



Monitoring report form for CDM project activity
(Version 06.0)

MONITORING REPORT

Title of the project activity	Wind power project in Tirunelveli Tamilnadu	
UNFCCC reference number of the project activity	4846	
Version number of the PDD applicable to this monitoring report	03	
Version number of this monitoring report	1.0	
Completion date of this monitoring report	25/01/2018	
Monitoring period number	02	
Duration of this monitoring period	01/07/2012 to 01/12/2017 (including first and last days of monitoring period)	
Monitoring report number for this monitoring report	1	
Project participants	M/s Vaayu Renewable Energy (Tapti) Pvt. Ltd. ¹	
Host Party	India	
Sectoral scopes	Scope 1 - Energy industries (renewable/ non-renewable sources).	
Applied methodologies and standardized baselines	AMS I.D., Version 16, EB 54 "Grid connected renewable electricity generation"	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	9,805	79,798 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	88,747 tCO ₂ e	

¹ Ownership of project activity has been changed from 'Vish Wind Infrastructure LLP' to 'Vaayu Renewable Energy (Tapti) Pvt. Ltd.' as per the purchase order dated 17 May 2013.

SECTION A. Description of project activity

A.1. General description of project activity

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The purpose of the project activity is to utilize renewable wind energy for generation of electricity. The project activity replaces anthropogenic emissions of greenhouse gases (GHG's) into the atmosphere, by displacing the equivalent amount of electricity generation through the operation of existing fuel mix in the grid comprising mainly fossil fuel based power plants and future capacity expansions connected to the grid.

The project activity is set up to produce clean power from the wind energy converters (WEC's). The project activity involves supply, erection, commissioning and operation of 10 machines of rated capacity 800 kW each. The machines are Wind World E-53 make. The WEGs generates 3-phase power at 400V, which is stepped up to 33 kV. The Project can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V \pm 12.5%. The generated electricity by project activity was pooled to state grid prior to change of ownership. Further starting from the date 15 June 2013 electricity is being supplied to SRF Limited through third party sale agreement, though electricity is pooled through Tamil Nadu state distribution & transmission network which is part of southern grid.

The first machine under the project activity was commissioned on 29 September 2010 and last machine under the project activity was commissioned on 30 September 2010. The expected operational lifetime of the project is 20 years.

The total emission reductions achieved under current monitoring period (01/07/2012 to 01/12/2017) is 89,603 tCO₂.

A.2. Location of project activity

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The project is located across villages in Vagaikulam, Kattarankulam and Melelanthaikulam of Tirunelveli Taluk, in Tirunelveli District of Tamil Nadu state in India. Tirunelveli railway station is about 25 kms away from the site. Nearest airport is at Tuticorin about 70 kms from the site. The project consists of 10 numbers of Wind World make E-53 WECs of 800 kW each. The latitude and longitude of the project activity are given below:

WEG Serial No.	UID No	Location No.	Village/ City	District	State	GPS Coordinate	
						Latitude (N)	Longitude (E)
1	VISHWMN-01	V168	Vagaikulam	Tirunelveli	Tamil Nadu	8°54'06.2"	77°38'04.3"
2	VISHWMN-02	V152	Vagaikulam			8°53'57.9"	77°37'38.2"
3	VISHWMN-03	119	Kattarankulam			8°55'11.9"	77°40'25.4"
4	VISHWMN-04	122	Kattarankulam			8°55'13.8"	77°40'37.7"
5	VISHWMN-05	121	Kattarankulam			8°55'22.2"	77°40'39.6"
6	VISHWMN-06	116	Kattarankulam			8°54'33.1"	77°40'31.1"
7	VISHWMN-07	60	Kattarankulam			8°54'45.0"	77°40'47.7"
8	VISHWMN-08	62	Kattarankulam			8°54'55.5"	77°40'58.7"
9	VISHWMN-09	128	Melelanthaikulam			8°55'34.8"	77°41'10.5"
10	VISHWMN-10	131	Melelanthaikulam			8°56'10.8"	77°41'21.4"

