

MONITORING REPORT

25.7 MW Bundled Wind Power Project in Udumalpet, Tamilnadu

UNFCCC registration reference number: **1015**

Date of registration of project: **07/07/2007**

Monitoring period: **June 24, 2005 to December 31, 2007**

Version number: **01**

Date: **30/05/2008**

1. Introduction:

This is the first monitoring report for this project activity for verifying the emission reductions achieved by the CDM project activity. The purpose of this monitoring report is to calculate the emissions reduction achieved by the project activity during the period between June 24, 2005 and December 31, 2007.

2. Project Reference:

Project Title	25.7 MW Bundled Wind Power Project in Udumalpet, Tamilnadu.
Date of Registration	07/07/2007
UNFCCC Registration reference number	UNFCCC00001015CDMP
Methodology	ACM0002/ Version 6
Monitoring Report Version number	01
Monitoring Report Date	30/05/2008
Project Crediting Period	June 24, 2005 to December 31, 2015
Verifying Period	June 24, 2005 to December 31, 2007

3. General Description of the Project Activity:

The project is a wind based power generation project of 25.7 MW installed capacity with 22 wind electric generators (WEG) of 750 kW, 5 WEG of 1650 kW and 1 WEG of 950 kW erected in and around Udumalpet. The project site falls within the latitudes N 10°42' and N 10°33' and longitudes E 77°7' and E 77°14' in the State of Tamilnadu in Southern India. The list of project promoters, type of WEG, commissioning date of the WEG and their HTSC numbers are as tabulated below –

Sl. No.	Project Promoter	Capacity (MW)	Date of Commissioning	H.T. SC No.
1	Royal Classic	0.750	31.12.2004	600
	Royal Classic	0.750	31.12.2004	601
	Royal Classic	0.750	30.09.2004	574
	Classic Knit	0.750	18.03.2004	368
	Jayabalaji Dyeing	0.750	18.03.2005	644

	Jayabalaji Dyeing	0.750	22.03.2005	672
3	Goldensun Indus	0.750	18.03.2005	643
	Goldensun Indus	0.750	22.03.2005	673
4	Kongoor Textile	0.750	28.05.2004	446
5	GVG Industries	0.750	18.03.2004	359
	GVG Paper Mills	0.750	29.03.2004	402
	GVG Paper Mills	0.750	24.06.2005	841
	SVPB Spinners	0.750	18.03.2004	357
	SVA Syntex	0.750	18.03.2004	358
6	Cylwin Knitwear	0.750	30.03.2004	405
7	City Mills	0.750	31.03.2004	425
	City Mills	0.750	29.03.2004	395
	City Mills	0.750	29.03.2004	397
	City Mills	1.650	28.05.2005	824
8	Zigma Technol	0.750	31.12.2004	599
	Zigma Technol	0.750	18.03.2005	645
9	Inter ocean	0.950	28.02.2005	689
	Inter ocean	1.650	28.03.2004	602
10	Sri Gowrishankarar	1.650	05.05.2005	801
11	Asian Handlooms	1.650	30.09.2004	581
12	Kannapiran	1.650	10.02.2005	613
13	Prachi Exports	0.750	30.03.2004	413
	Prachi Exports	0.750	31.03.2004	423

Tamilnadu faces a demand-supply gap which may be directly attributable to the growth in industrial activity as well as lack of investment in power projects. The project activity will generate Green House Gas (GHG) emission reductions by avoiding CO₂ emissions from electricity generation by fossil fuel power plants that supply the Tamilnadu Electricity Board (TNEB) Grid.

The first WEG of this project activity was commissioned on March 18, 2004 and the last WEG was commissioned on June 24, 2005. All the WEG are connected to the grid interconnection point and supply the generated electricity to the state electricity board (SEB) through a power purchase agreement. The electricity generated by the WEG are measured in the individual metering points to which the WEG are connected. By virtue of the fact that all the WEG are in same geographic location and the individual projects supply electricity to the SEB, they are bundled as one single Project.

4. Monitoring Methodology and Plan:

The methodology used is “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002/Version06/Sectoral Scope (May 19, 2006). In keeping with the methodology the following parameter has to be monitored for this project activity.

Net Electricity delivered to the grid

ID No.	Data type	Data variable	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	For how long is archived data to be kept?	Comment
1	Electricity supplied to the regional electricity grid	Electricity	kWh	m	Monthly	100%	Electronic & Paper	Two years beyond Crediting period	Electricity generated from each WEG is individually measured.

5. QA/QC Procedures undertaken:

ID number	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.
EGy	Low	The data can be very accurately measured. The meters installed on the grid interconnection point will be used to measure mentioned variables on a continuous basis. Every month these meter readings will be recorded by plant personnel, these records will be archived for cross checking yearly figures. The meters at the sub station will be two-way meters and will be in custody of SEB. The SEB will take the readings in these meters and the same reading may be used to determine the net energy wheeled to the grid. This data is used to determine the extent of mitigation of GHG over a period of time.

Metering

The energy that is generated will be metered at the Project site. The Project has a two way metering system. The metering equipment at both points is maintained according to strict standards laid down by TNEB.

