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MONITORING REPORT

Version 2.0 and Date 12/11/2010

Title: BUNDLED WIND POWER PROJECT IN TAMIL NADU MANAGED BY ENERCON INDIA LIMITED-II"

Monitoring Period 2 - FROM 8/10/2009 TO 15/09/2010 (including first and last day)

SECTION A. General description of the project activity

A.1. Brief description of the project activity: >>

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Bundled wind power project of 36 MW ("Project") is installed in the state of Tamil Nadu and provides reliable, renewable power to the Tamil Nadu state electricity grid. The Project leads to reduction of greenhouse gas emissions because it displaces electricity from fossil fuel based electricity generation plants. The Project harnesses renewable resources in the region, and thereby displacing non-renewable natural resources thereby ultimately leading to sustainable economic and environmental development. Enercon (India) Ltd ("Enercon" or "EIL") is the equipment supplier and the operations and maintenance contractor for the Project. The generated electricity is supplied to the utility (Discom) under a long-term power purchase agreement (PPA). :

The first machine under the project activity was commissioned on 17th Jan 2006 and the last machine under the project activity was commissioned on 11th May 2007. The expected operational lifetime of the project is for 20 years. The total emission reductions achieved under this monitoring period (8 Oct 2009 to 15 September 2010) is 53,466 tCO₂.

A.2. Project Participants

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Enercon (India) Limited

A.3. Location of the project activity:

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The project is located at Pushpathur site in Dindigull district and Chinnakkampalayam in Erode district of Tamil Nadu that forms part of the Southern regional electricity grid of India.

Individual WEG location numbers and coordinates are detailed out in below table: -

SI NO.	Customer Name	Feeders	EB Substation	HTSC Number	Latitude			Longitude			UIN
					Deg	Minutes	Second	Deg	Minutes	Second	
1	Premier Spinnings and Weaving Mills Pvt.Ltd.	E-3	Melkaraipatti (110/22KV)	D47	10.00	32.00	5.05	77.00	25.00	20.91	PSWMPLPU-09
2	Premier Spinnings and Weaving Mills Pvt.Ltd.	E-6	Melkaraipatti (110/22KV)	D49	10.00	32.00	9.20	77.00	25.00	35.41	PSWMPLPU-08
3	Premier Spinnings and Weaving Mills Pvt.Ltd.	Viscose	Melkaraipatti (110/22KV)	D52	10.00	32.00	24.92	77.00	25.00	1.08	PSWMPLPU-10
4	Premier Spinnings and Weaving Mills Pvt .Ltd.	E-3	Melkaraipatti (110/22KV)	D54	10.00	34.00	22.31	77.00	25.00	37.47	PSWMPLPU-05
5	Premier Spinnings and Weaving Mills Pvt.Ltd.	E-6	Melkaraipatti (110/22KV)	D79	10.00	34.00	49.80	77.00	26.00	35.98	PSWMPLPU-06
6	Premier Spinnings and Weaving Mills Pvt.Ltd.	E-6	Melkaraipatti (110/22KV)	D80	10.00	34.00	57.15	77.00	26.00	52.68	PSWMPLPU-07
7	Premier Spinnings and Weaving Mills Pvt.Ltd.	E-3	Melkaraipatti (110/22KV)	D81	10.00	34.00	35.66	77.00	24.00	6.33	PSWMPLPU-03
8	Premier Spinnings and Weaving Mills Pvt .Ltd.	E-2	Thalaiyoothu (110/22KV)	D82	10.00	34.00	58.52	77.00	24.00	3.72	PSWMPLPU-02

9	Premier Spinnings and Weaving Mills Pvt .Ltd.	E-2	Thalaiyoothu (110/22KV)	D83	10.00	34.00	34.42	77.00	23.00	41.60	PSWMPLPU-01
10	Premier Spinnings and Weaving Mills Pvt .Ltd.	E-2	Thalaiyoothu (110/22KV)	D84	10.00	34.00	29.82	77.00	24.00	38.05	PSWMPLPU-04
11	Premier Fine Yarns P Ltd	E-1	Thalaiyoothu (110/22KV)	D26	10.00	33.00	23.98	77.00	24.00	45.82	PMPLPU-03
12	Premier Fine Yarns P Ltd	GVG	Thalaiyoothu (110/22KV)	D27	10.00	33.00	31.11	77.00	24.00	40.85	PMPLPU-04
13	Premier Fine Yarns P Ltd	Viscose	Thalaiyoothu (110/22KV)	D28	10.00	33.00	6.07	77.00	25.00	30.66	PMPLPU-01
14	Premier Fine Yarns P Ltd	E-1	Thalaiyoothu (110/22KV)	D29	10.00	33.00	11.92	77.00	25.00	23.14	PMPLPU-02
15	Premier Fine Yarns P Ltd	E-2	Thalaiyoothu (110/22KV)	D30	10.00	33.00	43.81	77.00	25.00	35.03	PMPLPU-05
16	Premier Fine Yarns P Ltd	E-2	Thalaiyoothu (110/22KV)	D30	10.00	33.00	56.76	77.00	25.00	39.05	PMPLPU-06
17	Premier Fine Yarns P Ltd	E-2	Thalaiyoothu (110/22KV)	D32	10.00	33.00	51.10	77.00	25.00	13.65	PMPLPU-07
18	Premier Fine Yarns P Ltd	E-2	Thalaiyoothu (110/22KV)	D32	10.00	33.00	54.39	77.00	25.00	4.11	PMPLPU-08
19	Premier Fine Yarns P Ltd	E-1	Thalaiyoothu (110/22KV)	D33	10.00	33.00	55.90	77.00	24.00	49.46	PMPLPU-09
20	Premier Fine Yarns P Ltd	E-1	Thalaiyoothu (110/22KV)	D34	10.00	34.00	15.28	77.00	24.00	60.00	PMPLPU-10