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (host)	M/s Vaayu Renewable Energy (Tapti) Pvt. Ltd. (Private entity)	No

A.4. Reference to applied methodologies and standardized baselines

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The project activity is a small scale CDM project activity based on Appendix B of the simplified modalities and procedures for small-scale CDM project activities. The project activity conforms to the following category:

Sectoral Scope : 'Energy industries (renewable - / non-renewable sources)' (1)
 Project Type : TYPE I - RENEWABLE ENERGY PROJECTS
 Category : I.D. Grid connected renewable electricity generation
 Reference : AMS I.D., Version 16, EB 54.
 (Weblink: <http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X>)

Tool: Tool to calculate the emission factor for an electricity system – Version 02.1.0
 (weblink: <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.1.0.pdf>)

A.5. Crediting period type and duration

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Type of crediting period : Fixed
 Start date of crediting period : 08/07/2011
 Length of crediting period : 10 years

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

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The project activity consists of 10 WEGs (800 kW) of Wind World make E-53. The first machine under the project activity was commissioned on 29 September 2010 and last machine under the project activity was commissioned on 30 September 2010. The commissioning dates for all the machines include in the project activity are given in the table below:

S.No.	WEG HTSC no.	No of WEGs connected	Date of Commissioning
1	3371	01	29-Sep-10
2	3372	01	29-Sep-10
3	3396	01	30-Sep-10
4	3397	01	30-Sep-10
5	3398	01	30-Sep-10
6	3399	01	30-Sep-10
7	3400	01	30-Sep-10
8	3401	01	30-Sep-10
9	3402	02	30-Sep-10

Wind World operation and maintenance activities are ISO certified and all the events are recorded in the log book available at the project site. Referring to the data available it can be inferred that there have not been any major special events for any of the machines that are included in the

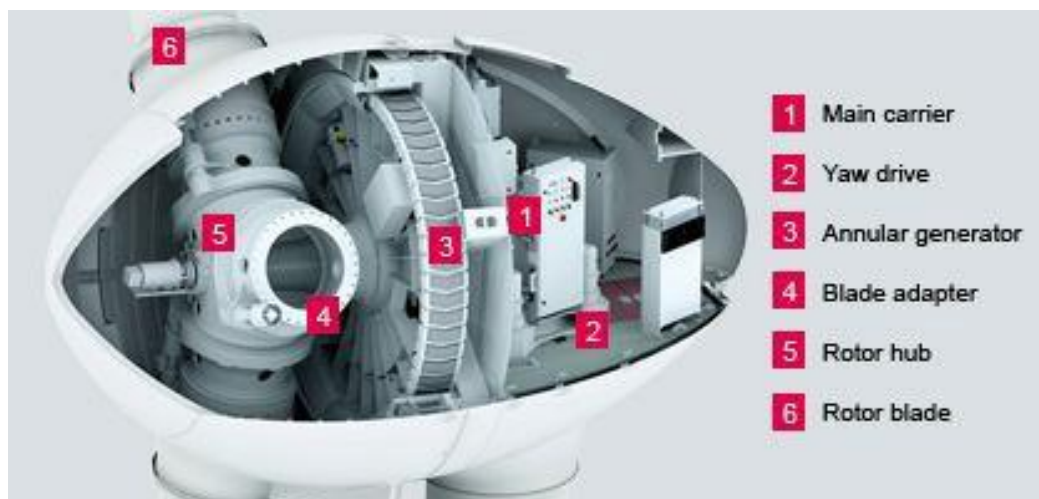
project activity. As a part of regular maintenance the machines are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly. During the monitoring period there were no events or situations occurred, which may impact the applicability of the methodology

The project activity comprises of 10 WECs of Wind World's model E-53. The project uses technology that is environmentally clean and safe since there are no GHG emissions associated with the electricity generation from the windmills. The WECs generates 3-phase power at 400V, which is stepped up to 33 KV. The project activity can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V \pm 12.5%. The average life time of the WEC is around 20 years as per the industry standards. The other salient features of the state-of-art-technology are:

