



## **“Energy from Renewables”**

VCS Ref No: 160

### **Voluntary Carbon Standard Emission Reduction Monitoring Report**

Monitoring period: 1.04.2006 to 31.3.2009

Promoted by  
**Magma Fincorp Limited**

Version: 1.3  
29 September, 2010

*Purpose of the report:*

This monitoring report has been prepared for the purpose of independent verification of the Green House Gas (GHG) emission reductions achieved by Magma Fincorp Limited (Magma) through Voluntary Carbon Standard 2007.1 project titled “*Energy from renewables*” during the period “1 April, 2006 to 31 March 2009”.

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## ***1. Project Promoter Profile***

Magma Fincorp Limited, earlier known as Magma Shrachi Finance Ltd, is a non banking financial company (NBFC) headquartered in Kolkata.

The company provides products and services to individual and corporate customers. Its fund-based product portfolio includes commercial vehicle financing, cars and multi-utility vehicle funding, and financing of construction equipment. It distributes third party products like personal loans aimed at its existing customer base. These products offer cross-sell opportunities, address customer needs, and help position the company as a one-stop shop in the retail financing market. Under the new RBI guidelines, the company has been classified as a systemically important asset financing company, which allows it access to a higher percentage of bank funding compared to other categories of NBFCs.

They have recently ventured into the renewable energy sector with the setting up of wind energy generators in several parts of the country.

Apart from being a financial service based company, Magma has also involved in philanthropic initiatives for quite sometime. In this aspect, they have conducted several corporate social responsibility initiatives such as conducting health camps, distributing free medicines and so on.

## **2. Introduction to project activity**

The project activity comprises two wind energy generators of capacities 1.25 MW each, located in Dhule district of Maharashtra. The project activity converts wind power into electricity generating about 3,445 MWh annually over the ten year crediting period.

Wind power consumes no fuel for continuing operation, and has no emissions directly related to electricity production. Operation of wind machines also do not produce carbon dioxide, sulfur dioxide, mercury, particulates, or any other type of air pollutants, as fossil fuel based power sources do. Hence clean energy from wind is used to generate electricity that is being exported to the grid.

### **Technical Details:**

The technical details of the equipments are as follows:

S.No	Item	Units	Description	
1	Make		Suzlon	Suzlon
2	Model No.		S66	S64
3	Rating	kW	1250	1250
4	Rotor Diameter	M	66	64
5	Highest hub height	M	74	74
6	Type of tower		Tubular	Tubular
7	No. of blades		3	3
8	Power regulation		Pitch	Pitch
9	Type of generator		Asynchronous	Asynchronous
10	Speed		Dual	Dual
11	Rated voltage	V	690 V (50 MHz) 600 V (60 Hz)	690 V (50 MHz) 600 V (60 Hz)
12	Cut-in wind speed	m/s	3	3
13	Cut-out wind speed	m/s	22	22
14	Rated wind speed	m/s	14	14
15	Survival wind speed	m/s	67	67
16	Auxiliary consumption	kWh	Approx. Less than 1% of generation	Approx. Less than 1% of generation

17	Reactive energy requirement	kWh	Approx 10% of active energy	Approx 10% of active energy
18	Wind power density	Watt/m <sup>2</sup>	289	289
19	Capacity Utilization	%	20	20

### **3. Sustainable Development Aspects of the project activity**

The project activity contributes to sustainable development of the region by improving the socio-economic, environmental and technological well being:

#### Socio-economic well being:

The project activity provides direct and indirect employment opportunities among the local populace. This prevents the workers from migrating towards urban population in search of employment.

Since the population does not migrate, there is a good possibility of trading to occur within the local population.

Development of small and micro scale industries contribute to the economic well being of the region.

#### Technological well being:

The project activity uses clean energy technology that employs two wind energy generators (WEGs) of capacities 1.25 MW each. The technology adopted is an environmental friendly one and it serves as an exemplar for other promoters in and around the region.

#### Environmental well being:

The project activity contributes to the mitigation of greenhouse gas emissions and hence reduces the impacts of global warming.