21	Coimbatore Polytex Pvt.Ltd	Viscose	Melkaraipatti (110/22KV)	D37	10.00	34.00	32.85	77.00	25.00	45.31	CPPLPU-03
22	Coimbatore Polytex Pvt.Ltd	Viscose	Melkaraipatti (110/22KV)	D38	10.00	34.00	35.89	77.00	25.00	26.63	CPPLPU-02
23	Coimbatore Polytex Pvt.Ltd	GVG	Melkaraipatti (110/22KV)	D43	10.00	34.00	43.51	77.00	25.00	21.33	CPPLPU-01
24	Coimbatore Polytex Pvt.Ltd	GVG	Melkaraipatti (110/22KV)	D43	10.00	34.00	51.46	77.00	25.00	45.95	CPPLPU-04
25	Coimbatore Polytex Pvt.Ltd	GVG	Melkaraipatti (110/22KV)	D44	10.00	35.00	3.85	77.00	25.00	45.85	CPPLPU-05
26	Coimbatore Polytex Pvt.Ltd	GVG	Thalaiyoothu (110/22KV)	D45	10.00	35.00	37.18	77.00	25.00	26.49	CPPLPU-06
27	Coimbatore Polytex Pvt.Ltd	E-2	Melkaraipatti (110/22KV)	D68	10.00	35.00	44.64	77.00	25.00	33.42	CPPLPU-07
28	Coimbatore Polytex Pvt.Ltd	E-2	Melkaraipatti (110/22KV)	D73	10.00	35.00	55.20	77.00	26.00	9.54	CPPLPU-10
29	Coimbatore Polytex Pvt.Ltd	E-2	Melkaraipatti (110/22KV)	D74	10.00	36.00	2.31	77.00	25.00	32.83	CPPLPU-08

30	Coimbatore Polytex Pvt.Ltd	E-2	Melkaraipatti (110/22KV)	D75	10.00	36.00	14.23	77.00	25.00	30.99	CPPLPU-09
31	Coimbatore Twisters Pvt. Ltd.	E-2	Melkaraipatti (110/22KV)	D78	10.00	34.00	8.51	77.00	25.00	33.48	CTPLPU-01
32	Bannari Amman Spinning Mills Ltd.	E -3	Chinnaputhur (110/22 KV)	1067	10.00	44.00	11.96	77.00	25.00	2.73	BASMLDH-01
33	Bannari Amman Spinning Mills Ltd.	E-3	Chinnaputhur (110/22 KV)	1068	10.00	44.00	19.64	77.00	24.00	57.79	BASMLDH-02
34	Bannari Amman Spinning Mills Ltd.	E-3	Chinnaputhur (110/22 KV)	1069	10.00	44.00	33.46	77.00	24.00	54.42	BASMLDH-03
35	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1070	10.00	44.00	50.65	77.00	24.00	35.47	BASMLDH-09
36	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1070	10.00	45.00	3.08	77.00	24.00	35.14	BASMLDH-10

37	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1071	10.00	45.00	13.14	77.00	24.00	30.85	BASMLDH-11
38	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1072	10.00	44.00	50.84	77.00	24.00	19.45	BASMLDH-13
39	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1072	10.00	44.00	57.94	77.00	24.00	15.10	BASMLDH-14
40	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1073	10.00	45.00	21.51	77.00	24.00	20.58	BASMLDH-12
41	Bannari Amman Spinning Mills Ltd.	E-3	Chinnaputhur (110/22 KV)	1077	10.00	44.00	42.34	77.00	25.00	2.58	BASMLDH-04
42	Bannari Amman Spinning Mills Ltd.	E-3	Chinnaputhur (110/22 KV)	1077	10.00	44.00	49.72	77.00	24.00	58.89	BSAMLDH-08
43	Bannari Amman Spinning Mills Ltd.	E-3	Chinnaputhur (110/22 KV)	1086	10.00	45.00	2.42	77.00	24.00	53.92	BASMLDH-07

44	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1106	10.00	44.00	42.99	77.00	25.00	15.38	BASMLDH-05
45	Bannari Amman Spinning Mills Ltd.	E-7	Chinnaputhur (110/22 KV)	1106	10.00	44.00	50.68	77.00	25.00	10.05	BASMLDH-06

A.4. Technical description of the project

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The Project involves 45-wind energy converters (WECs) of Enercon make (800 kW E-48) with internal electrical lines connecting the Project with local evacuation facility. The WECs 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 other salient features of the state-of-art-technology are:

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

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

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

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Baseline Methodology: *Consolidate monitoring methodology for grid-connected electricity generation from renewable sources, ACM0002, Version 10.*

Monitoring Methodology: *Consolidated monitoring methodology for grid-connected electricity generation from renewable sources, ACM0002, Version 10*

A.6. Date of Registration

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10/11/2009

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

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The length of the Crediting period of the project activity as per registered PDD is 10 years (Fixed) starting from 1/04/2006 to 31/03/2016. In first VER verification, the monitoring period considered was the period from 1-April-2006 to 7-Oct-2009. The second monitoring period is considered from 8-Oct-2009 to 15-Sep-2010.