Turbine model	E- 53
Rated power	800 KW
Rotor diameter	53 m
Hub height	75 m
Turbine Type	Gearless horizontal axis wind turbine with variable rotor speed
Power regulation	Independent electromechanical pitch system for each blade.
Cut in wind speed	2.5 m/s
Rated wind speed	12 m/s
Cut out Wind speed	28-34 m/s
Extreme Wind Speed	59.5 m/s
Rated rotational speed	32 rpm
Operating range rot. speed	12-29 rpm
Orientation	Upwind
No of Blades	3
Blade Material	Fibre Glass Epoxy reinforced with integral lightning protection
Gear box type	Gear less
Generator type	Synchronous generator
Braking	Aerodynamic
Output Voltage	400 V
Yaw System	Active yawing with 4 electric yaw drives with brake motor and friction bearing
Tower	74 m concrete

Wind World (India) Ltd has secured and facilitated the technology transfer for wind based renewable energy generation from Wind World GmbH, has established a manufacturing plant at Daman in India, where along with other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured. Diagram of main component of Wind World make E-53 is shown in below picture:-

Figure: E-53 Diagram (Cross sectional drawing of nacelle E-53 / 800 kW).

**B.2. Post-registration changes****B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies or standardized baselines**

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Not applicable

B.2.2. Corrections

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Not applicable

B.2.3. Changes to the start date of the crediting period

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

B.2.4. Inclusion of monitoring plan

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Not applicable

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other applied standards or tools

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Not applicable

B.2.6. Changes to project design

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Not applicable

SECTION C. Description of monitoring system

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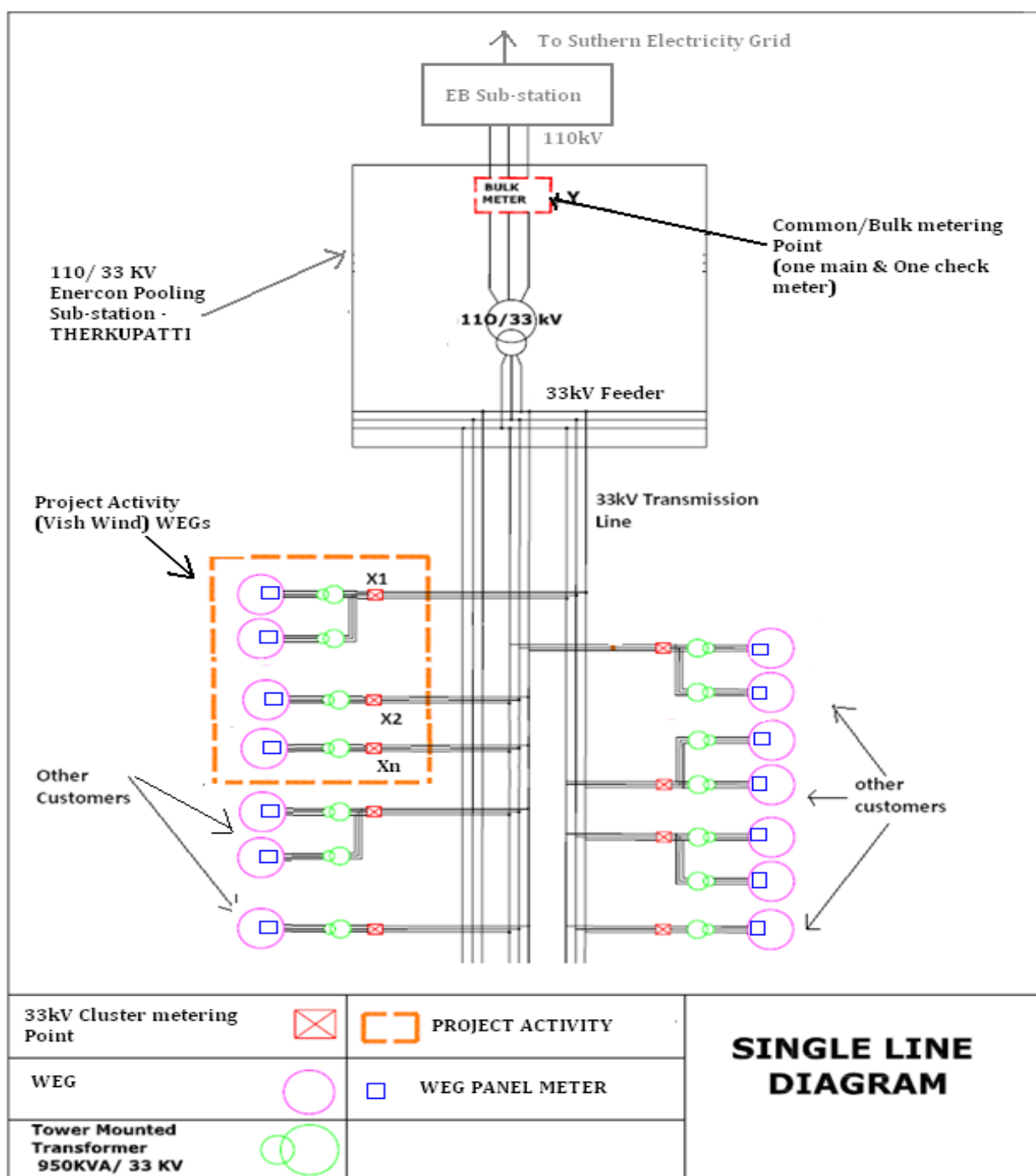
The Project is operated by Wind World (India) Limited. They follow the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind resource assessment, logistics, finance, construction, commissioning and operation of the wind power project.