The project activity exports clean energy to the grid, hence increasing the contribution of power from the renewable sector

#### **4. Monitored parameters**

The methodology adopted for this project activity is referred from the list of small scale methodologies adopted for CDM project activities. The title and reference of the same is indicated below:

Title: “AMS I.D. Grid connected renewable electricity generation”, Version 14

Reference:

[http://cdm.unfccc.int/UserManagement/FileStorage/UQ8WZYCH5IVSPBNF276OM  
GE10TDX9A](http://cdm.unfccc.int/UserManagement/FileStorage/UQ8WZYCH5IVSPBNF276OMGE10TDX9A)

#### **Monitoring, including estimation, modelling, measurement or calculation approaches:**

The energy exported from the project to the grid (EG<sub>y</sub>) would be monitored as mentioned in section below. Import of energy, if any, from the grid would be subtracted from the above parameter to arrive at the net energy exported to the grid by the project activity.

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

The GHG emission reduction sources for a typical wind project include the areas of gross electricity that is generated, the auxiliary consumption by the grid and the net electricity exported to the grid. The emission reduction source does not include any project emissions or leakage as the source of emission reduction is only from the WEG installed at the project site. The generation data will be maintained on a monthly basis. However, all data would be archived electronically till two years post expiration of the crediting period. The O&M team holds the sole responsibility of the monitoring right from the choice of measurement methods till the archiving of data.

Data / Parameter:	EG <sub>BL,y</sub>
Data unit:	MWh
Description:	Electricity supplied by machine to the grid

	by the project activity located at Dhule, Maharashtra
Source of data to be used:	Invoices raised by the project promoter will be cross checked against the power off taker
Value of data applied for the purpose of calculating expected emission reductions	MWh/year (as per actual)
Description of measurement methods and procedures to be applied:	100% of the data would be measured hourly and recorded monthly on a continuous basis. The data would be archived electronically till two years post expiration of the crediting period.
QA/QC procedures to be applied:	The data would be double checked by receipt of sales
Any comment:	-

## **Description of Monitoring Plan**

The O&M team is in charge of the framing of monitoring plan. The aim of the monitoring plan is to set guidelines for the project proponent to monitor the critical parameters regularly and to ensure quality and accuracy in monitoring. The monitoring plan elaborates on the functions of the monitoring team and procedures to be followed in monitoring of the parameters. The operation & maintenance team at Dhule site falls under 13 sections, each section with a dedicated section in charge. All the section in charge's report to the overall site in charge; entirely responsible for the O&M at the Dhule site.

### **Monitoring and Quantification:**

The proposed VER project activity requires evacuation facilities for sale to grid and the evacuation facility is essentially maintained by the state utility MSEDCL, which also requires electricity generation measurements.

The project activity has therefore envisaged two independent measurements of generated electricity from the wind turbines. The primary recording of the electricity is fed to the state utility grid and will be carried out jointly at the incoming feeder of

the state power utility, MSEB. The metering is carried out at the sub station via a common meter for a group of windmills that is inclusive of the WEGs not a part of this proposed VER project activity.

Only the final apportioned electricity export and import for each WTG would be reported by MSEDCI in the reports on energy delivered to MSEDCI grid. In the MSEDCI reports the units exported from a particular WTG are expressed as “import kWh” from the particular WTG to MSEDCI. Similarly the units imported by a WTG is expressed as “export kWh” by MSEDCI to the WTG.

The primary monitoring is done through a main meter which is located at the sub station. Only in case of the main meter not being functional, the secondary monitoring will provide a backup (fail-safe measure) which is done through Check meters. Each WEG is equipped with an integrated electronic meter called controller meter. This meter is connected to the Central Monitoring Station (CMS) of the wind farm maintained by Suzlon. The generation data of individual machine is monitored as a real-time entity at CMS. The snapshot of generation on the last day of every calendar month is kept record off, both in electronic as well as in the printed (paper) form.

JMRs are taken at the feeder level by the local electricity utility. Against the net electricity generation invoices are raised. SISL is the responsible entity for collecting the necessary data in order to monitor emission reductions generated by the project activity.

Suzlon maintains all the individual controller readings of each of the WEGs for all the machines at the location. After recording the Joint Meter values every month, in presence of the State Electricity Board personnel, SISL apportions the generation values for each of the WEGs accordingly (based on the controller data).

