TAMILNADU/OpenAccess2005_tn.pdf.

The project activity receives wind in two directions, i.e. Southern and North Eastern. Southern direction wind is the main source of power generation and it usually occurs from May to October of every year. The North Eastern wind at the project activity occurs from November to January of every year.

The project activity is a bundled wind energy project with total capacity of 15 MW, comprising of 12 Wind Turbine Generators (WTGs) of same capacity, commissioned in the period 31/03/2003 to 24/03/2006. The relevant details of the individual components of the bundled project activity including the names of the project promoters, the installed wind power generation capacity for each wind turbine and the unique wind turbine number of the wind turbines have been tabulated. Please refer to table 1.1 in section 1.5

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

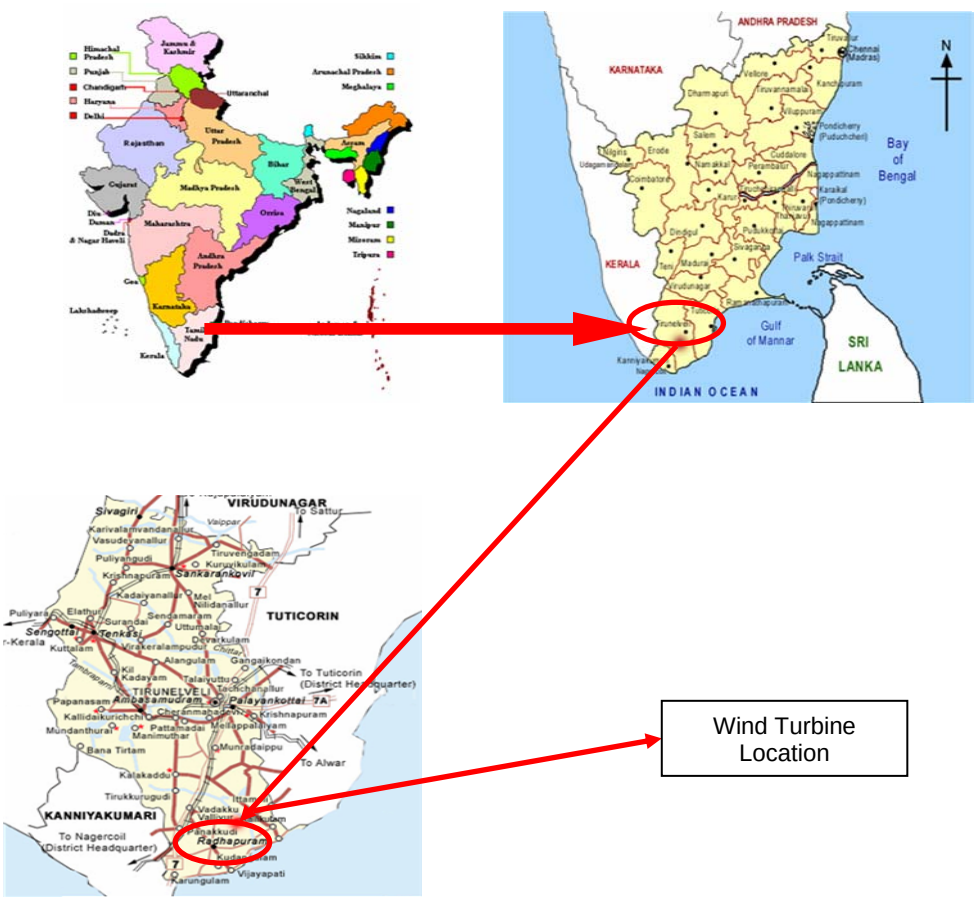
Sl. No.	Company[3]	Installed Capacity of Wind Turbine (MW)	WEG – High Tension Service Connection No	WEG Location Number	Make of Turbine	Survey Number	Taluk	District	State	Local Grid Station	Geographical Coordinates
1.	Sangeeth Textiles Ltd	1.25	1783	S 505	Suzlon	530/1 & 2	Radhapuram	Tirunelveli	Tamil Nadu	Maharajapuram	8º 08 56.4 N ,77º 35 39.1 E
		1.25	550	S 22	Suzlon	96/3(P)	Radhapuram	Tirunelveli	Tamil Nadu	Sankaneri	8º 12 44.5 N ,77º 40 35.8 E
		1.25	830	S 91	Suzlon	966/2(P)	Radhapuram	Tirunelveli	Tamil Nadu	Vadakkankulam	8º 14 20.4 N ,77º 38 12.8 E
2	Sri Mookambiga Spinning Mills pvt Ltd	1.25	1749	S 711	Suzlon	115/1C2,1P	Radhapuram	Tirunelveli	Tamil Nadu	Maharajapuram	8º 10 00.1 N ,77º 38 00.6 E
		1.25	676	S 72	Suzlon	341/2(P)	Radhapuram	Tirunelveli	Tamil Nadu	Vadakkankulam	8º 15 05.6 N ,77º 38 28.5 E
		1.25	675	S 78	Suzlon	259/2(P)	Radhapuram	Tirunelveli	Tamil Nadu	Vadakkankulam	8º 15 24.5 N ,77º 38 17.6 E
3	CAV Cotton Mills Ltd	1.25	656	S 74	Suzlon	395/2(P)	Radhapuram	Tirunelveli	Tamil Nadu	Vadakkankulam	8º 15 14.6 N ,77º 38 06.9 E
		1.25	655	S 75	Suzlon	349/2(P)	Radhapuram	Tirunelveli	Tamil Nadu	Vadakkankulam	8º 15 15.8 N ,77º 38 22 E
		1.25	1659	S 362	Suzlon	1479/2	Radhapuram	Tirunelveli	Tamil Nadu	Chidambarapuram	8º 10 52.0 N ,77º 37 56.0 E

[3] Hereafter referred to as ***"Project Promoters"*** in the rest of the VCS PD.

4	Sri Vasudeva Textiles	1.25	1660	S 710	Suzlon	135/1,2,3,4 A(P),4B(P), 4C(P),4D(P)	Radhapuram	Tirunelveli	Tamil Nadu	Maharajapuram	8º 10 11.0 N ,77º 37 23.9 E
		1.25	548	S 23	Suzlon	99(P)	Radhapuram	Tirunelveli	Tamil Nadu	Kodankulam	8º 12 34.5 N ,77º 40 37.6 E
		1.25	745	S 147	Suzlon	594/1A1B(P)	Radhapuram	Tirunelveli	Tamil Nadu	Sankaneri	8º 14 02.2 N ,77º 39 58.8 E

Table No.1.1: Unique identification numbers of WEGs

Maps depicting the districts and states in which the Wind Projects are located are placed below.



1.6 Duration of the project activity/crediting period:

Project start date: 31/03/2003 (Earliest commissioning date)

The commissioning date for each of the WEG under the bundled project activity is given in the table below.

Name of the project participant	Survey No.	WEG HT SC No.	Location (Village)	Commissioning Date
Sangeeth Textiles ltd	530/1 & 2	1783	Levenjipuram	31/03/2006
	96/3 & 4	550	Irrukkandurai	31/03/2003
	966/2	830	Dhanukarkulam	31/03/2004
Sri Mookambiga Spinning Mills Ltd	115/1C2,1B	1749	Chettikulam	30/03/2006
	259/2	675	Dhanukkarkulam	04/03/2004
	341/2	676	Dhanukkarkulam	04/03/2004
CAV cotton Mills	395/2	655	Dhanukkarkulam	24/12/2003
	349/2	656	Dhanukkarkulam	24/12/2003
	1479/2	1659	Irrukkandurai	24/03/2006
Sri Vasudeva Textiles ltd	135/1,2,3, 4A,4B,4C, 4D	1660	Chettikulam	24/03/2006
	99(Part)	548	Irrukkandurai	31/03/2003
	594/1A & 1B	745	Dhanukkarkulam	29/03/2004

Table 1.2: *Project commissioning Details*

For the bundled project activity, the project start date is the earliest date of the commissioning of any wind mill. As per the table above, the earliest commissioning date is for the WEG No.548 / 550 which is 31/03/2003.

Therefore the start date for this bundled project is 31/03/2003.

Crediting period start date:

The Crediting period start date is 28th March 2006,
The project has a crediting period of 10 years fixed.

1.7 Conditions prior to project initiation:

The project is entirely a green field initiative and prior to the project implementation equivalent amount of power would have been generated by the fossil fuel dominated southern regional grid of India.

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

The project activity under consideration entails electricity generation through wind-mills by harnessing wind power potential, a natural and renewable source of energy. The project is expected to generate and export 27.29 million kWh (approx) of power per year to the Southern Regional Grid of India. In the absence of the project activity, an equivalent quantity of electricity would have been generated by the Southern Grid by a majority of fossil-fuel fired power plants. The same would have resulted in GHG emissions as per the carbon intensity of the grid-mix.

As per the combined margin, carbon intensity of 0.927tCO_2/MWh for the Southern Grid has been used during calculation of emission reductions. The bundled project activity would there by result in total CO_2 emission reduction of 25,305 tonnes over the crediting period of 10 years. For detailed calculation procedure and sample calculation tables of the GHG emission reduction, please refer to the Sections 4.2, 4.3 and 4.4 of the VCS PD.

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

In wind energy generation, kinetic energy of wind blowing at high speeds is converted into mechanical energy while passing through the wind-turbine. The rotation of the turbine blades results in the rotation of the generator mounted on the same shaft, thus generating electricity. As there are no GHG emissions associated with wind electricity generation, the technology is widely recognized as clean technology.
An upwind[4] Horizontal axis wind turbine (HAWT)[5] is used in the project activity to generate power.