A.8. Name of responsible person(s)/entity(ies):

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Contact Information of project proponents are given in the table below:

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

City:	Mumbai
State/Region:	Maharashtra
Postfix/ZIP:	400 053
Country:	India
Telephone:	+91-22-66924848
FAX:	+91- 22- 67040473 / 66921177
E-Mail:	yogesh.mehra@enerconindia.net
URL:	www.enerconindia.net
Represented by:	
Title:	Managing Director
Salutation:	Mr.
Last Name:	Mehra
Middle Name:	
First Name:	Yogesh
Department:	Corporate
Mobile:	+91-9820040301
Direct FAX:	+91 22 66921177
Direct tel:	+91-22-67022832
Personal E-Mail:	yogesh.mehra@enerconindia.net

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

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The first machine under the project activity was commissioned on 17th Jan 2006 and last machine under the project activity was commissioned on 11th May 2007. The project activity consists of 45 machines (800 kW) of Enercon make E-48. The commissioning date for all the machines included in the project activity is given in the table below.

S. No.	Name of Customers	HTSC No.	Commissioning Date	No. of M/C	Capacity (MW)
1	Premier Spg & Wvg Mills Pvt Ltd	D47	21-Mar-07	10	8
2	Premier Spg & Wvg Mills Pvt Ltd	D49	21-Mar-07		
3	Premier Spg & Wvg Mills Pvt Ltd	D52	26-Mar-07		
4	Premier Spg & Wvg Mills Pvt Ltd	D54	26-Mar-07		
5	Premier Spg & Wvg Mills Pvt Ltd	D79	25-Apr-07		
6	Premier Spg & Wvg Mills Pvt Ltd	D80	25-Apr-07		
7	Premier Spg & Wvg Mills Pvt Ltd	D81	25-Apr-07		
8	Premier Spg & Wvg Mills Pvt Ltd	D82	9-May-07		
9	Premier Spg & Wvg Mills Pvt Ltd	D83	9-May-07		
10	Premier Spg & Wvg Mills Pvt Ltd	D84	11-May-07		
11	Premier Fine Yarns Pvt Ltd	D26	26-Feb-07	10	8
12	Premier Fine Yarns Pvt Ltd	D27	26-Feb-07		
13	Premier Fine Yarns Pvt Ltd	D28	26-Feb-07		
14	Premier Fine Yarns Pvt Ltd	D29	26-Feb-07		
15	Premier Fine Yarns Pvt Ltd	D30	27-Feb-07		
16	Premier Fine Yarns Pvt Ltd	D30	27-Feb-07		
17	Premier Fine Yarns Pvt Ltd	D32	7-Mar-07		

18	Premier Fine Yarns Pvt Ltd	D32	7-Mar-07		
19	Premier Fine Yarns Pvt Ltd	D33	7-Mar-07		
20	Premier Fine Yarns Pvt Ltd	D34	7-Mar-07		
21	Coimbatore Twisted (Premier Mills)	D37	14-Mar-07	1	0.8
22	Coimbatore Polytex (Premier Mills)	D38	14-Mar-07	10	8
23	Coimbatore Polytex (Premier Mills)	D43	21-Mar-07		
24	Coimbatore Polytex (Premier Mills)	D43	21-Mar-07		
25	Coimbatore Polytex (Premier Mills)	D44	21-Mar-07		
26	Coimbatore Polytex (Premier Mills)	D45	21-Mar-07		
27	Coimbatore Polytex (Premier Mills)	D68	29-Mar-07		
28	Coimbatore Polytex (Premier Mills)	D73	30-Mar-07		
29	Coimbatore Polytex (Premier Mills)	D74	30-Mar-07		
30	Coimbatore Polytex (Premier Mills)	D75	30-Mar-07		
31	Coimbatore Polytex (Premier Mills)	D78	16-Apr-07		
32	Bannari Amman Spinning Mills	1067	17-Jan-06	14	11.2
33	Bannari Amman Spinning Mills	1068	17-Jan-06		
34	Bannari Amman Spinning Mills	1069	17-Jan-06		
35	Bannari Amman Spinning Mills	1070	17-Jan-06		
36	Bannari Amman Spinning Mills	1070	17-Jan-06		
37	Bannari Amman Spinning Mills	1071	17-Jan-06		
38	Bannari Amman Spinning Mills	1072	17-Jan-06		
39	Bannari Amman Spinning Mills	1072	17-Jan-06		
40	Bannari Amman Spinning Mills	1073	17-Jan-06		
41	Bannari Amman Spinning Mills	1077	1-Feb-06		
42	Bannari Amman Spinning Mills	1077	1-Feb-06		
43	Bannari Amman Spinning Mills	1086	8-Feb-06		
44	Bannari Amman Spinning Mills	1106	8-Mar-06		
45	Bannari Amman Spinning Mills	1106	8-Mar-06		
	Total			45	36

Enercon operation and maintenance activities are ISO 9001:2000 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.