The proportioning of electricity export and import for each WEG is derived from WTG controller data for each WEG. The net electricity generation from each WEG is determined by MSEDCI as follows:

$$\text{Export from WTG} = \frac{\text{Generation at WTG controller}}{\text{Total generation at all WTG controllers for the feeder}} \times \text{Export from MSEDL energy meter}$$

$$\text{Import from WTG} = \frac{\text{Generation at WTG controller}}{\text{Total generation at all WTG controllers for the feeder}} \times \text{Import from MSEDL energy meter}$$

$$\text{Net electricity export from WTG} = \text{Export from WTG} - \text{Import from WTG}$$

For instance, July 2008 for the machine K270 as per the Joint Meter Reading report –

Export reading at Sub Station for all machines – 720 kWh (import from grid)

Import reading at Sub Station for all machines – 8025440 kWh (export to grid)

Total generation at all WTGs – 8229279 kWh

Generation at WTG Controller is 323730 kWh.

Therefore, to arrive at the Export from individual WTG

$$\text{Import from WTG} = (323730/8229279)*720$$

= 28.32 kWh (included as Export kWh against K270 in the JMR sheet of July 2008)

$$\text{Export from WTG} = (323730/8229279)*8025440$$

= 3515711.2 kWh (included as Import kWh against K270 in the JMR sheet of July 2008)

This apportioned data for all the customers / WEGs at the location is submitted to the MSEB. MSEB in turn prepares a credit note based on these values provided by SISL. The credit note then forms the basis for the invoice.

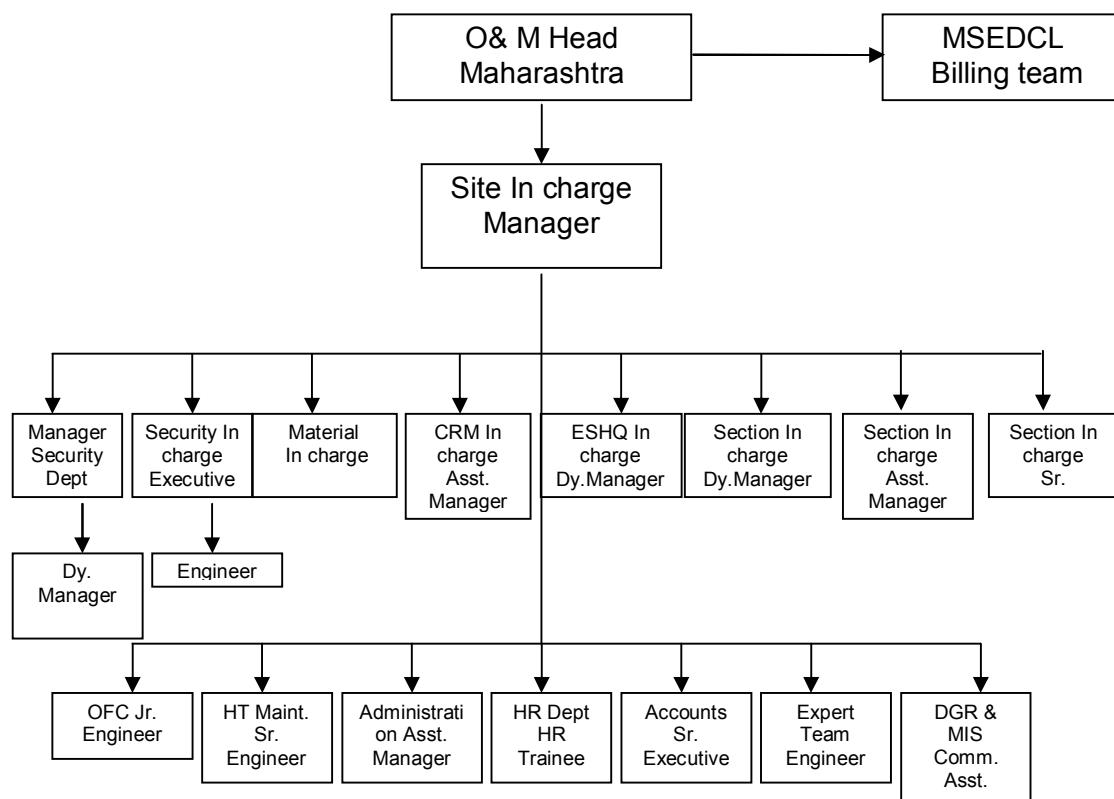
K470 and K484 are the two meters that belong to the PP (Magma). These meters are connected to 220 / 33 kV Valve / Valve and Gangapur substations. Please refer Appendix 2 for details.