The important components of a windmill are as follows:

- ***Main Tower:*** This is what holds the windmill up into the airflow.
- ***Blades:*** The blades are basically the sails of the system. They are flat objects connected to the centre shaft that converts the push of the wind into a

[4] A type of wind turbine in which the rotor faces the wind

[5] A wind turbine in which the axis of the rotor's rotation is parallel to the wind stream and the ground.

circular motion. When the wind forces the blades to move, it has transferred some of its energy to the rotor

- ***Rotor:*** The blades and the hub together
- ***Pitch:*** Blades are turned or pitched out of the wind to control the rotor speed and keep the rotor from turning in winds that are too high or too low to produce electricity
- ***Nacelle:*** It sits atop the tower and contains the gear box, shafts, generator, controller and brake.
- ***Main Shaft:*** The wind turbine shaft is connected to the centre of the rotor. When the rotor spins, the shaft spins as well. In this way, the rotor transfers mechanical rotational energy to the shaft, which enters an electrical generator at the other end.
- ***Gear Box:*** A gear box magnifies or amplifies the energy output of the rotor. It is situated directly between the rotor and the generator.
- ***Braking:*** A disk brake which can be applied mechanically, electrically or hydraulically to stop the rotor in emergencies
- ***Generator:*** The generator produces electricity from the rotation of the rotor
- ***Controller:*** the controller starts up the machine at wind speeds of about 8 to 16 miles per hour and shuts off the machine at 55 mph.
- ***Anemometer:*** Measures the wind speed and transmits wind speed data to the controller
- ***Wind vane:*** Measures wind direction and communicates with the yaw drive to orient the turbine properly with respect to the wind.
- ***Yaw Drive:*** This is used to keep the rotor facing into the wind as the wind direction changes. This is a typical requirement of upwind turbine.
- ***Yaw Motor:*** Powers the yaw drive
- ***Stand by battery:*** This is a rechargeable battery located in the nacelle. Whenever power supply is there, the battery gets charged up. Whenever there is a grid failure, the same battery is used to bring the rotor blades to 90º position that is braking. It is used to operate the pitch motor.

Wind passes over the blades exerting a turning force. The rotating blades turn a shaft inside the nacelle, which goes into gear box. Gear box increases the rotation speed of the generator, which uses magnetic fields to convert the rotational energy into electrical energy. The electrical power is generated at 690 V. A step up transformer is connected to the wind turbine which converts the electricity from the generator to match the voltage of the substation, i.e to 11kV , later it is stepped up to 33kV to match the voltage of local grid.

Furthermore the specifications of the various WTGs employed by the project activity are presented below:

Sl.No	**Particulars**	**Specifications**
		Suzlon S64(1250kW) WTG
Rotor		
1.	Diameter	64 m

2.	No. of Rotor Blade	3
3.	Orientation	Upwind/Horizontal axis
4.	Rotational Speed	13.9/20.8 rpm
5.	Rotational direction	Clockwise
6.	Rotor Blade Material	GRP
7.	Swept Area	3218 m^2
8.	Hub Height	65 m
9.	Regulation	Pitch Regulated
Operational Data		
10.	Cut in Wind Speed	3 m/s
11.	Rated Wind Speed	13 m/s
12.	Cut off Wind Speed	25 m/s
Gear Box		
13.	Type	Integrated 3 stage 1planetary and 2 helical
14.	Gear Ratio	1:74.917
15.	Manufacturer	Flender-Winergy
16.	Nominal Load	1390 kW
17.	Type of Cooling	Oil cooling system, Forced Lubrication
Generator		
18.	Type	Asynchronous 4/6 pole
19.	Make	Siemens
20.	Rotational Speed	1010/1515 RPM
21.	Rated Output	250/1250 kW
22.	Rated Voltage	690 V
23.	Frequency	50 Hz
24.	Insulation	Class “H”
25.	Enclosure Class	IP 56
26.	Cooling System	Air Cooled
Operating Brakes		
26.	Aerodynamic Brake	3 Independent systems with blade pitching
27.	Mechanical Brake	Spring powered disk brakes, Hydraulically released, fail safe
Yaw Drive		
28	Method of Operation	4 Active Electrical yaw motors
29	Bearing Type	Polyamide slide bearing

Table 1.4: *Technical Specifications of the turbines installed*

The expected level of performance of the project activity is provided below:

Sl. No.	Project Participant	Installed Capacity (MW)	Net Electricity Generation per annum (MWh)	GHG Abatement per annum (ton CO2e)
1.	Sangeeth Textiles Ltd	3.75	6936.29	6429
2.	Sri Mookambiga Textile mills Ltd	3.75	6671.06	6184
3.	CAV cotton Mills Ltd	3.75	6724.11	6233
4	Sri Vasudeva Textiles Ltd	3.75	6967.66	6459

Table 1.5: *Net Generation and Emission Reduction Details*

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

The project activity under consideration complies with the applicable regional and national level legal and regulatory requirements for installation and operation of wind-farms. The same is listed as follows:

- Wheeling Agreements with the Tamil Nadu State Electricity Board

Company	HTSC No	Reference Number of Agreement
Sangeeth Textiles Ltd	550	Lr.No:AO/REV/TIN/HTS/AS/A3/F/WEG HT SCNO 550/D.455/03, Dt:19-04-03
	1783	Lr.No:AO/REV/TIN/HTS/AS/A3/F/WEG HT SCNO 1783/D.435/06, Dt:25-04-06
	830	Lr.No:AO/REV/TIN/HTS/AS/A3/F/WEG HT SCNO 830/D.892/04, Dt:20-05-04
Sri Vasudeva Textiles Ltd	745	Lr.No:AO/REV/TIN/HTS/AS/A3/F/WEG HT SCNO 745/D.856/04, Dt:16-05-04
	1660	Lr.No:AO/REV/TIN/HTS/AS/A3/F/WEG HT SCNO 1660/D.508/06, Dt:26-04-06
CAV Cotton Mills	655	Lr.No:AO/REV/Tin/HTS/AS/A3/F/WEG HT SCNO 655/D.179/03, Dt:16-02-04
	656	Lr.No:AO/REV/Tin/HTS/AS/A3/F/WEG HT SCNO 656/D.178/03, Dt:16-02-04
	1659	Lr.No:AO/REV/Tin/HTS/AS/A3/F/WEG HT SCNO 1659/D.501/06, Dt:26-04-06
Shri Mookambiga spinning mills ltd	676	Lr.No:AO/REV/Tin/HTS/AS/A3/F/WEG HT SCNO 676/D.684/03, Dt:17-04-04
	675	Lr.No:AO/REV/Tin/HTS/AS/A3/F/WEG HT SCNO 675/D.672/03, Dt:12-04-04
	1749	Lr.No:AO/REV/Tin/HTS/AS/A3/F/WEG HT SCNO 1749/D.456/06, Dt:25-04-06

- Commissioning certificates issued by Tamil Nadu State Electricity Board for each wind turbine

Company	HTSC No	Reference Number of Agreement
Sangeeth Textiles Ltd	550	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.550/R.No.1423/2002-03 Dt: 08-04-2003
	1783	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.1783/R.1632/2006- Dt: 12-04-2006
	830	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.830/R.No.2292/2004, Dt: 28-04-2004
Sri Vasudeva Textiles Ltd	1660	Lr.No:SE/TIN/AEE/DVT/AE.2/F.WEG.HTSC.NO 1660/R.1612/2006. Dt: 10-04-2006
	548	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.548/R.No.1421/2002-03, Dt: 08-04-2003
	745	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.745/R.No.2146/2003, Dt: 23-04-04
CAV Cotton Mills Ltd	655	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.No 656 /D.No 317/2003-04, Dt: 21-01-04
	656	Lr.No:AEE/DVT/AE1/F.WEG.HTSC.No 655 /D.No 316/2003-04, Dt: 21-01-04
	1659	Lr.No:AEE/DVT/AE2/F.WEG.HTSC.No 1659 /R.1673/2006, Dt:12-04-06
Shri Mookambiga Spinning Mills Ltd	1749	Lr.No:SE/TIN/AEE/DVT/AE.2/F.WEG.HTSC.NO 1749/R.1631/2006. Dt: 10-04-2006
	675	Lr.No:AEE/DVT/AE1/F.WEG.HT 675 /R.No

		1611/2003-04. Dt: 27-03-2004
	676	Lr.No:AEE/DVT/AE1/F.WEG.HT 676 /R.No 1612/2003-04. Dt: 27-03-2004

- No objection certificates from Tamil Nadu State Electricity Board

Company	HTSC No	Reference Number of Agreement
Sangeeth Textiles Ltd	550	Lr.No:CE/NCES/EE/WPP/A1/F.Sangeeth Textiles Limited-WF/R.No:09154/D.1626/2003 dated 15-02-2003
	1783	Lr.No:CE/NCES/EE/WPP/A2/F.Sangeeth Textiles Limited-NT Noted for Record letter WF/R.No:08358/D.1784/2006, Dt 17-02-2006
	830	Lr.No:CE/NCES/EE/WPP/A1/F.Sangeeth Textiles Limited-WF/R.No:14285/D.1740/2004, dated 31-03-2004
Sri Vasudeva Textiles Ltd	745	Lr.No:CE/NCES/EE/WPP/A1/F.Sri Vasudeva Textiles Limited-WF/R.No:13880/D.157/2004, dated 23-03-2004
	1660	Lr.No:CE/NCES/EE/WPP/A1/F.Sri Vasudeva Textiles Limited-NT Noted for Record letter - WF/R.:08860/D.1780/2006, dated 16-02-2006
	548	Lr.No:CE/NCES/EE/WPP/A1/F.Sri Vasudeva Textiles Limited-WF/R.No:09155/D.1618/2003, dated 15-03-2003
CAV Cotton Mills Ltd	655 & 656	Lr.No:CE/NCES/EE/WPP/A1/F.CAV Cotton Mills Ltd-WF/R.No:12081/D.863/2003, dated 10-12-2003
	1659	Lr.No:CE/NCES/EE/WPP/A1/F.CAV Cotton Mills Ltd,Coimbatore-NT Noted for record letter-WF/R.No:08465/D.1862/2006, dt 24-2-2006
Shri Mookambiga Spinning Mills Ltd	675 & 676	Lr.No:CE/NCES/EE/WPP/A1/F.Shri Mookambiga Spinning Mills Limited-WF/R.No:12928/D.1159/2004, dated 24-02-2004
	1749	Lr.No:CE/NCES/EE/WPP/A1/F.Shri Mookambiga Spinning Mills Limited-NT- Noted for Record letter-WF/R.No:08359/D.1782/2006, dated 16-02-2006

The documents related to relevant statutory clearances for each component of the bundled project activity would be made available during Project Validation.
Further, since the project activity involves the generation of clean power by using naturally available renewable source of energy i.e wind and there is no negative impact on the environment during any of the stages of the project activity, environmental clearance is not required for the project activity. Please refer to section 5 for further details on the same.

