



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	25.70 MW Bundled Wind Power Project in Udumalpet, Tamilnadu
Reference number of the project activity	1015
Version number of the monitoring report	01
Completion date of the monitoring report	27/08/2013
Registration date of the project activity	07/07/2007
Monitoring period number and duration of this monitoring period	11/11/2010 to 07/03/2013 (Both days inclusive)
Project participant(s)	Vestas Wind Technology India Private Limited & Swedish Energy Agency
Host Party(ies)	India
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope 1 Consolidated baseline methodology for grid-connected electricity generation from renewable sources" ACM0002/Version 06/ (19 May 2006)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	94,687
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	84,872

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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Purpose of the project activity: The project is a wind based power generation project of 25.70 MW installed capacity having 28 wind turbines. The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources.

Measures taken to reduce greenhouse gas emission: The electricity generated by the project activity is renewable and CO₂ free. In the absence of the project activity, the electricity generated would have been sourced from fossil fuel based power generators. Thus, the project activity contributes to the reduction in GHG emissions.

Brief description of the installed technology and equipment: The project activity consists of 22 wind electric generators (WEG) of 750 kW, 5 WEG of 1650 kW and 1 WEG of 950 kW erected in and around Udumalpet, Tirupur District of the Indian State of Tamil Nadu.

The project site falls within the latitudes N 10°41'00" and N 10°34'49" and longitudes E 77°8'00" and E 77°21'32" in the State of Tamilnadu in Southern India.

A.2. Location of project activity

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All the turbines belonging to the project activity were commissioned between 18/03/2004 and 24/06/2005. Individual commissioning dates of each of the turbine along with the HTSc numbers and capacity is detailed in the table 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
	Royal Classic Mills	0.750	18.03.2004	368
2	Jayabalaji Dyeing	0.750	18.03.2005	644
	Jayabalaji Dyeing	0.750	22.03.2005	672
3	V V Minerals	0.750	18.03.2005	643
	V V Minerals	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	RB Wovens	0.750	31.12.2004	599

	RB Wovens	0.750	18.03.2005	645
9	Inter ocean	0.950	26.03.2005	689
	Inter ocean	1.650	11.01.2005	602
10	Sri Gowrishankarar	1.650	05.05.2005	801
11	Asian Fabricx	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

All the WEGs of the project activity are in operation since commissioning and operating satisfactorily during the reported monitoring period.

A.3. Parties and project participant(s)

Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Government of India (Host Country)	Vestas Wind Technology India Private Limited (Private Entity)	No
Government of Switzerland	Vestas Wind Technology India Private Limited (Private Entity)	No
Government of Sweden	Swedish Energy Agency	No

As per the registered PDD, NEG Micon (I) Private Limited was the project participant and also the single point contact for all communications with the CDM Executive Board and the National CDM Authority. However, NEG Micon (I) Private Limited was renamed as Vestas Wind Technology India Private Limited. The necessary communication has been made to the UNFCCC CDM EB regarding the change of project participant through form F-CDM-MOC Form: ANNEX 2 submitted on 15/12/2009.

A.4. Reference of applied methodology

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Title of Methodology: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" ACM0002/Version 06/Sectoral Scope 1(19 May 2006)

Title: Consolidated methodology for grid-connected electricity generation from renewable sources

Version number 6.0

<http://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT>

A.5. Crediting period of project activity

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Crediting Period from 24 Jun 05 - 23 Jun 15
Crediting Period is Fixed (10 Years).

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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There has been no change in technology and no change in project equipment right from date of commissioning to the end of the current monitoring period. All the wind turbines of this project activity are in one location.

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

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There has been no temporary deviation from registered monitoring plan or applied methodology.

B.2.2. Corrections

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There are no corrections to be made or notified.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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The approved revised monitoring plan was approved by UNFCCC on 04/03/2010. The revised monitoring plan is available at the UNFCCC website <http://cdm.unfccc.int>. The UNFCCC project reference number is 1015.