Since the baseline methodology is based on ex ante determination of the baseline, the monitoring of operating margin emission factor and build margin emission factor is not required. Further, wind based electricity generation is not associated with any kind of leakages. Hence, the sole parameter for monitoring is the electricity generated by the project and supplied to the grid.

The Project is operated by Wind World (India) Limited and managed by the PP. The operational and maintenance contract for the project is with Wind World (India) Limited. Wind World (India) Limited is an ISO 9001:2000 certified Quality Management system from Germanischer Lloyd. Wind World (India) Limited follows the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind resource assessment, logistics, finance, construction, commissioning and operation of the wind power project.

Description of metering arrangement for project activity:-

Single Line diagram of Metering arrangement for project activity is shown in below picture:-



Metering system for the project activity consists of clusters of individual metering points at 33kV at project site. Each 33kV metering points have one main meter of 0.2s of accuracy class which is exclusively be connected to WEGs of the project activity i.e. there are no WEGs of other project owners that are connected to these metering point. There are total 9 individual metering points at 33kV for project activity.

In addition the 33kV metering points there is one set of main & check meter of 0.2s accuracy class at 110kV Wind World Pooling sub-station (common/Bulk metering point) where all the WEGs of project activity and non-project activity are connected.

Monitoring information

Monthly statement showing the electricity generated through windmills given by Tamilnadu Electricity Board (TNEB)/ Tirunelveli Electricity Distribution Circle, Tirunelveli) contains the following data:-

1. Electricity Export (EG_{export})
2. Electricity Import (EG_{import})
3. Line Loss between 33 kV and 110 kV metering points
4. Net Export /Generation to the Grid by the project WEGs

Net electricity exported by the wind mills calculated by Electricity Board independently. Either Wind World (India) Limited or PP doesn't have any role or control on calculation of net electricity generation/export. The Electricity Export, Electricity Import, Line Loss and net electricity supplied (Net Generation) to the grid, can be cross checked from the invoices raised on the state utility for net electricity exported to the grid.