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

The amount of GHG emission reductions that the project activity would result in directly depends on the quantity of electricity generated by the wind-mills. The various factors that might contribute to a substantial variation in the GHG emission reduction quantum from the project as compared to that predicted in the VCS PD are summarised below:

- Substantial variation in the wind availability/ plant load factor as compared to the values predicted on the basis of the wind resource availability report/ Detailed Project Report
- Plant stoppages and loss of generation due to
    - Equipment or component failure associated with the WTGs
    - Evacuation problem: The project activity often faces evacuation problems due to lack of sufficient number of substations and other power evacuation infrastructure like transformers. Wind farms are often shut down in peak season due to inadequate grid capacity to evacuate the power. Since the cost involved for setting up a new substation ranges from 700- 900 million INR, the turbine supplier or the project proponent cannot take up the construction of the same.
    - Physical damages to equipment and erected structures caused by natural calamities or other factors not under the control of the project promoters.

The factors mentioned above pose risks to the project performance and hence the GHG abatement quantum of the project.

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 involves power generation by installation of WTGs at several locations in the state of Tamil Nadu, India. The process of wind power generation does not involve fossil fuel combustion or any other direct or indirect emission of GHGs. Though the transportation and installation of wind turbines during the construction stage leads to some GHG emissions, however, the same is also present in the baseline scenario during installation of thermal power plants and also due to transportation of fossil fuels and hence need not be accounted. Further, the same is negligible compared to the GHG emission reductions over the lifetime through displacement of equivalent electricity generation by thermal power intensive grid. As mentioned above, there are no GHG emissions attributable to the project activity and thus removal or destruction of the same is not possible. This confirms that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.

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

The project has not generated or created any other form of environmental credits like CDM credits or energy certificates.

A declaration letter stating avoidance of double counting would be submitted to the validator by the individual proponents.

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:

The four companies, Sangeeth Textiles Ltd, Shree Mookambiga Spinning Mills Ltd, CAV Cotton Mills Ltd, Sri Vasudeva Textiles Ltd, are owned by four members of the same family. Each of the four members will be having controlling interest in one

company and marginal share holding in rest of the three. Managing Director is the head of one company and he would be acting as one among the Board of Directors for the other three companies. Further, the four project proponents of the project activity share a common registered office.
Sangeeth Textiles Ltd agreed to act as the coordinating agency for the project activity. Mr. Elango is the Managing director of Sangeeth Textiles Ltd and he is the Director of the other three companies

Sangeeth Textiles Limited (Coordinating Agency)

Organization:	*Sangeeth Textiles Limited*
Roles & Responsibilities:	Individual Project Participant or Project Promoter/developer
Street/P.O.Box:	Ganeshpuram post,Via S.S Kulam
Building:	551
City:	Annur, Coimbatore district
State/Region:	Tamil Nadu
Country:	India
Telephone:	+91 422-2654101
Fax:	+91 422-2654344
E-Mail:	sangeeth@md3.vsnl.net.in
URL:	www.sangeethtextiles.com
Represented by:	Elango
Title:	Managing Director
Salutation:	Mr
Last Name:	
Middle Name:	
First Name:	Elango
Mobile:	
Direct Fax:	+91 422-2654344
Direct tel:	+91 422-2616600
Personal E-Mail:	sales@sangeeth.in, finance@sangeeth.in

Shri Mookambiga Spinning Mills Limited

Organization:	Shri Mookambiga Spinning Mills Limited
Roles & Responsibilities:	Individual Project Participant or Project Promoter/developer
Street/P.O.Box:	Ganeshpuram post,Via S.S Kulam
Building:	551
City:	Annur, Coimbatore district
State/Region:	Tamil Nadu
Country:	India
Telephone:	+91 422-2654101
Fax:	+91 422-2654344
E-Mail:	sangeeth@md3.vsnl.net.in
URL:	www.sangeethtextiles.com
Represented by:	Elango
Title:	Director
Salutation:	Mr
Last Name:	
Middle Name:	
First Name:	Elango
Mobile:	
Direct Fax:	+91 422-2654344
Direct tel:	+91 422-2616600

Personal E-Mail:	sales@sangeeth.in, finance@sangeeth.in

C.A.V Cotton Mills Limited

Organization:	*C.A.V Cotton Mills Limited*
Roles & Responsibilities:	Individual Project Participant or Project Promoter/developer
Street/P.O.Box:	Ganeshpuram post,Via S.S Kulam
Building:	551
City:	Annur, Coimbatore district
State/Region:	Tamil Nadu
Country:	India
Telephone:	+91 422-2654101
Fax:	+91 422-2654344
E-Mail:	sangeeth@md3.vsnl.net.in
URL:	www.sangeethtextiles.com
Represented by:	Elango
Title:	Director
Salutation:	Mr
Last Name:	
Middle Name:	
First Name:	Elango
Mobile:	
Direct Fax:	+91 422-2654344
Direct tel:	+91 422-2616600
Personal E-Mail:	sales@sangeeth.in, finance@sangeeth.in

Sri Vasudeva Textiles Limited

Organization:	*Sri Vasudeva Textiles Limited*
Roles & Responsibilities:	Individual Project Participant or Project Promoter/developer
Street/P.O.Box:	Ganeshpuram post,Via S.S Kulam
Building:	551
City:	Annur, Coimbatore district
State/Region:	Tamil Nadu
Country:	India
Telephone:	+91 422-2654101
Fax:	+91 422-2654344
E-Mail:	sangeeth@md3.vsnl.net.in
URL:	www.sangeethtextiles.com
Represented by:	Elango
Title:	Director
Salutation:	Mr
Last Name:	
Middle Name:	
First Name:	Elango
Mobile:	
Direct Fax:	+91 422-2654344
Direct tel:	+91 422-2616600
Personal E-Mail:	sales@sangeeth.in, finance@sangeeth.in

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.):

Purpose:
The purpose of the wind-mills set up by the project activity is as follows:

- Generating clean power by utilizing the renewable natural resource *i.e.,* wind power and exporting the electricity generated to their own industry by making use of the transmission lines of TNEB. Hence the project activity does not cause emissions of greenhouse gases (GHGs) that would have otherwise been caused by power generation by the combustion of non-renewable sources of energy.
- Harnessing the wind power potential existing in India for power generation that has not been exploited to its full potential till date
- Contribution to the industrial development of India by providing support in terms of enhanced power availability
- Increasing the share of renewable energy directly in the regional electricity grid and indirectly in the national electricity grid
- Contribution to the causes of fossil-fuel conservation and climate change mitigation
- Contribution to nation towards energy security
- Independency on fossil fuels
- Saving in national revenue by avoiding import of fossil fuels

Contribution of the Project Activity to Sustainable Development:
The contribution of the project activity to the sustainable development of the host country India is evident from the following:

Social Well Being	• The project generates clean power without negative impacts on surroundings • No human displacement due to the project activity and hence no requirement of relocation • The local population has been employed during the installation, commissioning and operation of the wind mills, thus proper training imparted to the people involved results in the skill development of the local inhabitants and also improvement in their economic condition. • Improvement in the infrastructure in the nearby areas such as development of road network, transportation facilities and other amenities
Economic Well being	• The project activity is responsible for creating business opportunities for many local stakeholders • It is an effort on the part of the project proponent to contribute towards grid stability and abridging the demand-supply gap in electricity in the regional grid and in turn in the national grid • The project activity conserves fossil-fuels and makes these non-renewable sources of energy available for other important purposes. • It indirectly contributes towards industrial development of the region by creating a support in terms of supplying power for industries to come up in due course of time
Technological Well being	• The project activity generates clean power by harnessing the potential wind energy for power generation

	• The project contributes towards the stability of grid power that is a major cause of concern in remote locations • It also helps in reducing the losses due to power transmission and distribution from the existing generating stations of the grid to remote areas
Environmental Well being	• The project activity displaces an equivalent quantum of power generated by the combustion of fossil fuels, the non-renewable energy sources at the grid connected thermal power plants, thus reducing GHG emissions and contributing to the overall cause of mitigation of global warming • The project activity by setting up wind-farms for power generation does not cause environmental disturbance or ecological imbalance to the surroundings • The project activity does also contribute to the reduction in the levels of SOx, NOx, and SPM associated with combustion of fossil fuels for generation of thermal power

Table 1.6: *Contribution to Sustainable Development*

1.17 List of commercially sensitive information (if applicable):

Not Applicable

2 VCS Methodology:

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

Title of Approved Baseline Methodology: 'Grid Connected Renewable Electricity Generation'
Reference of the Approved Baseline Methodology: Category I.D - Renewable Energy Projects[6]: Approved Small Scale Methodology AMS –I.D. / Version 14 of the Appendix B of Simplified Modalities and Procedures (M & P) of Small Scale CDM Project Activities[7]
Tools referenced:
Tool to calculate the emission factor for an electricity system, Version 01.1

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

The applicability criteria of the methodology AMS-I.D. and their relevance with respect to the project activity under consideration are addressed as follows:

1. "This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit."

The project activity involves setting up of wind farms, *i.e.*, renewable generating units of cumulative generation capacity 15 MW to harness a renewable source of energy (wind power potential) and export the generated electricity to the fossil fuel dominated electricity generation and distribution system, i.e. the Southern Regional Electricity Grid of India[8]. In the process, an equivalent quantum of electricity that would have been

[6] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

[7] http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=52

[8] http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm

generated by the grid in line with the grid electricity generation mix is displaced by the project activity. The carbon intensity of the fossil-fuel dominated generation mix of the grid is evident from the following break-up of various types of energy sources.

Sl. No	Source of electricity generation	Net Generation (GWh)	Percentage Share (%)
1	Coal	16682.50	41.56
2	Natural Gas	3646.10	9.08
3	Diesel	939.32	2.34
4	Nuclear	1100	2.74
5	Hydro	10724.18	26.72
6	Renewable Energy	7047.90	17.56

Table 2.1: Power Generation mix of southern regional grid of india
Source: Central Electricity authority[9] as on 31/01/2009

Hence the project activity complies with this criterion.

2. "If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW".