SISL does the operation and maintenance of the installations and measurement of generated electricity is carried out by the state electricity utility.

Wherever, more than one Power Producer(s) are injecting energy produced by them using the common evacuation/ injection system and through the common metering equipment with MSEB, the joint meter reading are taken at common evacuation/ injection system and are supported by meter readings of individual power producers using such common evacuation/injection system. Based on this break up, limited to total energy injection, the power supplied from the individual power plant are to be regulated for the purpose of apportioning electricity exported to the grid. Please refer Annex for the metering details.

Calibration and Testing of meters are done annually. The Main meter and Check meter are tested for accuracy by MSEDC's testing division. The MSEDC carries out calibration, periodical testing, sealing and maintenance of meters in the presence of authorized representative(s) of the seller and the representative(s) of the seller signs on the results obtained thereof.

The operation and maintenance structure for the project activity is depicted as follows:



### Roles and Responsibilities:

**Head – O&M:**

The Head – O&M leads the operation and maintenance team of the state and holds responsible for the operation of wind machines throughout the state as per contract terms and conditions. The O&M head aims for accident free operation and full implementation of

**Environment Safety Health Quality (ESHQ)** at the state. In terms of any major breakdown, the O&M head sees to it that immediate action is taken.

**Site in charge:**

The site in charge functions as the manager and aims to operate the site with minimum break downs. The site in charge manages the man power for operation and ensures the errors and line losses are well within the prescribed limits. The site in charge is responsible for the overall maintenance of the wind machine as per the standard. The site in charge directly coordinates with other departments like OFC team for any cable connectivity issues, Human Resources for any employee related issues, administration department for any improvisation at the site, accounts department for issues relating to the invoice and payment, MIS team for issues regarding data recording and archiving of daily generation reports (DGR) and expert team for any R&D issues. The site in charge reports to the general manager, who heads the operation and maintenance at Maharashtra.

**Section in charge:**

The section in charge also holds similar responsibilities as that of site in charge but is restricted to a single section of the site. The section in charge reports to the assistant and deputy manager who in turn report to the senior manager. The senior manager reports to the site in charge on the overall maintenance and operation of the wind machine. Security engineers are present to watch over the project site on a shift basis. These security engineers report to the deputy manager of security department.

**HT in charge:**

The HT in charge holds the responsibility for the maintenance of HT yard. The HT in charge takes the responsibility of the transmission lines and aims to achieve zero break downs at the transmission lines. It is the role of the HT in charge to ensure JMR at specific time and to ensure release of credit report and payment to the promoter from MSEDC at the scheduled time.

**Customer Relationship Management (CRM) in charge:**

The CRM in charge holds the responsibility of sending the generation reports to the customer from the project site on a daily basis. Also the archiving of data on a monthly basis, generation of invoice, ensuring collection from MSEDCCL are additional responsibilities of the CRM in charge. In case of any issues in the generation reports or payment, both the MSEDCCL and the project promoter approach the CRM in charge for further clarifications.

**Material in charge:**

The material in charge takes care of the material inventory at store. The material in charge plans the correct choice of material during the period of high winds. The calibration for the equipments involved in the metering of electricity generation at the project sites is being taken care by the material in charge.

**Security in charge:**

The security in charge-executive ensures the overall security of the wind machine, the employees working at the project site and the materials at the project site. The security in charge-executive reports to the manager-security department in terms of any security issues related to the project site.

**Environment Safety Health Quality (ESHQ) in charge:**

The ESHQ initiates all the ESHQ activities at the project site. The following are the goals of the ESHQ in charge:

- a. Zero accident
- b. Zero damage to environment
- c. Zero damage to material

The ESHQ in charge also ensures Personal Protective Equipments, at the project site to safe guard any damage to the employees as well as the materials at the project site. The project activity has installed the latest state of art monitoring and control equipment that measure, record, report, monitor and control various key parameters of WEG operation. A daily generation report is prepared and updated in customer web generation website and emailed on a daily basis to the developers. Overall plant electricity generation is monitored using main billing meter at MSEDCCL sub-stations. This data is used for billing purposes and this meter is maintained by MSEDCCL.