There is a bi-directional tri-vector energy meter (also called as TNEB Meter) of accuracy class 0.2s adjacent to the individual wind turbine. Apart from the individual TNEB meter, there is a main and check meter of accuracy class 0.2s located at the WWIL pooling station. The main and check meter connected at this pooling station has both, the project activity as well as the non-project activity wind turbines connected to it. The electricity export as well as the electricity imported by the project activity wind mills are recorded at the TNEB meter as well as at the main and check meter of the WWIL pooling station on a monthly basis, in the presence of representatives of TNEB and the Project Participant. Based on this monthly recording, the TNEB representatives apportion the transmission line losses amongst the various wind turbines (project activity as well as non-project activity) to deduce the net electricity supplied by the individual wind turbines to the grid. The net electricity supplied to the grid, so deduced, is indicated in the 'Monthly Statement of Energy' issued by TNEB. The procedure for such apportioning is conducted and controlled by the TNEB and neither the Project Participant nor the Project Participant representatives have any role to play in the same. Since the substation is under the supervision of WWIL, so during the joint meter reading people of WWIL are also present. The Joint meter reading is taken by the officials of TNEB and based of this JMR, TNEB representatives apportion the transmission line losses amongst the various wind turbines (project activity as well as non-project activity) to deduce the net electricity supplied by the individual wind turbines to the grid. Based on the 'Monthly Statement of Energy' issued by TNEB, the Project Participant prepares the invoice and submits it to the state utility for payment.

The recording and monitoring of meter readings of both the meters i.e. TNEB Meters & Main & Check meters at WWIL Pooling substation is done on monthly basis.

Procedure of apportioning:-

In case the date of registration or start date of the crediting period of the project activity does not match with the date of joint meter report or billing cycle, the net electricity exported to the grid for

that month will be done based upon the meter reading of the controller meter (also known as Local Control System (LCS) meter) located in the WEC tower and will be calculated as follows:-

Net electricity export to the grid by a WEG @ SEB meter for n no. of days =
Daily controller generation of that WEG for n no. of days * Total Net export of that WEG @ SEB meter for a month
Monthly controller generation of that WEG for that month

Procedure to handle data uncertainty:-

The accuracy of monitoring parameter is ensured by adhering to the calibration and testing procedure as set in the power purchase agreement. The project adhere to all the mandatory regulatory and statutory requirements at the state as well as national level.

Calibrations Details of Meters:-

The metering equipment's are inspected & calibrated by State Utility. As per the registered monitoring plan all the meters (project activity cluster meters as well as main & check meter at Wind World pooling sub-station) calibrated once in five years by state utility. Calibration details for the all the cluster meters at 33kV level are as follows:-

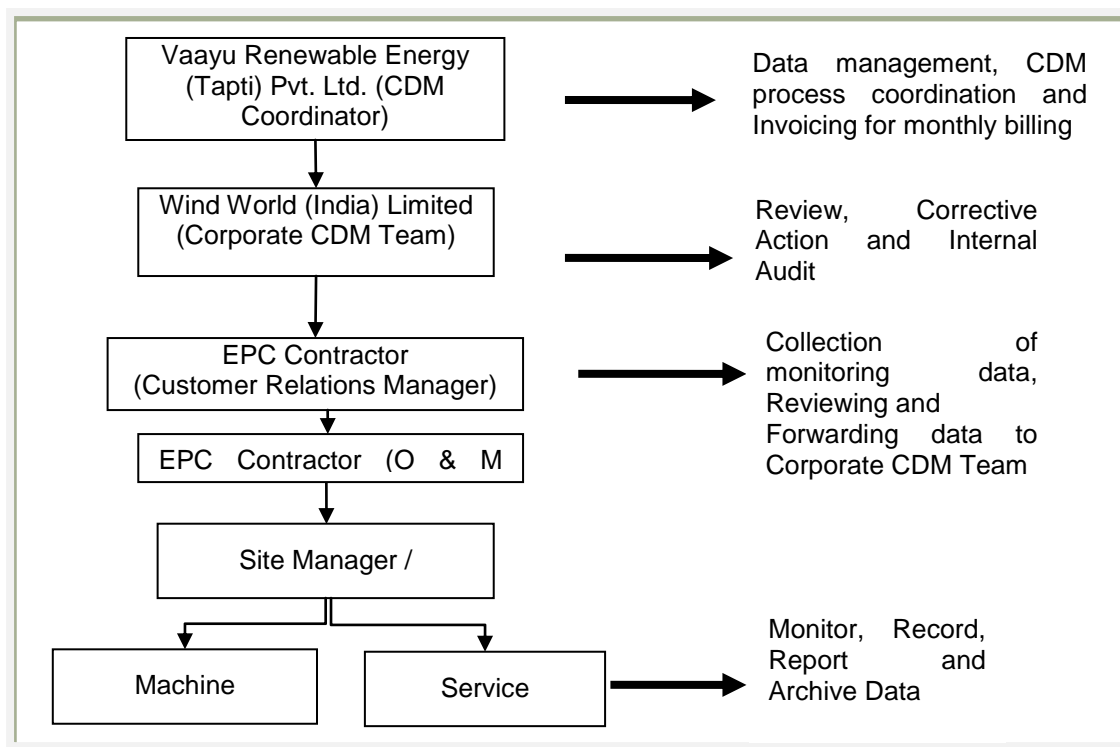
WEG HTSC No.	Meter Serial No.	Make	Accuracy class	Previous dates of calibration		Due date of calibration
				2012	2017	2022
3371	HT2170646	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3372	HT2170648	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3396	HT2170643	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3397	HT2170653	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3398	HT2170649	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3399	HT2170641	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3400	HT2170652	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3401	HT2170650	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022
3402	HT2170651	EDMI	0.2	21-09-2012	28-11-2017	28-11-2022