B.2. Revision of the monitoring plan

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Not applicable

B.3. Request for deviation applied to this monitoring period

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1. Panel meter or the controller meter does not require any calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WEGs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate an error report. The interim generation shall not be recorded by the meter and therefore the approach avoids any reporting risk and therefore the approach is conservative. The same has been explained in the technical supplier manual submitted to the DOE. Therefore Project Proponent (PP) has sought deviation from the Validated Project Document (PD) with respect to the calibration of the LCS panel meter
2. In Tamil Nadu, individual metering system exist i.e. there is separate meter for individual wind turbine in order to calculate import & export value from the WEGs. These meters are installed at the side of each WEG and therefore no apportioning is required in Tamil Nadu. Hence we seek deviation in the monitoring plan mentioned in the VCS validated PD. It is therefore stated that no apportioning will be required for future crediting period. Further, in the Validated VCS PD it is mentioned in Section 3.3 under “Any Comments” of EG, export and EG, import that “Apportioned values shall be calculated” which does not represent the correct monitoring procedure as no apportioning of either EG, export, EG, import or EGy is carried out. A deviation on this account is henceforth, sought for the current as well as future Monitoring periods of the Project activity. This deviation will be applied for all the monitoring period.

B.4. Notification or request of approval of changes
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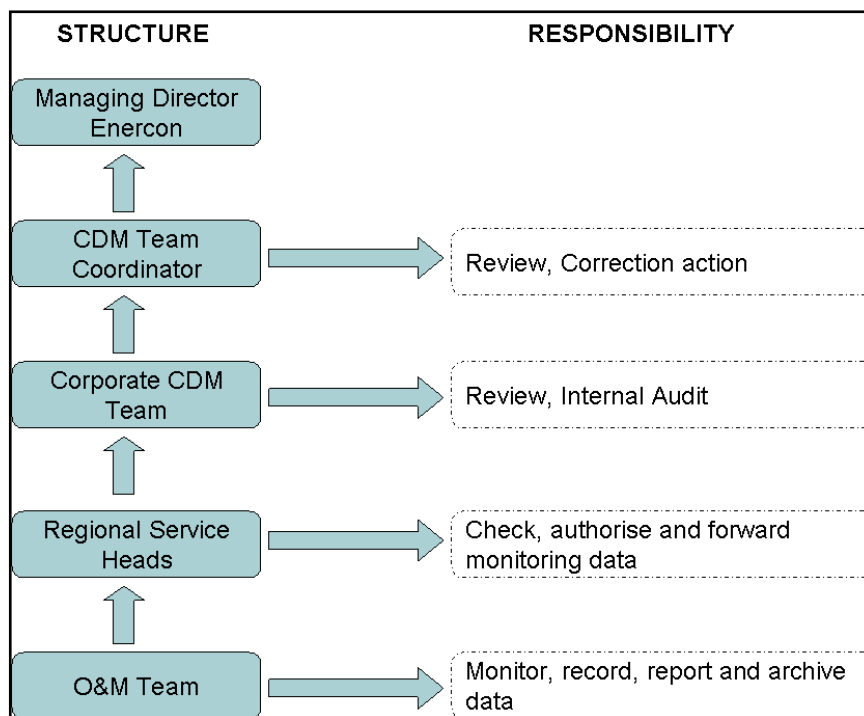
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Not Applicable

SECTION C. Description of the monitoring system
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The operational & monitoring structure is shown in the following figure



Monitoring Information:

The general conditions set out for metering, recording, meter readings, meter inspections, Test & Checking and communication are as per the agreement with state electricity board .

Metering: Net electricity supplied to grid will be measured through meter readings of the two-way export meter installed by TNEB. The installed meters measure the electricity export and electricity import for each WEG or group of WEGs of the project which are designated by unique identification no. i.e. HT SC No. Project activity has the dedicated metering system and there are no other WEGs connected to the joint meters of the project activity.

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

Inspection of Energy Meters: The two-way export meter and all associated instruments, transformers installed at the project are of 0.5 accuracy classes. The meter is jointly inspected and sealed on behalf of the parties and is not to be interfered with by either party except in the presence of the other party or its accredited representatives.

Meter Test Checking: The meter is tested for accuracy with reference to a portable standard meter. The portable standard meter is also owned by TNEB. The meter is deemed to be working satisfactorily if the errors are within specifications for meters of 0.5 accuracy classes. The consumption registered by the meter alone holds good for the purpose of metering electricity supplied to the grid as long as the error in the meter is within the permissible limits.

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

Archiving of data: Data shall be archived for crediting period + 2 years.

Metering System:

A metering equipment is provided besides each WEG's, although other project proponents are also connected to the substation but individual metering of WEG's help in projecting accurate values of electricity exported. Since each WEG has unique billing meter which is installed and owned by TNEB, hence there is no need of apportioning.

Metering Equipment: Metering equipment is electronic trivector meter of accuracy class **0.5%** required for the project. Dedicated core of both CT's and PT's of required accuracy is made available by the EIL to TNEB.

The meters are calibrated annually to ensure accuracy of data..