B.2.4. Changes to project design of registered project activity

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Sl. No.	Project Promoter	WEG Capacity in MW	Date of Commissioning	HTS C No.	PPA / EWA	PPA / EWA CHANGE D ON	OWNERSHIP CHANGED ON
1	Golden Sun Industries sold WEGs to V.V. Minerals	0.750	18.03.2005	643	EWA	No Change	VV Minerals became new owner on 25.10.2012
2		0.750	22.03.2005	673	EWA	No Change	
3	Firm Sri Gowarishankarar to Sri Gowarishankarar Agencies Pvt. Ltd.	1.650	05.05.2005	801	EWA	Change to EWA on 01.11.2012	08.07.2011 (Firm to Pvt. Ltd.)
4	Asian Fabricx	1.650	30.09.2004	581	EWA	Change to EWA on 22.10.2012	No Change
5	Classic Knit Processors Royal Classic Mills (Name Change)	0.750	18.03.2004	368	EWA	No Change	24.12.2012 (Name change)

B.2.5. Changes to start date of crediting period

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There are no changes made to the start date of crediting period.

B.2.6. Types of changes specific to afforestation or reforestation project activity

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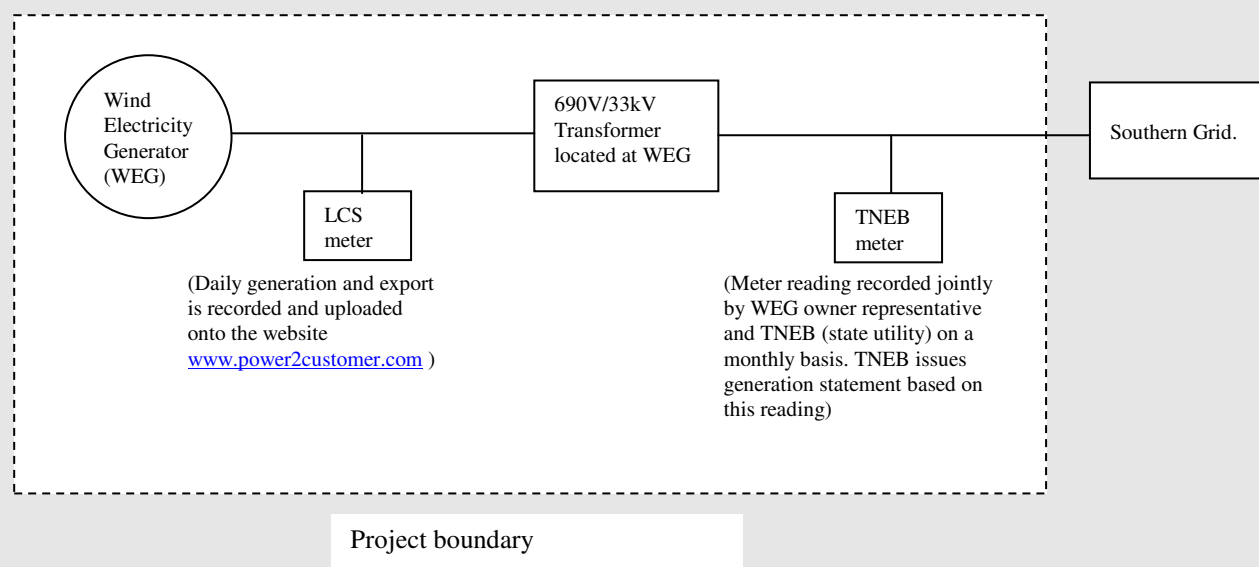
Not applicable