The project activity involves only wind power generation. The gross wind power generation capacity of the bundled project activity is 15 MW (3.75 MW, 3.75 MW,3.75 MW and 3.75 MW), which is equal to 15 MW, as stipulated in the applicability criterion under consideration.

Hence the project activity complies with this criterion.

3. "Combined heat and power (co-generation) systems are not eligible under this category"

The project activity involves generation of electricity only through WTGs and is not a co-generation system.
Hence the project activity complies with this criterion.

4. "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."

The project activity does not involve the addition of renewable energy generation units at an existing renewable power generation facility.
Hence the project activity complies with this criterion.

5. "Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category. To qualify as a small scale project, the total output of the modified or retrofitted unit shall not exceed the limit of 15 MW"

The renewable energy generating wind-farms employed by the project activity are newly set up and do not involve retrofitting or modification of any existing facility for renewable energy generation.
Hence the project activity complies with this criterion.

The same is being supported by the purchase orders from the WTG manufactures, i.e Suzlon energy Ltd.

[9] http://www.cea.nic.in/power_sec_reports/Executive_Summary/2009_01/27-33.pdf , 26/06/09

Thus, the project activity fulfills all the applicability criteria of the simplified small scale methodology AMS-I.D./ Version 14[10].

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

The various GHG emission sources, sinks and reservoirs are identified for any GHG abatement project within its project boundary. The project boundary for the project activity under consideration encompassing various GHG emission sources for the baseline as well as for the project is identified as follows:

1. *For calculation of Project Emissions from various sources:*
   Each of the individual wind-mills generating electricity has been included within the project boundary. Further, there are no project emissions attributable to the project activity (please refer to section 4.3 of the VCS PD for details).
2. *For calculation of Baseline Emissions from various sources:*
   The Southern Regional Grid of India has been considered within the project boundary. The carbon intensity of the various GHG emission sources considered under this header, *i.e.*, the Southern Grid generation mix has been calculated by the Central Electricity Authority, Government of India (please refer to the section 4.2 of the VCS PD for details).

Furthermore, there are no GHG sequestration sinks or storage reservoirs to be considered for the emission reduction computation for the project activity.

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

The various GHG emission sources, sinks and reservoirs are identified for any GHG abatement project within its project boundary. The project boundary for the project activity under consideration encompassing various GHG emission sources for the baseline as well sink and reservoirs is identified as follows:

	Source	Gas	Included	Justification / Explanation
Baseline	Electricity generation from coal based power plants in Western Region of Integrated NEWNE Grid of India.	CO_2	Included	Main Emission Source
		CH4	Excluded	Excluded for simplification. This is conservative.
		N2O	Excluded	Excluded for simplification. This is conservative.
Project Activity	Electricity generation from the project.	CO2	Excluded	Excluded. As Wind energy generation does not have any GHG emissions.
		CH4	Excluded	
		N2O	Excluded	

The spatial extent of this project activity includes the project site and all the power plants connected physically to the electricity system that the VCS power project activity is connected to. As mentioned under paragraph 31 of 'Annex-C'[11] of the simplified

[10] http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

[11] Refer to: http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=49

Modalities and Procedures for small-scale project activities', "The project boundary shall encompass significant anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are reasonably attributable to the project activity."

The project boundary thus encompasses the physical, geographical site of the renewable generation source, which includes the Wind Turbine Generators, the connected metering equipment for each generator and substation, and the grid which is used to transmit the generated electricity. Since the project power generated from the project activity is being supplied to the nearby local grid of the Southern region, Southern regional grid has been chosen as the grid system for the baseline calculation.

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

As per the applicable methodology, AMS ID, Version 14, the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in kWh of electricity produced by the renewable generating unit multiplied by an emission factor "

$BEy = EG_{BL,y} * EFCO2$

Where

BE_y is Baseline Emissions in year y; tCO2

$EG_{BL,y}$ is the Energy baseline in Year y, kWh

EFCO2 is the CO2 emission factor in year y; tCO2e/kWh

The emission factor can be calculated in a transparent and conservative manner as follows

(a) A combined margin (CM) [12], consisting of the combination of operating margin (OM) [13] and build margin (BM)[14] according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system'. Any of the four procedures to calculate the operating margin can be chosen, but the restrictions to use the Simple OM and the Average OM calculations must be considered.

OR

(b) The weighted average emissions (in kg CO_2e/kWh) of the current generation mix. The data of the year in which project generation occurs must be used.

Calculations must be based on data from an official source (where available) and made publicly available."

Option-A "combined margin" approach has been considered to calculate the emission factor applicable to the project activity. The value of the emission factor is 0.927$tCO2_e$/MWh.

[12] The project activity will have an effect on the both the operating margin and build margin.

[13] Present power generation sources of the grid, weighted according to their actual participation in the grid mix (all generating sources participating in the grid except hydro, geothermal, wind, low cost biomass, nuclear, and solar power)

[14] Weighted average emissions of recent capacity additions (most recent 20% or the 5 most recent plants)

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):

1) ***Regulatory Surplus***

The project activity has not been implemented as part of any law or regulatory requirement for the project proponents. It has been implemented voluntarily by each proponent in the bundle.

2) ***Barriers*** *(As per the UNFCCC/CDM Additionality guidance for small scale CDM projects)*

As per Voluntary Carbon Standard 2007.1, "A project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered project activity". The additionality aspects of the project are discussed below in accordance with Attachment A[15] to appendix B of the simplified Modalities & Procedures for small scale CDM project activities and are in line with the additionality requirements in section 5.8 of Voluntary Carbon Standard 2007.

Attachment A to Appendix B of the simplified Modalities and Procedures for small scale CDM project activities recommends that the project participants provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:
1) Investment Barrier 2) Technological Barrier 3) Barrier due to prevailing practise 4) Other Barriers

The Investment Barrier route is adopted here where the barrier is demonstrated through the investment analysis as described in ***"****Tool for the demonstration and assessment of additionality" (version 05.2). The EB 41- "Guidance on the assessment of investment analysis" (version 02) has also been applied in the investment analysis.*

As per the **"**Tool for the demonstration and assessment of additionality" wind power projects fall under the Sub-step 2b Option III-Benchmark analysis. Further, as per the tool, the financial/economic indicator IRR is applied as most suitable for the project type and decision context.

In line with the tool, the investment analysis is carried out at the time of investment of each machine by the individual project proponent. The benchmark applied for the project activity is the Equity Cost of Capital. The WTG wise Equity Internal Rate of Return (IRR) is used as financial indicator and compared with the Equity Cost of Capital (benchmark) at the time of investment. The equity cost of capital has been calculated for the projects of individual project promoters using CAPM (Capital Asset Pricing Model).

This involves applying the risk free returns and estimating the market returns along with the beta value of similar companies for a particular year. Generally, Government bond rates are considered as risk free returns. Market returns are calculated using Bombay Stock Exchange (BSE-30), also called Sensex. For beta values companies operating in the similar power sector are considered for that particular year. The cost of equity is calculated as follows:

Equity Cost of Capital = Risk Free Return + Beta * (Market Returns - Risk Free Returns)

[15] http://cdm.unfccc.int/methodologies/SSCmethodologies/AppB_SSC_AttachmentA.pdf

Year	Market Returns%	Risk Free Return%	Beta Values%	Equity Cost of Capital%
Mar-02	16.67	9.44	0.93	16.17
Jul-03	16.36	9.44	0.93	15.87
Oct-03	17.27	5.71	0.93	16.46
Jan-06	17.32	6.11	0.99	17.21

The IRR has been calculated for each project proponent independently.

The values and assumptions considered during the IRR calculation are conservative as per the guidelines.

1. **Debt Equity:** The debt and equity ratio has been considered as 70%:30% based on the Tamil Nadu Electricity Regulatory Commission Guidelines[16]
2. **Plant Load Factor**: As per the Tamil Nadu State Electricity Board data in 2003-04 the PLF for the state was reported as 20% for the wind power projects[17]. This is relevant for the machines commissioned in the year 2003-2004. Later however, the Tami Nadu Electricity Regulatory Commission in its order dated May 2006 declared the PLF of existing machines as 25.9%. To ensure conservativeness of the assumptions for IRR computation the higher PLF of 25.9% has been considered as per the Tamil Nadu Electricity Regulatory Commission's Order[18].
3. **Interest Rates**: Depending on the date of commissioning of the WEG, the rate of interest (lending rate) for that particular year has been adopted from the Reserve Bank of India's Prime Lending Rates data[19]. The risk free returns used in the calculation have been adopted from "Annual (gross) redemption yield of Government of India securities.
4. **Beta**: Beta value adopted for each year has been considered as the average value of beta for the companies that have invested in power sector in India[20].
5. **Tariff**: The project proponents have signed a "Wheeling Agreement" with the Tamil Nadu State Electricity Board (For all WEGs in the bundle) which is valid for 20 years. As per the wheeling agreement 5% of the gross energy generated by the wind mill shall be deducted towards wheeling charge and the balance would be made available to their industry at the place or places where power is required.
6. **Tax Benefits**: As per The Income Tax Act of Government of India *"the depreciation allowance as percentage of written down value for wind mills and any specially designed devices which run on wind mills is 80%"*. Hence 80 % depreciation is claimed by each project proponent with respect to WDV (written down value) method. Further, as per the Income Tax Act under section 80 IA the wind projects have a tax holiday of 10 years which can be availed during the first 15 years of operation. However the Minimum Alternate Tax will be applicable for the project activity.