If during the tests, the meter is found to be beyond the permissible limits of error, the meter shall be immediately calibrated and the correction applied to the reading registered by the meter to arrive the correct reading of energy supplied for billing purposes for the period from the last month's meter reading up to the current test. Billing for the period thereafter till the next monthly reading shall be as per the calibrated meter

Training and maintenance:

Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, in order to maximize the output from the Wind Energy Converters (WECs), it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that Enercon's service staff is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute ease and comfort has been established. The Enercon Training Academy provides need-based training to meet the training requirements of Enercon projects. The training is contemporary, which results in imparting focused knowledge leading to value addition to the attitude and skills of all trainees. This ultimately leads to creativity in problem solving.

Calibration Details

The metering equipments were inspected & calibrated by state utility. The meters installed at the wind farm are as per TNEB guidelines and accuracy level. The meters are checked for accuracy on a regular basis as per the VCS PD which says that the calibration of meters has to be performed at least once in calendar year. TNEB meter testing is done by a separate division of electricity board, which takes care of meter testing in the event of any abnormality observed:

It can be noticed from the below table that calibration for all the meters was conducted in 17 June 2009, 18 June 2009 & 22 June 2009 and again in 6 Oct 2010, 9 Oct 2010, 12 Oct 2010 & 18 Oct 2010. The calibration of the meters that were calibrated in 17 June 2009, 18 June 2009 & 22 June 2009 is valid until 16 June 2010, 17 June 2010 & 21 June 2010. The monitoring period for the project activity from 08/10/2009 to 15/09/2010; the calibration was not conducted by the due date. However, PP has conducted the calibration again in 6 Oct 2010, 9 Oct 2010, 12 Oct 2010 & 18 Oct 2010 which is valid until 5 Oct 2011, 8 Oct 2011, 11 Oct 2011 & 17 Oct 2011. All the meters were found to be performing under the permissible limit of error. Therefore as per annex 60 of EB 52, para 4(a); the energy generation data is adjusted for maximum permissible error of the meters i.e.

0.5% for the month June-10 to Sep-10 as the calibration is valid till 16 June 2010, 17 June 2010 & 21 Jun 2010. PP has taken conservative approach and the energy generation data has been adjusted for maximum permissible error of the meters i.e. 0.5% for the months Jun-2010, Jul-2010, Aug-2010 & Sep-2010.

Meter Replacement Details:

The meter for HTSC No: D29 (Premier Fine Yarns Pvt. Ltd) was replaced in 7-Jun-2010. Similarly for HTSC No: D78 (Coimbatore Polytex) was also replaced in 9-Feb-2010. During the replacement of the meter there was no generation from the Wind Turbine (Shut down) thus no discrepancies were found in the emission reduction calculation.

The meter details are as follows:

S . N o.	Name of Customers	HTS C No.	Commissioning Date	No. of M/C	Capacity (MW)	Type	Meter No.	Last Calibration Date	Recent Calibration
1	Premier Spg & Wvg Mills Pvt Ltd	D47	21-Mar-07	10	8	ELSTER	04863734	18-Jun-09	12-Oct-10
2	Premier Spg & Wvg Mills Pvt Ltd	D49	21-Mar-07			ELSTER	04890022	18-Jun-09	12-Oct-10
3	Premier Spg & Wvg Mills Pvt Ltd	D52	26-Mar-07			ELSTER	04863759	18-Jun-09	12-Oct-10
4	Premier Spg & Wvg Mills Pvt Ltd	D54	26-Mar-07			ELSTER	04865534	18-Jun-09	12-Oct-10
5	Premier Spg & Wvg Mills Pvt Ltd	D79	25-Apr-07			ELSTER	04865507	17-Jun-09	12-Oct-10
6	Premier Spg & Wvg Mills Pvt Ltd	D80	25-Apr-07			SECURE	TNB02400	17-Jun-09	12-Oct-10
7	Premier Spg & Wvg Mills Pvt Ltd	D81	25-Apr-07			ELSTER	04865535	18-Jun-09	12-Oct-10
8	Premier Spg & Wvg Mills Pvt Ltd	D82	9-May-07			ELSTER	04865504	17-Jun-09	12-Oct-10
9	Premier Spg & Wvg Mills Pvt Ltd	D83	9-May-07			ELSTER	04865503	17-Jun-09	12-Oct-10
10	Premier Spg & Wvg Mills Pvt Ltd	D84	11-May-07			ELSTER	04865505	17-Jun-09	12-Oct-10
11	Premier Fine Yarns Pvt Ltd	D26	26-Feb-07	10	8	ELSTER	04865399	17-Jun-09	12-Oct-10
12	Premier Fine Yarns Pvt Ltd	D27	26-Feb-07			ELSTER	04865401	17-Jun-09	12-Oct-10
13	Premier Fine Yarns Pvt Ltd	D28	26-Feb-07			ELSTER	04865402	17-Jun-09	12-Oct-10
14	Premier Fine Yarns Pvt Ltd	D29	26-Feb-07			WALLA BY	HT5100083 (Before the meter serial no was 04865403)	17-Jun-09	12-Oct-10
15	Premier Fine Yarns Pvt Ltd	D30	27-Feb-07			ELSTER	04863758	17-Jun-09	12-Oct-10
16	Premier Fine Yarns Pvt Ltd	D30	27-Feb-07			ELSTER	04863758	17-Jun-09	12-Oct-10
17	Premier Fine Yarns Pvt Ltd	D32	7-Mar-07			ELSTER	04863757	17-Jun-09	12-Oct-10
18	Premier Fine Yarns Pvt Ltd	D32	7-Mar-07			ELSTER	04863757	17-Jun-09	12-Oct-10
19	Premier Fine Yarns Pvt Ltd	D33	7-Mar-07			ELSTER	04863762	17-Jun-09	12-Oct-10
20	Premier Fine Yarns Pvt Ltd	D34	7-Mar-07			ELSTER	04865400	17-Jun-09	12-Oct-10