SECTION C. Description of monitoring system

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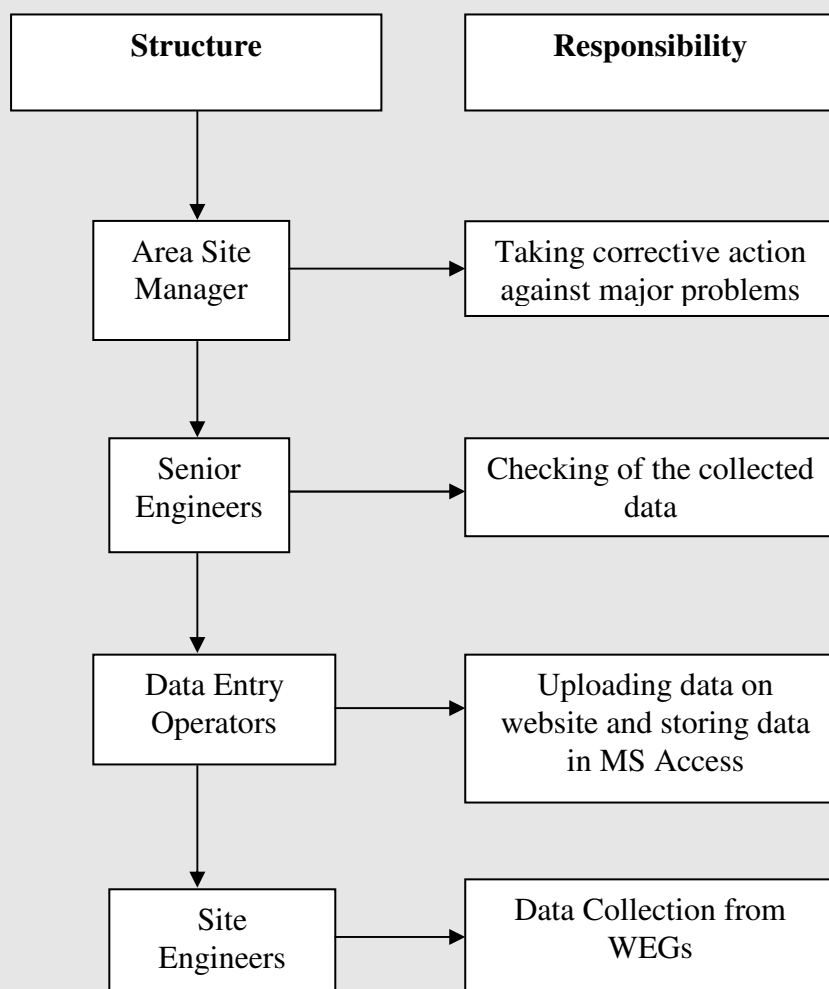
The primary monitoring of the electricity fed to the state utility grid is carried out jointly at the incoming feeder of the state power utility (TNEB). Machines for sale to utility/captive will be connected to the feeder and the joint measurement will be carried out once in a month in presence of both parties (the developer's representative and officials of the state power utility). Both parties will sign the recorded reading. This reading is stored as a hard copy at the site and the turbine owners' administrative office. This joint reading forms the basis for calculation of the net electricity export to the grid and emission reduction calculations for the project activity.

A schematic line diagram showing the monitoring points is given below:

Schematic Line Diagram showing monitoring point for a single WEG

The project proponents have signed an O&M contract with the supplier. The performance of WEG, safety in operation and scheduled/breakdown maintenances are organized and monitored by supplier. The organogram structure of the O&M team with their roles and responsibilities is given below:

Organogram Structure of O&M Team:



In the event of meter failure, the O&M contractor immediately notifies the Tamil Nadu Electricity Board and the meter is replaced by the MRT (Meter & Relay Test) team of the Tamil Nadu Electricity Board. The secondary monitoring, which will provide a backup (fail-safe measure) in case of a meter failure, would be done at the individual WEGs. Each WEG is equipped with an LCS wherein the generation details are recorded. In case of failure of primary monitoring; generation of individual machine can be cross verified from an LCS meter located at the turbine. The readings of the electricity export and import are recorded on a daily basis by the O&M operator in a log book and the same is archived electronically on a daily basis in the customer database in the website www.power2customer.com.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