**Recording, reviewing & verifying:**

A daily log is maintained by O&M team about issues related to power generation i.e breakdowns, machine availability, grid availability, generation data, shutdown, grid

failure etc., A monthly MIS is prepared based on this data and is reviewed time to time with senior management team of the supplier.

Monthly billing records by SEB and monthly MIS are reviewed in detail for taking any corrective action, if required. All WEGs are connected to single monitoring stations called as Central Monitoring Stations (CMS) for online performance monitoring as well as analysis. The data of CMS is analyzed by expert team for any corrective measures.

#### Reliability:

Main billing meter at sub station is calibrated regularly by SEB officials as per the practice of SEB meter testing. If there are any changes taking place in the meter like replacements, repairs tec., same records are maintained.

Location meter in the panel also records the generation of each turbine; these meters are maintained by O&M team. As per the current practice, if line losses are more than 5% then corrective actions are taken.

#### Frequency:

Location wise electricity generation data is collected daily by O&M team. Main billing meter reading is done every month jointly by promoter representative (O&M team) and MSEDC.

### **Data Archiving**

Log sheets and the other records archiving will be done for crediting period plus two years

### **Training of Personnel**

All personnel are trained by the equipment suppliers who are also the O&M suppliers to the PP.

### **Emergency Preparedness**

In case of any abrupt breakdown, the fault will be immediately identified by the O& M personnel. All minor faults shall be taken care by the O& M personnel, In case of any major faults, the grid personnel will be informed and replacement of the equipment shall be made within 24 hours.

### **Uncertainties Related To GHG Emissions**

No uncertainties are envisaged / foreseen relating to GHG emission.

## **5. Formula Applied**

Calculation of Emissions Factor ( $EF_{grid,y}$ ) for displaced electricity, exported to grid by project activity:

The  $EF_{grid,y}$  is the same as the combined margin CO<sub>2</sub> emission factor of NEWNE which has been obtained from the CO<sub>2</sub> baseline database for the Indian Power Sector as provided by the CEA, the Ministry of Power, Government of India (GoI).

<http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>, version 4.

The Combined Margin CO<sub>2</sub> emission factor for the grid has been computed taking the weighted sum of the Simple OM and the BM (where  $w_{OM} = 0.75$  and  $w_{BM} = 0.25$ ) as shown in the formula (CEA version 4):

$$EF_y_{grid,y} = w_{OM} * EF_{OM,y} + w_{BM} * EF_{BM,y}$$

Calculation of baseline emissions (BE<sub>y</sub>):

$$BE_y = (EG_y * EF_y)$$

Where,

EG<sub>y</sub> = Electricity Generation (MWh)

And,

$$EG_y = EG_{y\ gross} - Aux_y$$

where,

EG<sub>y gross</sub> = Gross Electricity Generation (MWh)

Aux<sub>y</sub> = Auxiliary Consumption (MWh)

Emission Reductions (ER<sub>y</sub>):

$$ER_y = BE_y$$

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

$$\begin{aligned} \text{EFy}_{\text{grid},y} &= \text{WOM} * \text{EF}_{\text{OM},y} + \text{WBM} * \text{EF}_{\text{BM},y} \\ &= (0.75 * 0.9992) + (0.25 * 0.5977) \\ &= 0.8988 \text{ tCO}_2/\text{MWh} \end{aligned}$$

Calculation of baseline emissions (BE<sub>y</sub>):

$$\text{BE}_y = (\text{EG}_{\text{BL},y} * \text{EF}_{\text{CO}_2})$$

Emission Reductions (ER<sub>y</sub>):

$$\text{ER}_y = \text{BE}_y - \text{PE}_y - \text{LE}_y$$

The project activity does not contribute to any project emissions or leakage. Hence PE<sub>y</sub> and LE<sub>y</sub> = 0,

Therefore the above equation reduces to

$$\text{ER}_y = \text{BE}_y$$

## **6. Calculations and Results**

Based on the formula in the previous section, the following emission reduction units have been arrived at.