2 1	Coimbatore Twisted (Premier Mills)	D37	14-Mar-07	1	0.8	ELSTER	0486376 1	18-Jun- 09	18-Oct- 10
2 2	Coimbatore Polytex (Premier Mills)	D38	14-Mar-07	10	8	ELSTER	0486538 3	18-Jun- 09	18-Oct- 10
2 3	Coimbatore Polytex (Premier Mills)	D43	21-Mar-07			ELSTER	0486553 3	18-Jun- 09	18-Oct- 10
2 4	Coimbatore Polytex (Premier Mills)	D43	21-Mar-07			ELSTER	0486553 3	18-Jun- 09	18-Oct- 10
2 5	Coimbatore Polytex (Premier Mills)	D44	21-Mar-07			ELSTER	0486552 6	18-Jun- 09	18-Oct- 10
2 6	Coimbatore Polytex (Premier Mills)	D45	21-Mar-07			ELSTER	0486552 8	18-Jun- 09	18-Oct- 10
2 7	Coimbatore Polytex (Premier Mills)	D68	29-Mar-07			ELSTER	0486550 1	18-Jun- 09	18-Oct- 10
2 8	Coimbatore Polytex (Premier Mills)	D73	30-Mar-07			ELSTER	0495959 9	18-Jun- 09	18-Oct- 10
2 9	Coimbatore Polytex (Premier Mills)	D74	30-Mar-07			ELSTER	0486553 0	18-Jun- 09	18-Oct- 10
3 0	Coimbatore Polytex (Premier Mills)	D75	30-Mar-07			ELSTER	0486553 1	18-Jun- 09	18-Oct- 10
3 1	Coimbatore Polytex (Premier Mills)	D78	16-Apr-07			WALLA BY	2083204 41 (Before the meter serial no was 0486550 0)	18-Jun- 09	18-Oct- 10
3 2	Bannari Amman Spinning Mills	1067	17-Jan-06	14	11.2	ELSTER	0472198 6	22-Jun- 09	09-Oct- 10
3 3	Bannari Amman Spinning Mills	1068	17-Jan-06			SECURE	TNB023 27	22-Jun- 09	6-Oct-10 & 9-Oct- 10
3 4	Bannari Amman Spinning Mills	1069	17-Jan-06			ELSTER	0472567 3	22-Jun- 09	6-Oct-10 & 9-Oct- 10
3 5	Bannari Amman Spinning Mills	1070	17-Jan-06			ELSTER	0472567 4	22-Jun- 09	6-Oct-10 & 9-Oct- 10
3 6	Bannari Amman Spinning Mills	1070	17-Jan-06			ELSTER	0472567 4	22-Jun- 09	6-Oct-10 & 9-Oct- 10
3 7	Bannari Amman Spinning Mills	1071	17-Jan-06			ELSTER	0237393 7	22-Jun- 09	6-Oct-10 & 9-Oct- 10
3 8	Bannari Amman Spinning Mills	1072	17-Jan-06			ELSTER	0472186 0	22-Jun- 09	6-Oct-10 & 9-Oct- 10
3 9	Bannari Amman	1072	17-Jan-06			ELSTER	0472186 0	22-Jun- 09	6-Oct-10 & 9-Oct-

	Spinning Mills								10
40	Bannari Amman Spinning Mills	1073	17-Jan-06			ELSTER	04721859	22-Jun-09	6-Oct-10 & 9-Oct-10
41	Bannari Amman Spinning Mills	1077	1-Feb-06			ELSTER	04721982	22-Jun-09	6-Oct-10 & 9-Oct-10
42	Bannari Amman Spinning Mills	1077	1-Feb-06			ELSTER	04721982	22-Jun-09	6-Oct-10 & 9-Oct-10
43	Bannari Amman Spinning Mills	1086	8-Feb-06			ELSTER	04725696	22-Jun-09	6-Oct-10 & 9-Oct-10
44	Bannari Amman Spinning Mills	1106	8-Mar-06			ELSTER	04726631	22-Jun-09	6-Oct-10 & 9-Oct-10
45	Bannari Amman Spinning Mills	1106	8-Mar-06			ELSTER	04726631	22-Jun-09	6-Oct-10 & 9-Oct-10
	Total			45	36			Last Calibrat ion Date	Recent Calibrat ion

SECTION D. Data and parameters

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D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Data / Parameter:	$EF_{OM,y}$
Data unit:	tCO ₂ e/MWh
Description:	Operating Margin Emission Factor of Northern Regional Electricity Grid
Source of data used:	“CO₂ Baseline Database for Indian Power Sector” version 4 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO₂ Baseline Database for Indian Power Sector” version 4 is available at www.cea.nic.in
Value(s) :	0.7488
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emissions
Additional comment:	None