Calibration details for Bulk meter at 110kV level installed at sub-station is as follows:-

Meter Serial No.	Make	Accuracy class	Previous dates of calibration		Due date of calibration
			2011	2015	2020
HT1100044	Wallaby	0.2	09-11-2011	20-04-2015	20-04-2020
HT1100045	Wallaby	0.2	12-11-2011	20-04-2015	20-04-2020

Monitoring roles and responsibilities

The operational and management structure implemented for data monitoring is as follows:



PP is monitoring the data sent by the O&M contractor and the data for electricity generated by the project activity will be kept as records for the period of 10+2 years i.e. 2 years beyond the term of crediting period. Wind World (India) Limited is O&M contractor and will be responsible for data recording.

The project proponent is keeping and monitoring the data for electricity generation and calibration reports post project implementation. Wind World (India) Limited, O&M contractor, is responsible for activities such as maintaining electricity generation records, calibration records and maintenance of the WEGs (Wind Energy Generators).

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	$EF_{OM,y}$
Unit	tCO ₂ e/MWh
Description	Operating Margin Emission Factor of Southern Regional Electricity Grid
Source of data	<p>"CO₂ Baseline Database for Indian Power Sector" published by the Central Electricity Authority, Ministry of Power, Government of India.</p> <p>The "CO₂ Baseline Database for Indian Power Sector" is available at www.cea.nic.in</p>
Value(s) applied	0.98756
Choice of data or measurement methods and procedures	CEA is an official source of Govt of India. The values are calculated as per CDM guidelines.
Purpose of data/parameter	Calculation of Baseline Emissions
Additional comments	Value is fixed ex-ante for entire crediting period.

Data/Parameter	$EF_{BM,y}$
Unit	tCO ₂ e/MWh
Description	Build Margin Emission Factor of Southern Regional Electricity Grid
Source of data	<p>“CO₂ Baseline Database for Indian Power Sector” published by the Central Electricity Authority, Ministry of Power, Government of India.</p> <p>The “CO₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in</p>
Value(s) applied	0.81792
Choice of data or measurement methods and procedures	CEA is an official source of Govt of India. The values are calculated as per CDM guidelines.
Purpose of data/parameter	Calculation of Baseline Emissions
Additional comments	Value is fixed ex-ante for entire crediting period.