Emission Factor (NEWNE Grid) – 0.8988 t/MWh

Annual Generation for Year 2006-07 – 3303.86 MWh

Annual Generation for Year 2007-08 – 3676.24 MWh

Annual Generation for Year 2008-09 – 3693.54 MWh

Parameter	Notation	Value	Units
Net electricity generated by the project activity during the year 2006-07		3304	MWh
Net electricity generated by the project activity during the year 2007-08		3676	MWh
Net electricity generated by the project activity during the year 2008-09		3694	MWh
	W <sub>OM</sub>	0.75	
Operating margin emission factor for the NEWNE Grid	EF <sub>OM,y</sub>	0.9992	tCO <sub>2</sub> /MWh
	W <sub>BM</sub>	0.25	
Build margin emission factor for the NEWNE Grid	EF <sub>BM,y</sub>	0.5977	tCO <sub>2</sub> /MWh
Combined margin emission factor for the NEWNE Grid	EF <sub>grid,y</sub>	0.8988	tCO <sub>2</sub> /MWh
Baseline emissions due to the project activity during the year 2006-07		2969.59	Tonnes/year
Baseline emissions due to the project activity during the year 2007-08		3304.30	Tonnes/year

Baseline emissions due to the project activity during the year 2008-09		3319.85	Tonnes/year
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Year	Baseline Emissions (Tonnes/year)	Leakages (Tonnes/year)	Emission Reductions (Tonnes/year)
2006- 07	2969.59197	0	2969.59197
2007-08	3304.296529	0	3304.296529
2008-09	3319.848458	0	3319.848458
<b>Total</b>			<b>9593</b>

Based on EB 52, Annex 60, Guidelines for Assessing compliance with the calibration frequency requirements, the highest error percentage has been applied to the generation values in the year 2007. The calibration reports for the year 2006 and 2008 indicate that the error percentage is well below the accuracy class of the meters (0.2 s class). Therefore, 0.2% has been considered as the error percentage.

The error computation has been applied to both meters (K270 and K484) from the March 2007 to May 2008, 0.2% has been added to import and 0.2% deducted from export values. Please refer the detailed emission reduction calculation sheet for details.

Month	K270		
	Error percent applied (calibration) to export	Error percent applied (calibration) to import	Net
March 2007	1,002.00	84,132.40	83,130.40
April 2007	436.87	193,068.09	192,631.22
May 2007	90.18	322,689.33	322,599.15
June 2007	456.91	264,113.71	263,656.80
July 2007	358.72	295,253.31	294,894.59
August 2007	134.27	277,274.34	277,140.07
September 2007	489.98	81,507.66	81,017.68
October 2007	874.75	49,252.30	48,377.55
November 2007	1,149.29	19,262.40	18,113.10
December 2007	705.41	36,529.79	35,824.39

January 2008	825.65	55,379.02	54,553.37
February 2008	808.61	71,759.19	70,950.58
March 2008	872.74	85,022.61	84,149.87
	-	-	-
April 2008	255.51	182,935.40	182,679.89
May 2008	40.08	398,404.59	398,364.51

**K484**

Month	Error percent applied (calibration) to export	Error percent applied (calibration) to import	Net
March 2007	1,923.84	83,608.45	81,684.61
			-
April 2007	1,292.58	232,191.69	230,899.11
May 2007	256.51	509,912.13	509,655.62
June 2007	599.20	246,154.70	245,555.51
July 2007	915.83	266,151.63	265,235.80
August 2007	297.59	231,321.43	231,023.84
September 2007	668.33	123,726.05	123,057.72
October 2007	1,510.01	52,429.93	50,919.92
November 2007	1,159.31	13,617.71	12,458.40
December 2007	620.24	36,761.33	36,141.09
January 2008	785.57	51,591.61	50,806.04
February 2008	783.56	71,980.75	71,197.19
March 2008	1,073.14	106,454.66	105,381.52
			-
April 2008	504.01	203,544.10	203,040.09
May 2008	3.01	432,059.15	432,056.14

## 7. Data monitored

<b>2006 - 07</b>	<b>Machine 1 - K484</b>	<b>Machine 2 - K-270</b>	<b>kWh</b>	<b>MWh</b>
April	34,038	55,239	89,277	89
May	401,553	86,416	487,969	488
June	338,654	51,449	390,103	390
July	418,643	196,045	614,688	615
August	439,886	442,954	882,840	883
September	139,126	96,088	235,214	235
Oct	35,640	20,850	56,490	56
Nov	15,383	19,546	34,929	35
Dec	34,740	37,071	71,811	72
Jan	32,044	82,039	114,083	114
Feb	123,517	38,124	161,641	162
March	81,685	83,130	164,815	165
<b>Total (Annual)</b>				<b>3303.86</b>