Data / Parameter:	$EF_{BM,y}$
Data unit:	tCO ₂ e/MWh
Description:	Build Margin Emission Factor of Southern Regional Electricity Grid
Source of data used:	“CO₂ Baseline Database for Indian Power Sector” version 4 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO₂ Baseline Database for Indian Power Sector” version 4 is available at www.cea.nic.in

Value(s) :	0.1783
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emissions
Additional comment:	None

Data / Parameter:	$EF_{CM,y}$
Data unit:	tCO ₂ e/MWh
Description:	Combined Margin Emission Factor of Southern Grid
Source of data used:	“CO ₂ Baseline Database for Indian Power Sector” version 4 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” version 4 is available at www.cea.nic.in
Value(s) :	926.94 tCO ₂ /GWh
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline Emissions
Additional comment:	None

D.2. Data and parameters monitored

The monitoring parameter is the electricity exported to the grid from the project and electricity imported from the grid to the project. Electricity supplied to the grid is metered through the two ways export meter installed by TNEB at the high voltage side of the step up transformer installed at the project Site. There are 38 metering points for the project. The metering is done at the 22 kV bay by two-way export meter installed by TNEB. At the conclusion of each meter reading an appointed representative of TNEB and Enercon sign a document indicating the number of Kilowatt-hours indicated by the meter.

The monitoring parameter is given in the following table

Data / Parameter:	EG, Export
Data unit:	MWh/year (Mega-watt hour/year)
Description:	Electricity exported to the grid by the project activity in year y
Source of data to be used:	Electricity exported by the project activity to the grid as per JMR
Value of data	57839.706 MWh
Brief description of measurement methods and procedures to be applied:	The Energy generated at the wind farm will be metered and measured by TNEB on monthly basis at the sending end sub-station of the Wind Farm. The monitoring of ‘electricity exported to the grid’ would be as per the details provided in wheeling and banking agreement.
QA/QC procedures applied:	The calibration of metering equipments is subject to the requirements of EIL officials. The last calibration of billing meter was performed on 06.10.2010, 09.10.2010, 12.10.2010, 18.10.2010, 17.06.09, 18.06.09 & 22.06.2009. QA/QC procedures will be implemented pursuant to agreement with state electricity board.
Any comment:	The data is archived on paper as well as on electronic media; however the data will be kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter:	EG, import
Data unit:	MWh/year (Mega-watt hour/year)
Description:	Electricity imported from the grid
Source of data to be used:	Electricity imported by the project activity from the grid as per JMR.
Value of data	157.744 MWh
Brief description of measurement methods and procedures to be applied:	The Energy generated at the wind farm will be metered and measured by TNEB on monthly basis at the sending end sub-station of the Wind Farm. The monitoring of 'electricity exported to the grid' would be as per the details provided in wheeling and banking agreement.
QA/QC procedures applied:	The calibration of metering equipments is subject to the requirements of EIL officials. The last calibration of billing meter was performed on 06.10.2010, 09.10.2010, 12.10.2010, 18.10.2010, 17.06.09, 18.06.09 & 22.06.2009. QA/QC procedures will be implemented pursuant to agreement with state electricity board.
Any comment:	The data is archived on paper as well as on electronic media; however the data will be kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter:	EG_y, net
Data unit:	MWh (Mega-watt hour)
Description:	Net electricity supplied to the grid by the Project
Source of data to be used:	Calculated from EG _{export} and EG _{import} as (EG _{export} – EG _{import})
Value of data applied for the purpose of calculating expected emission reductions	Net electricity is calculated as following: = 57839.706 – 157.744 MWh = 57681.962 MWh
Description of measurement methods and procedures to be applied:	Net electricity supplied to the grid will be calculated by the two-way export Trivector meter. The Net electricity is recorded as following: (Net Electricity = Net Export – Net Import) The procedures for metering and meter reading will be as per the provisions of the wheeling and banking arrangement.
QA/QC procedures to be applied:	QA/QC procedures will be implemented pursuant to wheeling and banking agreement.
Any comment:	

Data / Parameter:	EG, Gross,y
Data unit:	MWh
Description:	Total electricity generation by the wind mills during the year y
Source of data to be used:	Controller attached with each WEC.

Value of data applied for the purpose of calculating expected emission reductions	61765.373 MWh (Details of panel generation is given in Panel generation excel sheet, which is sourced from Enercon website)
Description of measurement methods and procedures to be applied:	This data is the controller data for the monitoring period and can be verified from the website of Enercon (India) Limited.
QA/QC procedures to be applied:	The panel meters are auto calibrated so there is no need for any external agency calibration.
Any comment:	The data (Total electricity generation by the wind mills) will be archived on electronic media as well as on paper. The data will be kept for two years after the end of the crediting period or the last issuance of VERs for this project activity, whichever occurs later -Not used for emission reduction calculation

The generation units in the TNEB statement cannot be traced in the electricity bills because of the below mentioned reasons:

- i) These industrial units are having banking arrangements with TNEB, wherein they can bank excessive units for a particular time period and utilise the same subsequently. Hence, a particular electricity bill might include the carryover banked units from the previous period.
- ii) These units also have other generation facilities which are not a part of this project. The generation from other facilities are also used for the captive consumption, and would reflect in the electricity bill.