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

Data / Parameter:	Grid Emission Factor
Unit:	tCO ₂ /MWh
Description:	Southern Grid EF
Source of data:	CEA
Value(s) applied:	0.86
Purpose of data:	Baseline Emission Calculations
Additional comment:	

D.2. Data and parameters monitored

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

Data / Parameter:	EGy
Unit:	MWh
Description:	Net Electricity supplied to the grid by the project
Measured/ Calculated / Default:	Calculated
Source of data:	Monthly Electricity Generation statements issued by Tamil Nadu Electricity Board.
Value(s) of monitored parameter:	98,689,515
Monitoring equipment:	Data used for Baseline Emission Calculation
Measuring/ Reading/ Recording frequency:	The electricity exported to grid and the electricity imported from the grid by each WTG is measured at the energy meter installed at the transformer yard. Accuracy Class: 0.5. Calibration frequency: Once in a year .For Other details regarding serial number of meters and date of calibration and its validity are provided in section below.
Calculation method (if applicable):	Continuously measured and recorded Monthly
QA/QC procedures:	$EG_{y,Net} = EG_{Export} - EG_{Import}$
Purpose of data:	The energy meter shall be calibrated once in a year by TNEB. The calibration certificates will be maintained by the project proponent. In case Calibration is not done, an error of 0.5% is applied for the corresponding period. The exercise is explained in ER Sheet.
Additional comment:	

D.3. Implementation of sampling plan

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NA

SECTION E. Calculation of emission reductions or GHG removals by sinks**E.1. Calculation of baseline emissions or baseline net GHG removals by sinks**

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Baseline Emission = Net Generation from all the WEGs × Baseline Emission Factor

$$BE_v = EG_v \times EF_v$$

Period of measurement	Net Electricity generation (MWh)	Baseline emission factor (tCO ₂ /MWh)	Net emission reductions (tCO ₂ e)
11.11.2010 to 07.03.2013	98,689,515	0.86	84,872

The generation of first month of the monitoring period is not taken into account for ER calculation. The start date of the project activity is 11.11.2010. However, not all the machines have their starting date of the generation statement for the month of December 2010 as 11.11.2010. Further, there isn't any provision made in the monitoring plan to apportion the electricity generated as per the LCS readings. Therefore, to be conservative the electricity generated for the month of December 2010 has been omitted in the calculations.

E.2. Calculation of project emissions or actual net GHG removals by sinks

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The Project is a zero-emission renewable electricity generating activity. Therefore no emission from the project activity was identified, and $PE_v = 0$ tCO₂e.

E.3. Calculation of leakage

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According to the methodology ACM0002 (Version 06) the project leakage is not considered, and therefore, $L_v = 0$ tCO₂e.

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
Total	84,872	0	0	84,872

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO₂e)	94,687	84,872

E.6. Remarks on difference from estimated value in registered PDD

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As per the registered PDD, the estimated emission reductions from the project activity are 94,687 tCO₂e per annum. The current monitoring period is across 848 days. Hence the estimated emission reductions for the current monitoring period (848 days) is $(40,756/365)*848 = 94,687$ tCO₂e. However, the actual emission reductions achieved by the project activity for the current monitoring period (84,872 tCO₂e) is less than the estimated (94,687 tCO₂e) emission reductions. This represents a reduction of about 10.37%.

The difference of actual emission reductions from the estimated value is due to the seasonal variation of wind pattern. Additionally, the wind farm is located in the state of Tamilnadu and the peak season of wind is from May to October. Incidentally the current monitoring period (11/11/2010 to 07/03/2013) covers two full calendar years (2011 & 2012) and concludes just before the start of the peak period for the year 2013 which has resulted in less emission reductions than expected.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO ₂ e)	3,13,319	6,606

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory		
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Keywords: monitoring report, performance monitoring		