In keeping with the standards and regulations laid down by the Tamilnadu Electricity Regulatory Commission, all points regarding inspection, checking and meter reading is listed below.

- (a) Both MW hour and MVARh flow are measured at interconnection points, and power transformer locations
- (b) Each metering point associated with determination of energy exported or imported is provided with both main and check meter or as per the agreement between the State Utility and the company

- (c) Minimum standards of accuracy of meter shall be of class 0.2 or as stipulated by utility.
- (d) All current transformers and voltage transformers used in conjunction with Commercial (Tariff) metering conform to the relevant Indian Standards. These are of an accuracy class 0.2 or as stipulated by utility and of suitable rating to cater to the meter and lead wire burden.
- (e) Voltage supply to the metering is assured with necessary voltage selection schemes. Loss of potential relays is provided which shall initiate alarms on loss of one or more phases of the voltage supply to any meter.
- (f) Meters is tested and calibrated by a neutral agency at least once in a year or such as mutually agreed between the utility and the entities according to the guidelines in the standards / supplier's recommendations. Records of meter calibration test are maintained for future reference.
- (g) A schedule is drawn up between the utility and the entities covering summation, collection, processing tariff meter readings at various connection sites.
- (h) The generating company furnishes recorded data of all electric measurements and events recorded by the operational metering to the utility at least once in a week or more often if required.
- (i) The utility is responsible to formulate the metering procedure and implement it. Hence all information metering data collected will be as accurate as possible and will be officially certified.

The WEG are operated and maintained by Vestas Wind Technology India Private Limited. The operational and maintenance procedures carried out are as indicated in the CDM Manual submitted to the DOE.

6. Emission Reduction calculations:

6.1 Baseline Emissions:

The baseline emissions are estimated as the product of the electricity generated by the project activity and the ex-ante Emission factor of the regional electricity grid.

$$BE_y = EG_y \otimes EF_y$$

Where,

EF_y is the ex-ante baseline emission factor for the year y

EG_y is the electricity generation for the year y

This project uses the Combined Margin methodology as suggested in ACM0002. The consolidated baseline methodology for grid connected electricity generation from renewable sources (ACM0002) describes a stepwise approach to apply the methodology to the project activity. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors. Calculation of Combined Margin is being done in accordance with the following steps:

The operating margin emission factor is calculated as:

$$EF_{OM, y} = \frac{\sum_{i,j} Fi,j,y \cdot COEF_{i,j}}{\sum Gen_{j,y}} = 1.00 \text{ MTCO}_2eq/MWh$$

The build margin emission factor is calculated as:

$$EF_{BM, y} = \frac{\sum_{i,j} Fi,j,y \cdot COEF_{i,j}}{\sum Gen_{j,y}} = 0.72 \text{ MTCO}_2eq/MWh$$

Combined margin emission factor is calculated as:

$$EF_y = \frac{(EF_{OM,y} + EF_{BM,y})}{2} = 0.86 \text{ MTCO}_2eq/MWh$$

6.1. A. Entity carrying out baseline study:

The Baseline Study is carried out by the Central Electricity Authority (CEA). CEA has published the “Carbon Dioxide Baseline Database for the Indian Power sector” - Version 1.1 Latest December 2006. The baseline emission factor is fixed ex-ante value for the entire crediting period pertaining to the Southern Region Electricity Board Grid. Refer link for details –

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

6.1. B. Entity preparing the monitoring report:

Vestas wind technology India private limited operates & maintains all the WEG and is coordinating this project activity.

6.2 Project Activity Emissions: NIL

The project activity is a wind based power generation project and so there are no emissions.

6.3 Leakage:

The equipment used in the wind power generation activity is not transferred from another activity and hence leakage calculations are not considered.

6.4 Emission reductions:

As there are no emissions due to the project activity and there are no leakages, the emission reduction is equal to the baseline emission.

Sl. No.	Period of measurement		Electricity generation (MWh)	Baseline emission factor	Net emission reductions
1	* Jul-05	Dec-05	35304.392	0.86	30361.777
2	Jan-06	Dec-06	50033.825	0.86	43029.090
3	Jan-07	Dec-07	50210.249	0.86	43180.814
			135548.466		116571.681
Total CERs					116571.681

** The actual monitoring period mentioned in the registered PDD starts from **June 24, 2005** but net generation details is available from the month of **July 2005**, hence the period of measurement is taken from the month of **July 2005**.*

The total emission reduction from the project activity between July 2005 to December 2007 is **116571.681 CERs**.

7. Contribution to sustainable development:

This project contributes to all possible developments in-and-around our wind farm area in terms physical infrastructure development and providing direct or indirect employment to local community.

Vestas India through its CSR initiatives conducts series of programmes for the benefit of the local community in select wind farm locations. The focal areas for development are Health, Education, Environment and Training. In line with our focus areas we conduct series of health camps, advocacy programmes on health and hygiene, provide educational scholarships, provision of school benches and desks to rural schools, educational kits and conduct series go-green campaigns.