However, the values of export, import & net generation can be cross checked with the TNEB statement/JMR.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

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“The baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO₂e/kWh) calculated in a transparent and conservative manner as the weighted average emissions (in kg CO₂e/kWh) as described in registered PDD.

$$BE_y = EG_y * EF_y$$

Where,

BE is baseline emissions in year y, tCO₂e

EG_y is the net electricity supplied to the grid in year y and is applied directly from JMR certified by state utility. This value can also be cross checked from the invoice.

EF_y is the CO₂ emission factor of the grid (926.94 tCO₂e/GWh fixed ex-ante). Refer Appendix 3 for detail.

Emission reduction calculation for the period 8th October 2009 to 15th September 2010

$$\text{Emission Reductions (ER)} = 57681962 \text{ (Kwh)} * 926.94 \text{ (tCO}_2\text{/Kwh)} / 10^6$$

$$= 53466 \text{ tCO}_2$$

Months	Name of Customers	Premier Spg & Wvg Mills Pvt Ltd	Premier Fine Yarns Pvt Ltd	Coimbatore Twisted (Premier Mills)	Coimbatore Polytex (Premier Mills)	Bannari Amman Spinning Mills
Nov-09	Export	238380	273384	25416	237660	427128
	Import	7896	5976	624	6960	10032
	Net Export	230484	267408	24792	230700	417096
Dec-09	Export	131112	145020	13824	126720	215436
	Import	5316	4188	408	4800	7980
	Net Export	125796	140832	13416	121920	207456
Jan-10	Export	287508	311892	29724	285696	224832
	Import	3648	3336	264	2976	5760

	Net Export	283860	308556	29460	282720	219072
Feb-10	Export	387900	415812	40296	385104	424392
	Import	3132	2532	228	2256	3204
	Net Export	384768	413280	40068	382848	421188
Mar-10	Export	312720	320508	31452	294948	355152
	Import	5532	4488	408	4680	4908
	Net Export	307188	316020	31044	290268	350244
Apr-10	Export	414984	410172	43152	382680	631896
	Import	5724	4236	384	4392	5196
	Net Export	409260	405936	42768	378288	626700
May-10	Export	507012	496980	55740	501756	699756
	Import	5376	5064	396	4680	5532
	Net Export	501636	491916	55344	497076	694224
Jun-10	Export	2014600	2123302.14	217522.92	2125690.14	2820036.96
	Import	1073	675.36	84.42	1073.34	2062.26
	Net Export	2013527	2122627	217439	2124617	2817975
Jul-10	Export	2180137	2125212.54	221797.44	2150417.88	4067790.84
	Import	1315	1386.9	72.36	1350.72	506.52
	Net Export	2178822	2123826	221725	2149067	4067284
Aug-10	Export	3806341	3805254.12	377650.26	3618894.6	4082405.4
	Import	362	747.72	36.18	337.68	1169.82
	Net Export	3805979	3804506	377614	3618557	4081236
Sep-10	Export	2793303	2768026.32	295837.38	2713759.02	3445585.5
	Import	712	711.54	60.3	771.84	723.6
	Net Export	2792592	2767315	295777	2712987	3444862

Additionality Consideration:

During the validation of the project activity under VCS 2007.1 a Forward Action Requested (FAR) has been raised. As per the FAR ‘If the PLF of the project activity exceeds the range of sensitivity analysis (PLF 26.25%) the additionality of the project will be re-assessed during every crediting period, The VERs will be issued if the project is additional.’ (Refer Annex 66, 67 of EB48)’ For the crediting period of 8 Oct 2009 to 15 Sep 2010, the PLF of the project activity comes out to be within the sensitivity range of project additionality the PLF for different customers in the monitoring period are:

Name of the Customers	PLF
Premier Spg & Wvg Mills Pvt Ltd	21.24%
Premier Fine Yarns Pvt Ltd	21.31%
Coimbatore Twisted (Premier Mills)	21.78%
Coimbatore Polytex (Premier Mills)	20.71%
Bannari Amman Spinning Mills	21.16%

The above table clearly shows that the actual PLF for the monitoring period of 8 Oct 2009 to 15 Sep 2010 falls within the sensitivity range of project additionality i.e below 26.25% PLF. This clearly shows that the project activity is additional for the prescribed monitoring period.

E.2. Project emissions calculation

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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. Leakage calculation

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No leakage is considered from the project activity as per approved methodology ACM0002.

E.4. Emission reductions calculation / table

>>

The total emission reductions achieved during the monitoring period is 53466 tCO₂.

Total baseline emissions: 53466 tCO₂

Total project emissions: Zero

Total leakage: Zero

$$\begin{aligned}\text{Total Emission reductions, ER} &= \text{BEy} - \text{PEy} - \text{LEy} \\ &= 53466 \text{ tCO}_2 - 0 \\ &= 53466\end{aligned}$$

E.5. Comparison of actual emission reductions with estimates in the VCS-PDD

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Item	Values applied in ex-ante calculation of the registered VCS-PDD	Actual values reached during the monitoring period
Emission reductions (tCO₂e)	63934 (11 months equivalent of annually 69747 emission reductions estimated in the registered PDD)	53466

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

>>

There is change of 19.07 % (downside) in the expected and annual emission reductions. The difference in the total VERs is due to low wind availability leading to low plant load factor.

Ex-ante PLF as per VCS PDD annually	Actual PLF during Monitoring Period annually
23.86%	21.32%