Following is the summary of the calculation of equity IRR:

Assumptions			
S. No.	**Description**	**Value Applied**	**References & Sources**

16 http://tnerc.gov.in/orders/nces%20order%20approved%20order%20host%20copy.pdf

17 http://www.tneb.in/linkpdf/wind-link.pdf

18 http://tnerc.gov.in/orders/nces%20order%20approved%20order%20host%20copy.pdf

19http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/80255.pdf

20 Power sector companies listed in Bombay Stock Exchange from http://pages.stern.nyu.edu/~adamodar/

1.	Depreciation under Companies Act	5.28%	Taxmann's Direct Taxes Ready Reckoner
2.	Depreciation under IT Act	80%	Taxmann's Direct Taxes Ready Reckoner
3.	Minimum Alternate Tax (MAT)	7.87%	Taxmann's Direct Taxes Ready Reckoner
4	PLF	25.9%	Based on TNERC Order No3. Dated 15/05/2006
5	Regular Income Tax	33.66%	Taxmann's Direct Taxes Ready Reckoner
6	Registration Fee (Euro/VCU)	0.04	http://assets.panda.org/downloads/vcm_report_final.pdf, Page - 61
7	Market price per tonnes (in Euro)	5	http://assets.panda.org/downloads/vcm_report_final.pdf, Page - 44
8	Industrial High Tension Tariff Rate in Tamil Nadu during 2002-2003	Rs 3.50 per unit	http://www.tneb.in/TariffDetailsNew.php
9	Number of WTGs	12	Purchase Order
10	Reactive Power Charges	Rs 0.40 Per Unit	Power Purchase Agreement(Wheeling Agreement)
11	Operation and Maintenance Cost	2% of project cost	Operation & Maintenance Contract
12	Wheeling Charges	5%	As per Wheeling Agreement
13	Losses due to machine availability	3%	Suzlon Purchase orders

Project IRR has been calculated based on the "Tool for demonstration and assessment of additionality" (Version 05.2), Clause 6 (d) of Sub-step 2b - Option III and Annex 45 EB 41- Guidance on the assessment of investment analysis (version 02)

Following are the results of the IRR analysis:

S.No	Company	HT SC No	Wind farm Capacity (MW)	Equity IRR (Base case)	Benchmark	
					Type	Value
1	Sangeeth Textiles Ltd	550	1.25	15.17	Equity cost of Capital (March 2002)	16.17
		830	1.25	12.47	Equity Cost of Capital (October 2003	16.46
		1783	1.25	11.25	Equity Cost of Capital (January 2006)	17.21
2	Sri Mookambiga spinning mills ltd	1749	1.25	10.94	Equity Cost of Capital (January 2006)	17.21
		675,676	2.5	12.58	Equity Cost of Capital (October 2003)	16.46
3	CAV cotton Mills Ltd			13.00		
			2.5		Equity Cost of Capital	15.87

		655, 656			(July 2003)	
		1659	1.25	11.22	Equity Cost of Capital (January 2006)	17.21
		548	1.25	14.36	Equity Cost of Capital (March 2002)	16.17
		745	1.25	14.77	Equity Cost of Capital (October 2003)	16.46
4	Sri Vasudeva Textiles ltd	1660	1.25	11.13	Equity Cost of Capital (January 2006)	17.21

From the investment analysis above, it is evident that the IRR of the wind power project is less than the considered benchmark for each of the machines under consideration.

Sensitivity Analysis:

Tariff for the crediting period is fixed and hence the only variable is generation. Sensitivity analysis has been done for all the WTGs by +10% change in generation. Please refer the table below for the results:

Proponent	**HTSC No**	**Base case IRR (%)**	**Benchmark**	**IRR @ 10% increase in Generation**	**Remarks**
Sangeeth Textiles Ltd	550	15.17	16.17	17.26	Increase of generation is less likely as witnessed in the prevailing PLF at the site
	830	12.47	16.46	14.36	Less than benchmark
	1783	11.25	17.21	13.06	Less than benchmark
Shree Mookambiga Spinning Mills Pvt Ltd	1749	10.94	17.21	12.73	Less than benchmark
	675,676	12.58	16.46	14.48	Less than benchmark
CAV Cotton Mills	655,656	13.00	15.87	14.93	Less than benchmark
	1659	11.22	17.21	13.03	Less than benchmark
Sri Vasudeva Textiles Ltd	548	14.36	16.17	16.39	Increase of generation is less likely as witnessed in the prevailing PLF at the site
	745	14.77	16.46	16.84	Increase of generation is less likely as witnessed in the prevailing PLF at the site
	1660	11.13	17.21	12.93	Less than benchmark

Based on the additionality tool for investment analysis and after comparing the Project IRR values with the benchmark and further performing the sensitivity analysis, it is clear that the project activity is not financially viable and hence this project is additional and not the baseline scenario. Further, upon considering the benefits from VCS, the risks related to the operating of the wind project can be partially mitigated.

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:

Title of Approved Monitoring Methodology: 'Grid Connected Renewable Electricity Generation'

Reference of the Approved Monitoring Methodology: Category I.D - Renewable Energy Projects: Approved Small Scale Methodology AMS –I.D. / Version 14

As per the Indicative simplified baseline and monitoring methodology AMS-I.D./ version 14,

"Monitoring shall consist of metering the electricity generated by the renewable technology"

Please refer to the subsequent Sections 3.2, 3.3 and 3.4 of the VCS PD for details pertaining to the monitoring aspects for the project activity.

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

- Purpose of monitoring:

The Monitoring and Verification (M&V) procedures define a project-specific standard against which the project's performance (i.e. GHG reductions) and conformance with all relevant criteria will be monitored and verified. It includes developing suitable data collection methods and data interpretation techniques for monitoring and verification of GHG emissions with specific focus on technical / efficiency / performance parameters. It also allows scope for review, scrutiny and benchmarking of all these information against reports pertaining to M & V protocols.

The M&V Protocol provides a range of data measurement, estimation and collection options/techniques in each case indicating preferred options consistent with good practices to allow project managers and operational staff, auditors, and verifiers to apply the most practical and cost-effective measurement approaches to the project. The aim is to enable this project have a clear, credible, and accurate set of monitoring, evaluation and verification procedures. The purpose of these procedures would be to direct and support continuous monitoring of project performance/key project indicators to determine project outcomes, greenhouse gas (GHG) emission reductions.

The general monitoring principles are based on:

- *Frequency:*
  The amount of electricity exported to the grid is monitored continuously and aggregated every month

- *Reliability:* The reliability of the monitoring system is governed by the accuracy of the measurement system and the quality of the equipment to produce the result. All energy meters will be calibrated on a regular basis by the Tamil Nadu State Electricity Board for ensuring reliability of the system. The monitored data is reliable as it is being done by the state utility and also the meters are periodically calibrated. All the meters are of 0.5% accuracy class. The calibration certificates are provided to the validator
- *Registration and Reporting:* Registration of data would be in the plant records and there from the Electricity Export invoices raised to the SEB. Monthly reports would be prepared stating the net electricity exported and archived by the project proponent. The records pertaining to EB bills are maintained at the registered office of the project proponents.

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

Please refer to "Section 3.3: Data and parameters monitored" of the VCS PD for the monitoring details pertaining to types, units and sources of data and description of the monitoring procedure.

- *Monitoring, including estimation, modelling, measurement or calculation approaches*

For detailed GHG emission reduction procedures and sample calculation tables, please refer to the sections 4.2, 4.3 and 4.4 of the VCS PD.

- *Monitoring times and periods, considering the needs of intended users*

Please refer to the "Section 3.3: Data and parameters monitored" of the VCS PD.

- *Monitoring roles and responsibilities*

Please refer to the "Section 3.4: Description of the Monitoring Plan" of the VCS PD.

- *Managing data quality*

Please refer to the "Section 3.4: Description of the Monitoring Plan" of the VCS PD.

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

The following parameters would be monitored as mentioned in the tables presented below. For details of calculation procedures and sample calculation tables, please refer to the Sections 4.2 and 4.3 of the VCS PD.

Data / Parameter:	$E_{EXP,i,y}$
Data unit:	kWh /Year
Description:	Net Power Exported to grid by the WEGs under the project activity in the year y
Source of data to be used:	Power Export Bills of the WTGs at regular intervals (monthly)
Value of data applied for the purpose of calculating expected emission	272,99,000(Total)

reductions	
Description of measurement methods and procedures to be applied:	$E_{EXP,i,y}$ will be calculated from the sum of the monthly data that will be measured by an electronic tri-vector portable master meter at the WTG location, by the personnel from TNEB as follows: $E_{EXP,i,y} = \sum_{m=1}^{12} E_{EXP,i,m}$ where 'm' stands for each month from January (m=1) to December (m=12) The meter will be an import-export meter provided with a totaliser from which cumulative reading can be taken to yield the net electricity exported to the state grid at the end of every month.
QA/QC procedures to be applied:	The meter reading will be taken on 15th of every month by the personnel from the TNEB, in the presence of representatives from the company. The meter would be sealed by the TNEB. The meter installed is of an accuracy class of 0.5%. The net energy exported by the WTG is obtained by multiplying the Main meter reading with a multiplication factor specific to the master meter. The Main meter will be maintained and calibrated by the Tamil Nadu State Electricity Board State on a regular basis as per their internal calibration schedule as specified in the wheeling Agreements or as deemed necessary by the Tamil Nadu State Electricity Board and calibration is done using the portable meter . The shift in charge of the power plant will be responsible for verifying the quantum of electricity exported to the grid *vis-à-vis* the net electricity generated from the wind power generating unit within the same time period.
Any comment:	The relevant data will be recorded in electronic form and the same along with the electricity bills will be archived during the crediting period and for two years beyond the crediting period.