Data/Parameter	$EF_{CO_2, grid, y}$
Unit	tCO ₂ e/MWh
Description	Combined Margin Emission Factor of Southern Regional Electricity Grid
Source of data	<p>Combined Margin Emission Factor ($EF_{CM,y}$) is calculated as the weighted average of Operating Margin Emission Factor ($EF_{OM,y}$) and Build Margin Emission Factor ($EF_{BM,y}$).</p> <p>The “CO₂ Baseline Database for Indian Power Sector” published by the Central Electricity Authority, Ministry of Power, Government of India.</p> <p>The “CO₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in</p>
Value(s) applied	= 0. 94515
Choice of data or measurement methods and procedures	CEA is an official source of Govt of India. The values are calculated as per CDM guidelines.
Purpose of data/ parameter	Calculation of Baseline Emissions
Additional comments	Value is fixed ex-ante for entire crediting period.

D.2. Data and parameters monitored

Data/Parameter	$EG_{BL, y}$
Unit	MWh (Mega-watt hour)
Description	Net Electricity Exported to the grid by the project activity.
Measured/calculated/default	Measured & Calculated
Source of data	Monthly statement showing the electricity generated through windmills given by Tamil Nadu Electricity Board (TNEB)/ Tirunelveli Electricity Distribution Circle, Tirunelveli (TANGEDCO).
Value(s) of monitored parameter	94,806.067

Monitoring equipment	Please refer section 'C' (Description of monitoring system) for the details of meter type, accuracy class, serial number, calibration frequency, date of last calibration and validity under the heading 'Calibrations Details of Meters'
Measuring/reading/recording frequency	Frequency of recording data: Monthly Refer section C for an illustration of the provisions for measurement methods.
Calculation method (if applicable)	$EG_{BL,y} = EG_{Export,y} - EG_{Import,y} - \text{Transmission loss}$
QA/QC procedures	Value of $EG_{BL,y}$ as indicated in monthly statement provided by TNEB/TANGEDCO can be crosschecked with the invoices raised by PP on TNEB/TANGEDCO and or sales receipts either in the form of a cheque or the bank statements of the Project Participant which indicates the payment made by the TNEB
Purpose of data/ parameter	Calculation of Baseline Emissions
Additional comments	The data is archived both in electronic and hard paper format for crediting period + 2 years.

Data / Parameter:	$EG_{Export,y}$
Unit:	MWh (Mega-Watt hour)
Description:	Electricity exported by project activity to grid recorded at 33kV metering point (Cluster meter)
Measured/ Calculated / Default:	Measured
Source of data:	Monthly statement showing the electricity generated through windmills given by Tamilnadu Electricity Board (TNEB)/ Tirunelveli Electricity Distribution Circle, Tirunelveli).
Value(s) of monitored parameter:	97,848.648
Monitoring equipment:	Please refer section 'C' (Description of monitoring system) for the details of meter type, accuracy class, serial number, calibration frequency, date of last calibration and validity under the heading 'Calibrations Details of Meters'
Measuring/ Reading/ Recording frequency:	Frequency of recording data: Monthly Refer section C for an illustration of the provisions for measurement methods.
Calculation method (if applicable):	-
QA/QC procedures:	All the meters (project activity cluster meters as well as main & check meter at Wind World pooling sub-station) are calibrated by state utility annually and records are available with PP.
Purpose of data:	To calculate emission reduction achieved by project activity
Additional comment:	The data will be archived both in electronic and hard paper format for crediting period + 2 years.

Data / Parameter:	$EG_{Import,y}$
Unit:	MWh (Mega-Watt hour)
Description:	Electricity imported by project activity from the grid recorded at 33kV metering point (Cluster meter)

Measured/ Calculated / Default:	Measured
Source of data:	Monthly statement showing the electricity generated through windmills given by Tamilnadu Electricity Board (TNEB)/ Tirunelveli Electricity Distribution Circle, Tirunelveli).
Value(s) of monitored parameter:	280.191
Monitoring equipment:	Please refer section 'C' (Description of monitoring system) for the details of meter type, accuracy class, serial number, calibration frequency, date of last calibration and validity under the heading 'Calibrations Details of Meters'
Measuring/ Reading/ Recording frequency:	Frequency of recording data: Monthly Refer section C for an illustration of the provisions for measurement methods.
Calculation method (if applicable):	-
QA/QC procedures:	All the meters (project activity cluster meters as well as main & check meter at Wind World pooling sub-station) are calibrated by state utility annually and records are available with PP.
Purpose of data:	To calculate emission reduction achieved by project activity
Additional comment:	The data will be archived both in electronic and hard paper format for crediting period + 2 years.