<b>2007 – 08</b>	<b>K484</b>	<b>K-270</b>	<b>kWh</b>	<b>MWh</b>
April	230,899	192,631	423,530	424
May	509,656	322,599	832,255	832
June	245,556	263,657	509,212	509
July	265,236	294,895	560,130	560
August	231,024	277,140	508,164	508
September	123,058	81,018	204,075	204
Oct	50,920	48,378	99,297	99
Nov	12,458	18,113	30,572	31
Dec	36,141	35,824	71,965	72
Jan	50,806	54,553	105,359	105
Feb	71,197	70,951	142,148	142
March	105,382	84,150	189,531	190

<b>Total</b>
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3676.24
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<b>2008 - 09</b>	<b>K484</b>	<b>K-270</b>	<b>kWh</b>	<b>MWh</b>
April	203,040	182,680	385,720	386
May	432,056	398,365	830,421	830
June	243,216	294,472	537,688	538
July	252,417	315,683	568,100	568
August	270,667	248,040	518,707	519
September	143,388	111,495	254,883	255
Oct	38,282	28,129	66,411	66
Nov	15,604	44,465	60,069	60
Dec	32,329	39,004	71,333	71
Jan	37,712	36,812	74,524	75
Feb	63,667	57,941	121,608	122
March	112,975	91,104	204,079	204
<b>Total</b>				<b>3693.543</b>

## 8. ABBREVIATIONS

VCS	Voluntary Carbon Standard
VCU	Voluntary Carbon Unit
CEA	Central Electricity Authority
tCO2	Tonnes of Carbon Dioxide
GHG	Green House Gas
NEWNE	North, East, West, North East
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MSEB	Maharashtra State Electricity Board
MW	Mega Watt
O&M	Operation and Maintenance
PD	Project Description
M	Metre
WEG	Wind Energy Generator
m <sup>2</sup>	Square metre
UNFCCC	United Nations Framework Convention on Climate Change
Cm	Centi Metre
NH	National Highways
kW	Kilo watt
Hz	Hertz
JMR	Joint Meter Reading
m/s	Metre per second
kWh	kilo watt hour
V	Volt
AMS	Approved Methodology Small-scale
CM	Combined Margin
BM	Build Margin
OM	Operating Margin
IRR	Internal rate of return
EG <sub>BL,y</sub>	Net electricity generated by the project activity
AUX <sub>y</sub>	Auxiliary Consumption by the project activity
EG <sub>gross,y</sub>	Gross electricity generated by the project activity

CRM	Customer relationship management
ESHQ	Environment Safety Health Quality
Dy	Deputy
Jr	Junior
HR	Human Resources
HT	High Tension
Sr	Senior
MIS	Management Information Systems
EF grid,y	Emission factor for the grid
GoI	Government of India
ERy	Emission Reduction
BEy	Baseline emissions
MoEF	Ministry of Environment & Forests
PPA	Power purchase agreement
OFC	Optical Fibre Connectivity
DGR	Daily Generation Reports

## Appendix 1

WTG Number	Financial Year	Period	Feeder to which the WTGs are connected	Main Meter and Check Meter Sr. No.	Calibration Certificate Date
K-270	06-07	31-Mar-06 to 30-June-06	Jamde-11	4725786 4738064	28.03.06 & Letter Dated:- 25-07.06 of Feeder Change.
		1-Jul-06 to Mar-07	Walve-II	4725786 4738064	
	07-08	1-April-07 to 31-Mar-08	Walve-II	4725786 4738064	Request Letter / Follow Letter to MSEDCL 12-10.07
	08-09	1-April-07 to 31-Mar-08	Walve-II	4725786 4738064	27.05.08
K-484	06-07	30-Apr-06 to Mar-07	Nandurbar-1	4860902 4860904	07.05.06
	07-08	1-April-07 to Mar-08	Nandurbar-1	4860902 4860904	Request Letter / Follow Letter to MSEDCL 12-10.07
		1-April-08 to 31-Sept-08	Nandurbar-1	4860902 4860904	
	08-09	1-Oct-08 to Nov-08	Walve-III	4863438 4862469	Location Shifting letter Dt.08-09-08
		1-Dec-08 to Mar-09	Gangapur-07	4961766 4890563	

## Appendix 2