Table to calculate the Emission Factor for an Electricity System:

CENTRAL ELECTRICITY AUTHORITY: CO2 BASELINE DATABASE

VERSION	**4.0**
DATE	**Sep-08**
BASELINE METHODOLOGY	**ACM0002 / Ver 07 and "Tool to Calculate the Emission Factor for an Electricity System", Version 1.1**

*Using approach (c) on p. 4 of "Tool to Calculate the Emission Factor for an Electricity System", Ver.01

EMISSION FACTORS

Weighted Average Emission Rate (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.84	0.83	0.82
South	0.73	0.72	0.72
India	0.82	0.80	0.80

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

	2005-06	2006-07	2007-08	
NEWNE	0.84	0.82	0.81	*
South	0.73	0.72	0.72	*
India	0.81	0.80	0.79	

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

	2005-06	2006-07	2007-08
NEWNE	1.02	1.02	1.01
South	1.01	1.00	0.99
India	1.02	1.01	1.01

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

	2005-06	2006-07	2007-08	
NEWNE	1.02	1.01	1.00	*
South	1.01	1.00	0.99	*
India	1.02	1.01	1.00	

Build Margin (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.67	0.63	0.60
South	0.71	0.70	0.71
India	0.68	0.65	0.63

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

	2005-06	2006-07	2007-08
NEWNE	0.67	0.63	0.60
South	0.71	0.70	0.71
India	0.68	0.65	0.63

Combined Margin (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.85	0.82	0.80
South	0.86	0.85	0.85
India	0.85	0.83	0.82

Combined Margin in tCO2/MWh (incl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.85	0.82	0.80
South	0.86	0.85	0.85
India	0.85	0.83	0.81

GENERATION DATA

Gross Generation Total (GWh)

	2005-06	2006-07	2007-08
NEWNE	470,037	499,380	531,539
South	147,355	161,897	167,379
India	617,392	661,277	698,918

Net Generation Total (GWh)

	2005-06	2006-07	2007-08
NEWNE	437,877	465,361	496,119
South	138,329	152,206	157,315
India	576,206	617,567	653,434

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

	2005-06	2006-07	2007-08
NEWNE	18.0%	18.5%	19.0%
South	27.0%	28.3%	27.1%
India	20.1%	20.9%	21.0%

Net Generation in Operating Margin (GWh)

	2005-06	2006-07	2007-08
NEWNE	359,271	379,471	401,642
South	100,978	109,116	114,702
India	460,249	488,587	516,343

20% of Net Generation (GWh)

	2005-06	2006-07	2007-08
NEWNE	87,575	93,072	99,224
South	27,666	30,441	31,463
India	115,241	123,513	130,687

Net Generation in Build Margin (GWh)

	2005-06	2006-07	2007-08
NEWNE	87,764	93,524	100,707
South	28,228	30,442	31,613
India	115,991	123,965	132,320

EMISSION DATA

Absolute Emissions Total (tCO2)

	2005-06	2006-07	2007-08
NEWNE	368,114,047	385,643,080	406,563,416
South	101,551,293	109,020,456	113,626,240
India	469,665,340	494,663,536	520,189,656

Absolute Emissions OM (tCO2)

	2005-06	2006-07	2007-08
NEWNE	368,114,047	385,643,080	406,563,416
South	101,551,293	109,020,456	113,626,240
India	469,665,340	494,663,536	520,189,656

Absolute Emissions BM (tCO2)

	2005-06	2006-07	2007-08
NEWNE	59,023,283	59,042,467	60,193,616
South	19,947,081	21,348,182	22,550,310
India	78,970,364	80,390,649	82,743,926

IMPORT DATA

Net Imports (GWh) - Net exporting grids are set to zero

	2005-06	2006-07	2007-08
NEWNE	4,853	5,126	8,193
South	0	0	0

Share of Net Imports (% of Net Generation)

	2005-06	2006-07	2007-08
NEWNE	1.1%	1.1%	1.7%
South	0.0%	0.0%	0.0%

Sources: Central Electricity Authority, 13th April 2009[21]

3.4 Description of the monitoring plan

Monitoring Plan:

The system in practice to monitor the electrical energy generated and there from the GHG emission reduction quantum from the project activity is provided in the following section.

The project activity essentially involves generation of electricity from wind, the employed WEG converts wind energy into electrical energy and does not use any other fuel for electricity generation. Thus no special ways and means are required to monitor leakage from the project activity.

- The project activity requires evacuation facilities for sale to grid and the evacuation facility is essentially maintained by the state power utility, TNEB.

[21] http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm

- The electricity generation measurements are required by the utility and the project proponents to assess electricity wheeling charges.
- Each WEG is equipped with an integrated electronic meter, the portable master meter connected to the Central Monitoring Station (CMS) through a wireless Radio Frequency (RF) network (PLC). The generation data of individual machine can be monitored as a real-time entity at CMS.
- The energy measurement will be carried out on the 15th day of every month in the presence of both parties (a representative of the project proponent and personnel from the state power utility, TNEB). Both parties will sign the recorded reading.
- The metering equipment is maintained in accordance with electricity standards and has the capability of recording hourly and monthly readings and is of accuracy class 0.5%. Records of meter reading are maintained at the head office. The energy meters will be duly approved, tested and sealed by the Tamil Nadu State Electricity Board. (Please refer to the photographs below)
- The energy meter will be calibrated annually by the Tamil Nadu State Electricity Board or as deemed necessary by the board. The calibration would be done using the portable meter annually by the personnel from the TNEB. Copies of periodical calibration certificates will be provided to the validator.
- Ex-ante grid emission factor will be used during the crediting period.

4 GHG Emission Reductions:

4.1 Explanation of methodological choice:

The following Approved Small Scale Methodology has been followed for the project activity under consideration:

Title of Approved Methodology: **'**Grid Connected Renewable Electricity Generation'
Reference of the Approved Methodology: Category I.D - Renewable Energy Projects: Approved Small Scale Methodology AMS –I.D. / Version 14[22]

For further details regarding the applicability criteria pertaining to the above-Methodology in the context of the project activity, please refer to section 2.2 of the VCS PD.

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

For the project activity under consideration, the baseline is given by paragraph 9 of the methodology AMS-I.D. / Version 14 as follows:

"the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO_2e/kWh) calculated in a transparent and conservative manner as:
(a) A combined margin (CM)[23]*, consisting of the combination of operating margin (OM)*[24] *and build margin (BM)*[25] *according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system'. Any of the four procedures to calculate the operating margin can be chosen, but the restrictions to use the Simple OM and the Average OM calculations must be considered. OR*
(b) The weighted average emissions (in kg CO_2e/kWh) of the current generation mix. The data of the year in which project generation occurs must be used.

[22] http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_PHPV5WESACMBTJ2YY54GAJYSIEI3HD
[23] The project activity will have an effect on the both the operating margin and build margin.
[24] Present power generation sources of the grid, weighted according to their actual participation in the grid mix (all generating sources participating in the grid except hydro, geothermal, wind, low cost biomass, nuclear, and solar power)
[25] Weighted average emissions of recent capacity additions (most recent 20% or the 5 most recent plants)

Calculations must be based on data from an official source (where available) and made publicly available."

The wind power generation project activity displaces an equivalent amount of electricity that would have been generated in the fossil-fuel dominated Southern Regional grid generation-mix. Since the displaced electricity generation is the element that is likely to affect both the operating margin in the short run and the build margin in the long run, electricity baselines should reflect a combination of these effects. Therefore an ideal baseline approach is envisaged as the one that combines both Operating and Build Margin as prescribed in first alternative stated above.

As per the version 01.1 of "Tool to calculate the emission factor for an electricity system", any of the following methods can be used to calculate the operating margin emission factor

i. Simple OM

ii. Simple Adjusted OM

iii. Dispatch Data Analysis

iv. Average OM

However, since the low-cost, must run resources constitute less than 50% of total southern regional grid generation in average of five most recent years and based on long term averages for hydroelectricity production, simple OM has been chosen. In case of the project activity under consideration, a combined margin (CM) emission factor, calculated according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system' and publicly available in the official website of Central Electricity Authority[26] (CEA), has been used for arriving at the baseline.

Emission Factor of the Grid (EF_{GRID})

For the project activity, the baseline scenario entails the generation of electricity by the grid connected fossil fuel fired thermal power plants resulting in GHG emissions as per the carbon intensity of the grid. The emission factor for the electricity displaced in the grid due by the electricity generated by the project activity is calculated as per the 'Tool to calculate the emission factor for an electricity system' by CEA and made available publicly for use as a data source for all Indian projects. The Southern Regional Electricity Grid of India that is fed by a majority of fossil fuel based units is considered for baseline emission calculations over the project activity's crediting period. Justification pertaining to the choice of the grid and details of the calculation of its carbon intensity are presented below.

A) Choice of the grid that will be affected by the project activity

As per version 01.1 of 'Tool to calculate the emission factor for an electricity system',

"In large countries with layered dispatch systems (e.g. state/provincial/regional/national) the regional grid definition should be used. A state/provincial grid definition may indeed in many cases be too narrow given significant electricity trade among states/provinces that might be affected, directly or indirectly, by a CDM project activity."

The Indian power grid system (or the National Grid) is divided into two regional grids namely NEWNE Regional Grid and Southern Region Grid. These regional grids have independent state Load Dispatch Centres (LDCs) that manage flow of power in their jurisdiction. Power generated by state owned generation units and private owned generation units is consumed by the respective states. Power generated by central sector plants is shared by all states forming part of the grid in a fixed proportion. The project activity is located in the state of Tamil Nadu in Southern India and hence falls under the Southern Regional Grid of India.

[26] CEA CO2 Baseline Database, Version 4.0, Dated September 2008, available at: www.cea.nic.in

Taking into consideration the points mentioned above (i.e. the relevant grid displaced by the project activity and the guidelines for selection of the appropriate grid in large countries with layered dispatch systems like India as given in 'Tool to calculate the emission factor for an electricity system'), the Southern Regional Grid has been considered as the most representative system boundary (i.e. project electricity system) where an equivalent amount of electricity would be replaced by the implementation of the project activity. The carbon intensity of the Southern Regional Grid would be determined to arrive at the baseline emission factor for baseline emission calculations for the project activity's crediting period.

B) Determination of the Carbon Intensity of the chosen Grid

CEA has carried out a complete analysis of the electricity generation mix across the country for calculating the emission factor of Southern Regional Grid in its CO_2 Baseline Database Version 4.0 Dated October 2008. The project proponent has used the analysis for computation of the grid emission factor by the CEA following the guidelines of the 'Tool to calculate the emission factor for an electricity system'. The combined margin grid emission factor computed from the above analysis is 0.927 tCO_2/MWh for the Southern Regional Grid (Please refer to the calculation presented below). Ex-Ante grid emission factor is used for determining the emission reductions from the project activity, based on the latest available version of the CEA CO_2 Baseline Database over the entire crediting period of the project activity.