Data / Parameter:	$\sum EG_{\text{Controller, project}}$
Unit:	MWh (Mega-watt hour)
Description:	Net generation by 10 WEGs of project activity, as measured at the WEGs controller meter (LCS)
Measured/ Calculated / Default:	Measured
Source of data:	Monthly controller generation report (LCS) sourced from E-Care portal.
Value(s) of monitored parameter:	Please refer 'CER calculation' excel sheet
Monitoring equipment:	Please refer section 'C' (Description of monitoring system) for the details of meter type, accuracy class, serial number, calibration frequency, date of last calibration and validity under the heading 'Calibrations Details of Meters'
Measuring/ Reading/ Recording frequency:	The value is monitored continuously and recorded daily by the online monitoring station at the site. In addition to the daily generation report, monthly generation reports are also available at monitoring station. Refer section C for an illustration of the provisions for measurement methods.
Calculation method (if applicable):	The procedures for calculation of net electricity supplied to grid for the period during which date of crediting period is not in line with the billing cycle date has been explained in monitoring plan under section C of monitoring report.
QA/QC procedures:	All the LCS meters are auto calibrated. In case of any fault WEG stops automatically and meter is replaced immediately.
Purpose of data:	To calculate emission reduction achieved by project activity

Additional comment:	<p>The data will be archived in electronic form for crediting period + 2 years.</p> <p>This value will be used to calculate net electricity export to the grid for the period during which date of crediting period is not in line with the billing cycle date</p>
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D.3. Implementation of sampling plan

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Not Applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

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The baseline emissions are calculated as:

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

Where,

 BE_y is baseline emissions in year y , tCO₂e $EG_{BL,y}$ is the Net Electricity Exported to the grid by the project activity. $EF_{CO2, grid, y}$ is the Combined Margin Emission Factor of Southern Regional Electricity Grid (0.94515 tCO₂e/MWh fixed ex-ante).

Baseline Emission Reductions calculation for project activity:-

Duration	Electricity export to the grid by the Project activity [MWh]	Electricity import from grid by the Project activity [MWh]	Net electricity generation supplied to the grid by the Project activity [MWh]	Baseline Emission Factor (tCO ₂ e/MWh)	Baseline Emissions (tCO ₂ e)
	[EG _{Export,y}]	[EG _{Import,y}]	[EG _y]	[EF _y]	[BE _y] = [EG _y] * [EF _y]
01/07/2012 to 01/12/2017	97,848.648	280.191	94,806.067	0.94515	89,603
Total	97,848.648	280.191	94,806.067	0.94515	89,603

E.2. Calculation of project emissions or actual net removals

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Since the project activity is a renewable energy project which generates electricity using wind power and hence does not result in project emissions.

E.3. Calculation of leakage emissions

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No leakage is considered from the project activity as per approved methodology AMS I.D.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	89,603	0	0	9,805	79,798	89,603

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante (t CO ₂ e)
89,603	88,747

E.6. Remarks on increase in achieved emission reductions

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The emission reductions for the current monitoring period are 0.96 % higher than the estimated value in the registered PDD for the same monitoring period. This is primarily due to cyclic variations and seasonal nature of wind power projects in India.

Annex 1**BASELINE INFORMATION**

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

Simple Operating Margin

	Southern Grid (tCO₂e/MWh)
Simple Operating Margin – 2006-07	0.99912
Simple Operating Margin – 2007-08	0.99062
Simple Operating Margin – 2008-09	0.97293
Average Operating Margin of last three years	0.98756

Build Margin

	Southern Grid (tCO₂e/MWh)
Build Margin- 2008-09	0.81792

Combined Margin Calculations

	Weights	Southern Grid (tCO₂e/MWh)
Operating Margin	0.75	0.98756
Build Margin	0.25	0.81792
Combined Margin		0.94515

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

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
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 GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, 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).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
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