Calculation of the Carbon Intensity of the Southern Regional Grid			
Operating Margin (tCO_2/MWh) (incl. Imports)	2005-06	2006-07	2007-08
	1.01	1.00	0.99
Simple Operating Margin (tCO_2/MWh) (incl. Imports)	1.00		
Build Margin (tCO_2/MWh) (not adjusted for imports)	0.71		
Combined Margin Emission Factor in tCO_2/MWh (including Imports)	0.927		

Summary: Parameters required for calculation of baseline emissions:

Sl No.	**Variable**	**Parameters**	**Data Sources**
1	EF_{GRID}	Grid emission factor	CEA CO_2 Baseline Database, Version 4.0 dated October 2008
2	$E_{EXP,y}$	Net electricity exported to the grid	Electricity Statements/ Bills of the State Electricity Board

Calculation of net units of electricity substituted in the grid

The net electricity exported to the grid by the project activity in the project would be calculated as the sum of the electricity exported by each individual WTG to the nearest sub-station.

$$E_{EXP,y} = \sum_{i=1}^{n} E_{EXP,i,y} \quad \text{..... (1)}$$

Where,

$E_{EXP,y}$ Net units of electricity exported to the grid during the project year y (in MWh) by the project activity

$E_{EXP,i,y}$ Net units of electricity exported to the grid by the i^{th} component (WTG) during the project year y (in MWh)

i Total number of individual wind-mills constituting the project activity

Project Proponent	HTSC No	Capacity(MW)	Net Generation(GWh)
Sangeeth Textiles Ltd	1783	1.25	2.32
	550	1.25	2.17
	830	1.25	2.43
Sri Mookambiga Textile mills ltd	1749	1.25	2.14
	675,676	2.5	4.51
CAV cotton mills Ltd	655,656	2.5	4.49
	1659	1.25	2.21
Sri Vasudeva Textiles ltd	1660	1.25	2.21
	548	1.25	2.23
	745	1.25	2.51

Baseline Emission Calculations
The Baseline Emission is calculated as,

$$BE_y = E_{EXP,y} \times EF_{GRID} \text{ ..... (2)}$$

Where,
BE_y Baseline Emissions due to displacement of electricity at the grid by the project activity during the year y (in tCO_2)
EF_{GRID} Emission factor of the grid to which the electricity generated by the project activity is exported (in tCO_2/ MWh)

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

The Methodology is applied in the context of the project activity in order to calculate the project emissions and leakages as follows:

Project Emissions:
As the project activity is a wind power project, there are no anthropogenic emissions by sources of GHGs within the project boundary as a result of the project activity. Hence there are no project emissions to be considered.
The main emissions in the context of renewable energy projects (including wind-mills) of the power sector are emissions arising due to activities such as power plant construction and fuel handling (extraction, processing, and transport). The GHG emissions due to the above mentioned sources of emission are negligible with respect to the lifetime of the project activity under consideration.

Thus, the GHG emissions attributable to the project activity (project emissions) in the project year y are expressed as:

$$PE_y = 0 \text{ ..... (3)}$$

Leakage Emissions:
As per the methodology AMS-I.D./ Version 13[27],
"If the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered".
There are no anthropogenic emissions identified by sources outside the project boundary due to the project activity. Furthermore, the equipments (WTGs) used by the project activity are newly procured and hence not transferred from another project. Thus, there are no leakage emissions attributable to the project activity.

Thus, the project activity GHG emissions are zero.

[27] http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_PHPV5WESACMBTJ2YY54GAJYSIEI3HD

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

Emission Reductions:

The emission reductions of the project activity are calculated as the difference between the baseline emissions and the project emissions:

$$ER_y = BE_y - PE_y \text{ ..... (4)}$$

Where,

ER_y Emission reductions for the project activity in the project year y in tonnes of CO_2e

The crediting period chosen for the project activity is 10 years fixed crediting period

Year	Estimation of project activity Emissions (t CO_2 e)	Estimation of baseline Emissions (tCO_2 e)	Estimation of leakage (tCO_2 e)	Estimation of overall emission reductions (t CO2 e)
2006*	0	20,613	0	20,613
2007*	0	25,306	0	25,306
2008*	0	19,556	0	19,556
2009	0	25,305	0	25,305
2010	0	25,305	0	25,305
2011	0	25,305	0	25,305
2012	0	25,305	0	25,305
2013	0	25,305	0	25,305
2014	0	25,305	0	25,305
2015	0	25,305	0	25,305
Total (tones of CO_2 e)	**0**	**2,42,610**	**0**	**2,42,610**

*Based on actual generation for the respective years

5 Environmental Impact:

As per the Environmental Impact Assessment (EIA) Notification, Ministry of Environment and Forests, Government of India, New Delhi, the 27th January, 1994 (Incorporating amendments made on 04/05/1994, 10/04/1997, 27/1/2000, 13/12/2000, 01/08/2001 and 21/11/2001) - S.O.60 (E), the project does not require EIA submission[28].

Since the project activity is a wind based project activity, there is no requirement that the project get clearance from the Pollution Control Board. However, prior to the

[28] http://envfor.nic.in/divisions/iass/notif/eia.htm

installation of the wind turbine generators of the project activity, the project proponents got a No Objection Certificate (NOC) from the Tamil Nadu State Electricity Board, Department of Non Conventional Energy Sources. Copies of NOC from the state Electricity Board would be provided.

There are no negative impacts on air, water, soil quality and ambience envisaged due to the project activity.

6 Stakeholders comments:

The stakeholder Meeting for the bundled project activity was conducted on 13th July 2009 at Vadakkankulam village near Sankaneri. The stakeholders were invited via personal invitations.

Documents related to the stakeholder meeting would be provided to the validator.

The following were the stakeholders identified for the project activity:

- Elected body of representatives administering the local area (village Panchayat) and the local residents
- Local clubs
- Non Governmental Organization
- Facility developer and operators

Mr. Venkatesan a representative of M/s Suzlon Energy Ltd, welcomed the stakeholders and project proponents to the Stakeholder Consultation Meeting. He enumerated the benefits of the wind power project.
Later, a brief explanation was made about global warming and the contribution of the VCS wind power project activity in combating the global warming. After the welcome note and the introduction, questionnaires were circulated among the stakeholders to get the comments from the stakeholders. The questions in the questionnaires were translated to Tamil so that, the stakeholders would be in a better position to answer the same. A scanned copy of the attendance sheet is attached in the annexure

Mr. Venkatesan a representative of M/s Suzlon Energy Ltd, welcomed the stakeholders and project proponents to the Stakeholder Consultation Meeting. He enumerated the benefits of the wind power project.
Later, a brief explanation was made about global warming and the contribution of the VCS wind power project activity in combating the global warming. After the welcome note and the introduction, questionnaires were circulated among the stakeholders to get the comments from the stakeholders. The questions in the questionnaires were translated to Tamil so that, the stakeholders would be in a better position to answer the same. A scanned copy of the attendance sheet is attached in the annexure

Mr. Tamil Selvan, site in charge of Wind Farms of the Sangeeth Group attended the stakeholder meeting.

Stakeholder Comments:

Mr S Sudalaimani said that the employment opportunity increased due to the upcoming of wind power project in that region. He added that the land value increased subsequently along with the improvement in the infrastructure like: roads. This project activity has led to the stabilization of the local grid.

Mr. Murugeswaran said that there is a necessity to bring more awareness among the people about wind mill projects, as the energy demand is increasing year after year.

Mr. K. Kumar said that the job opportunities increased after the wind projects were commissioned in that area.

Mr G.A Nagarajan said that the job opportunities increased and new roads were laid and the power shortage problem has been reduced after upcoming of the project activity. He also said that new factories have opened up in the region after the commissioning of the wind power project.

Mr. K Saravana Kumar said that more wind mills should be erected as wind mills generate clean and pollution free energy.

Mr Mariappan said that the land value has increased. He also said that the approach to every place is possible due to the roads that were newly laid during the construction of the wind power project. Electricity generation has increased. Employment opportunities have been created for the villagers. He also added that due to the set up of wind power project activity, trade activity in the region has enhanced.

The local people acknowledged the contribution of the project towards the environment, social and economic well being of the region and appreciated the initiative undertaken by the Project Proponent for the well-being of the environment. Moreover they also expressed their thankfulness to the Project Proponents for generation of employment in the region. They opined that the power supply scenario in the region got improved after the installation of the wind turbines by the project proponents. They informed that they are at present getting uninterrupted power supply to their houses.

The Project Proponent has received positive comments from the local stakeholders on the project activity, as summarised above.

7 Schedule:

Sl. No.	Activity	Date
1	VCS Project Start Date	31/03/2003
2	Stakeholder Consultation	13/07/2009
3	Appointment of Validation Agency for Validation/Verification	11/11/2008
4	Life time of WTGs	20 years
5	Crediting period under VCS	Start Date: 28/03/2006 End Date :27/03/2016
6	Frequency of monitoring	Continuous (meter readings aggregated monthly)

8 Ownership:

8.1 Proof of Title:

The requirements of the VCS Project Document pertaining to this section have been addressed as follows:

- *Ownership of the plant, equipment and/or process generating the reductions/removals*

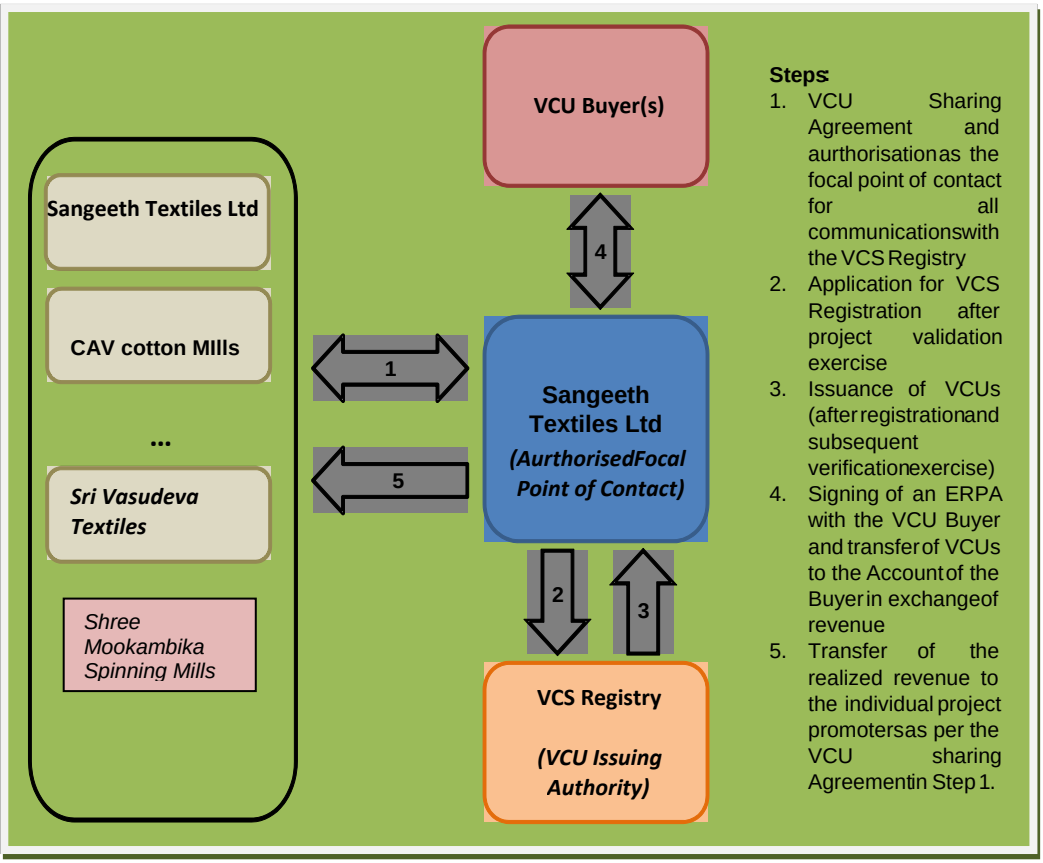
  The ownership of the project promoters of the wind-farms and the WTGs can be established by means of the following documents:

  - Purchase Orders for the WTGs and other auxiliary equipments
  - Power Purchase Agreements with the Tamil Nadu State Electricity Board for sale of electricity generated by each of the components of the bundled project activity
  - Commissioning certificates for each of the WTGs

  Commissioning certificates for each of the wind turbines are being provided as a proof of ownership.

- *A contractual arrangement with the owner of the plant, equipment or process that grants all reductions/removals to the proponent*

  The project promoters have authorised Sangeeth Textiles Ltd to undertake the responsibility of accruing and handling the GHG emission reductions on their behalf by means of an agreement. The roles and responsibilities of the various entities involved in the entire process of accrual and transaction of VCUs are presented in the following figure.



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

The requirements of the VCS Project Document pertaining to this section have been addressed as follows:

Project proponents of projects that reduce GHG emissions from activities that:

- *are included in an emissions trading Program; or*

- *take place in a jurisdiction or sector in which binding limits are established on GHG emissions;*

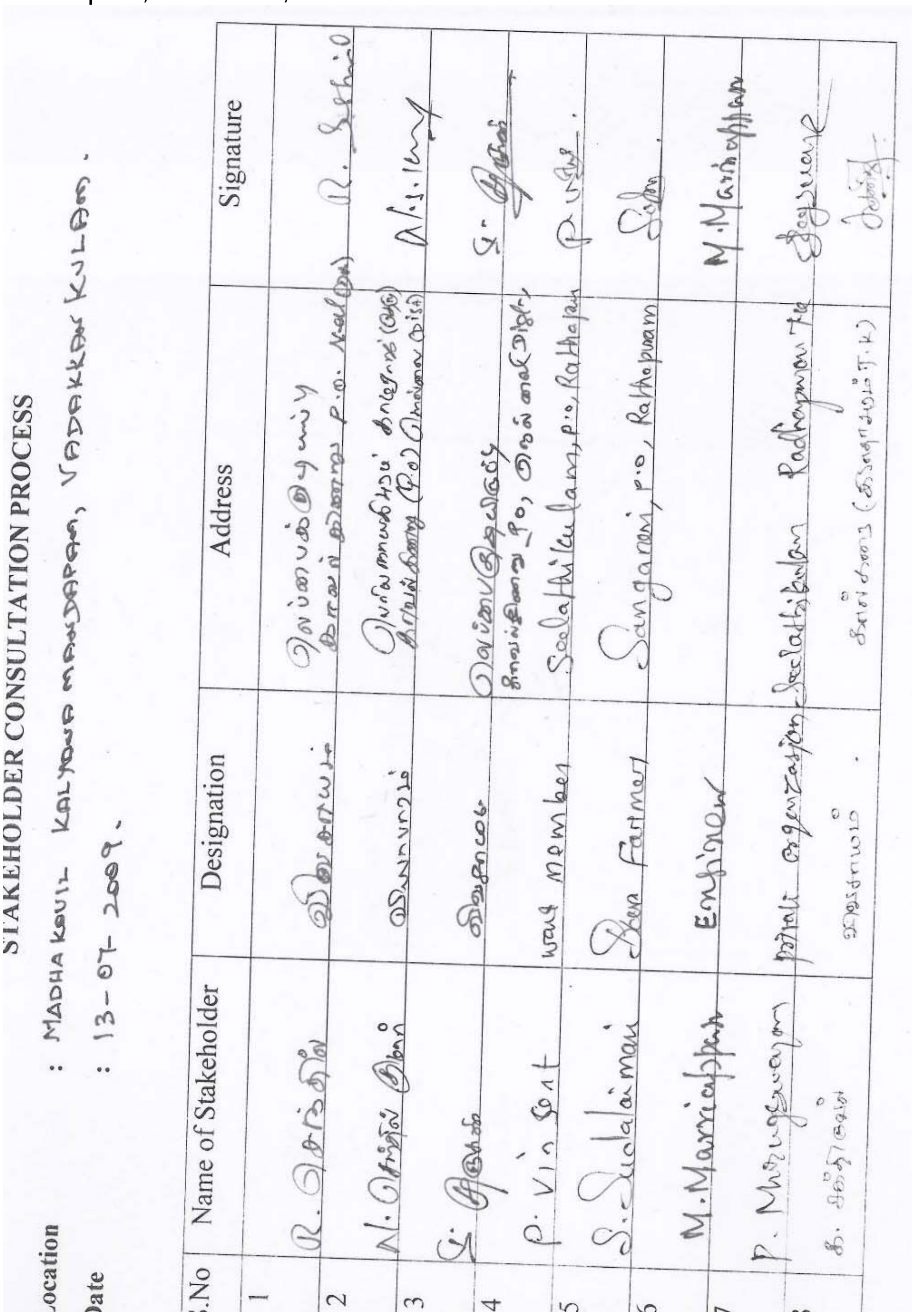
The host country of the project activity under consideration, *i.e.*, India is a non Annex-I, or, a developing nation as recognised by the Kyoto Protocol. Hence, there are no GHG emission reduction targets or commitments for India and it does not fall under the purview of any compliance driven Emission Trading Programs. Furthermore, there are also no such voluntary emission trading programs similar to the VCS existent in the country. This confirms there are no emissions trading programs prevalent in the host country of the project activity under consideration, *i.e.*, India at the time of preparation of the VCS PD.

Shall provide evidence that the reductions or removals generated by the project have or will not be used in the Program or jurisdiction for the purpose of demonstrating compliance. The evidence could include:

- *a letter from the Program operator or designated national authority that emissions allowances (or other GHG credits used in the Program) equivalent to the reductions/removals generated by the project have been cancelled from the Program; or national cap as applicable or;*
- *Purchase and cancellation of GHG allowances equivalent to the reductions/removals generated by the project related to the Program or national cap.*

The host country of the project activity, India being a non Annex-I nation under the Kyoto Protocol, there are no GHG emission reduction targets or commitments for India. This confirms there are no national caps on GHG emissions prevalent in India at the time of preparation of the VCS PD. Therefore, it is not applicable for the project activity

Annexure 1: Attendance Sheet: Stake Holder Meeting held at Mathakovil Kalyana mandapam, Sankaneri, Tamil Nadu.



STAKEHOLDER CONSULTATION PROCESS

Location : MADHA KOVIL KALYANA MANDAPAM, VADAKKAN KULAM.

Date : 13-07-2009.

S.No	Name of Stakeholder	Designation	Address	Signature
1	R. [illegible]	[illegible]	[illegible]	R. [illegible]
2	N. [illegible]	[illegible]	[illegible]	N.S.[illegible]
3	G. [illegible]	[illegible]	[illegible]	G. [illegible]
4	P. Vin Sent	ward member	Soolaththikulam, P.O. Rathapuram	P. [illegible]
5	S. Sudalaimani	Farmer	Sangarani, P.O. Rathapuram	[illegible]
6	M. Marriappan	Engineer		M. Mariappan
7	P. Murugesan	Private organization	Soolathikulam Radhapuram Tk	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]

Page 1 of 3 of Stakeholder meeting

STAKEHOLDER CONSULTATION PROCESS

Location :

Date :

S.No	Name of Stakeholder	Designation	Address	Signature
9	P. [illegible]	[illegible]	[illegible]	[illegible]
10	S. Kathiravan.	Private Job.	[illegible]	[illegible]
11	அ. கண்ணன்	விவசாயம்	[illegible]	[illegible]
12	M. Kumar	Barber	Radhepuran	[illegible]
13	A. NAGARAJAN	Private Job	Amman Kovil Street, Sankarapuram (P.O)	[illegible]
14	K. SARAVANAKUMAR	Private Job	44, Ponniyan Complex Aralvaimozhi	[illegible]
15	N. Tamilselvan	Site Incharge.	61/, west street. Aralvaimozhi. K.K. Dt	[illegible]
16	A. Antonymuthu	Farmer.	Bazar Street, Kavalkinaru, Tirunelveli Dt.	[illegible]
17	K. Perumal	Farmer.	Kumarapuram, Aralvaimozhi P.O	[illegible]

Page 2 of 3 of Stakeholder meeting

STAKEHOLDER CONSULTATION PROCESS

Location :

Date :

S.No	Name of Stakeholder	Designation	Address	Signature
18	Chithambarampillai	Former,	Vadakkur, Arapaimozhi, Kanniyakumari	[signature]
19	S. Esakkimuthu Raja	Former	Subash st Thandaiyarkulam Pushpavanam (P.O) Radhapuram (T.K)	[signature]
20	R. Kumaresan	Former	Amman koil st, leppaikudiyiruppu kavalkinaru (P.O) Radhapuram (tk)	R. Kumaresan
21	R.K.S. Pillai	Asst-Mgr- Crop Surgeon	9/9A, South Street Pazhavoor Po. ... 627...	[signature]
22				
23	Madhavi Latha. R	Deloitte - Consultant	Old No: 37, New No: 52, Deloitte, ASVN Ramana Towers T. Nagar, Chennai	Madhavi Latha R
24				
25				
26				

Page 3 of 3 of Stakeholder meeting