Voluntary Carbon Standard

19 November 2007

Date of the VCS PD

16/11/2009
Version 1.4

Table of Contents

1 Description of Project:

1.1 Project title

Energy from renewables

1.2 Type/Category of the project

Project Type: I- Renewable Energy Projects

Category: I.D. Renewable Electricity Generation for a Grid.

According to the VCS 2007 programme guidelines, any combination of GHG projects or project categories that meets the requirements of the VCS 2007 can be registered as a grouped project. This project is neither a combination of GHG projects nor a combination of project categories, and therefore, not a Grouped project.

As per the Voluntary Carbon Standard 2007.1, projects that result in less than 5,000 tonnes of CO_2 equivalent GHG emissions reductions or removals per year are called as "Micro projects". The project activity contributes to 3,096 tonnes of CO_2 equivalent (tCO2e) of emission reductions per year during the ten crediting period. Hence this project can be categorised as a "Micro project"

1.3 Estimated amount of emission reductions over the crediting period including project size:

The implementation of this project activity is estimated to result around annual emissions reductions of 3,096 tCO_2e and hence shall reduce 30,960 tCO_2e over the ten year crediting period as tabulated below:

Year	Estimate of GHG abatement (in tCO_2e)
April 2006- March 2007	3,096
April 2007- March 2008	3,096
April 2008- March 2009	3,096
April 2009- March 2010	3,096
April 2010- March 2011	3,096
April 2011- March 2012	3,096
April 2012- March 2013	3,096

April 2013- March 2014	3,096
April 2014- March 2015	3,096
April 2015- March 2016	3,096
Total emission reductions (tCO_2e)	30960
Total number of crediting periods	Ten years
Annual average over the crediting period of emission reductions (tCO_2e)	3,096

1.4 A brief description of the project:

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 during 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.

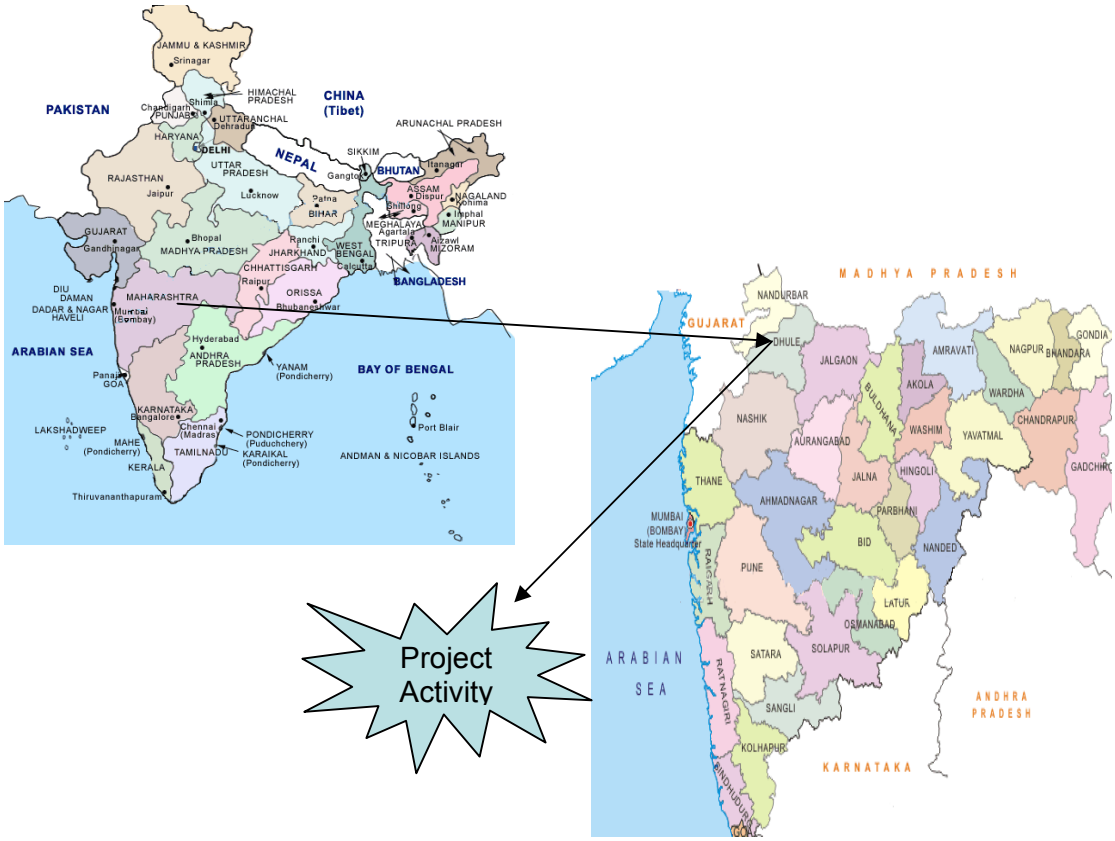
1.5 Project location including geographic and physical information allowing the unique identification and delineation of the specific extent of the project:

The project activity is located at Ranjangaon village, Sakri taluk, Dhule district, Maharashtra, India.

The chief occupation of this district is agriculture. Dhule is bound by Satpuda hill ranges in the North, whose height varies between 300 to 600 Meters above Mean Sea Level. Dhule receives annual rainfall of 39.5 cm and is well connected by rail and roadways. The major highways which run through Dhule are: NH-6 (Surat - Nagpur), NH-3 (Mumbai - Agra) and NH-211 (Dhule - Solapur).

S.No	Capacity	Model No	Latitude	Longitude	Location

					(Village/Taluk/ District/State
1.	1.25 MW	S-66	N21° 19’ 44.8”	E74° 20’ 32.6”	Ranjangaon Village, Sakri Taluk
2.	1.25 MW	S-64	N21° 10’ 40.7”	E74° 12’ 27.9”	Dhandane Village, Nandurbar Taluk



1.6 Duration of the project activity/crediting period:

Project start date: 11/11/2005 (Date on which the Purchase Order was placed)

Crediting period start date: 31/03/2006 (Date on which the first monitoring period commences)

VCS project crediting period: Ten years

1.7 Conditions prior to project initiation:

The project is a green field project and there was no activity prior to the project initiation.

1.8 A description of how the project will achieve GHG emission reductions and/or removal enhancements:

The project activity displaces greenhouse gas emissions which would otherwise have been emitted to the atmosphere by thermal power stations that dominate the grid stations in India. By evacuating the energy generated from the WEGs to the regional grid, equivalent quantum of emissions from fossil fuel burning power plants would be displaced, thereby achieving emissions reductions. Moreover, energy generated by the WEGs is cleaner among the renewable sources of energy in terms of pollutants as well as GHG emissions to the atmosphere.

1.9 Project technologies, products, services and the expected level of activity:

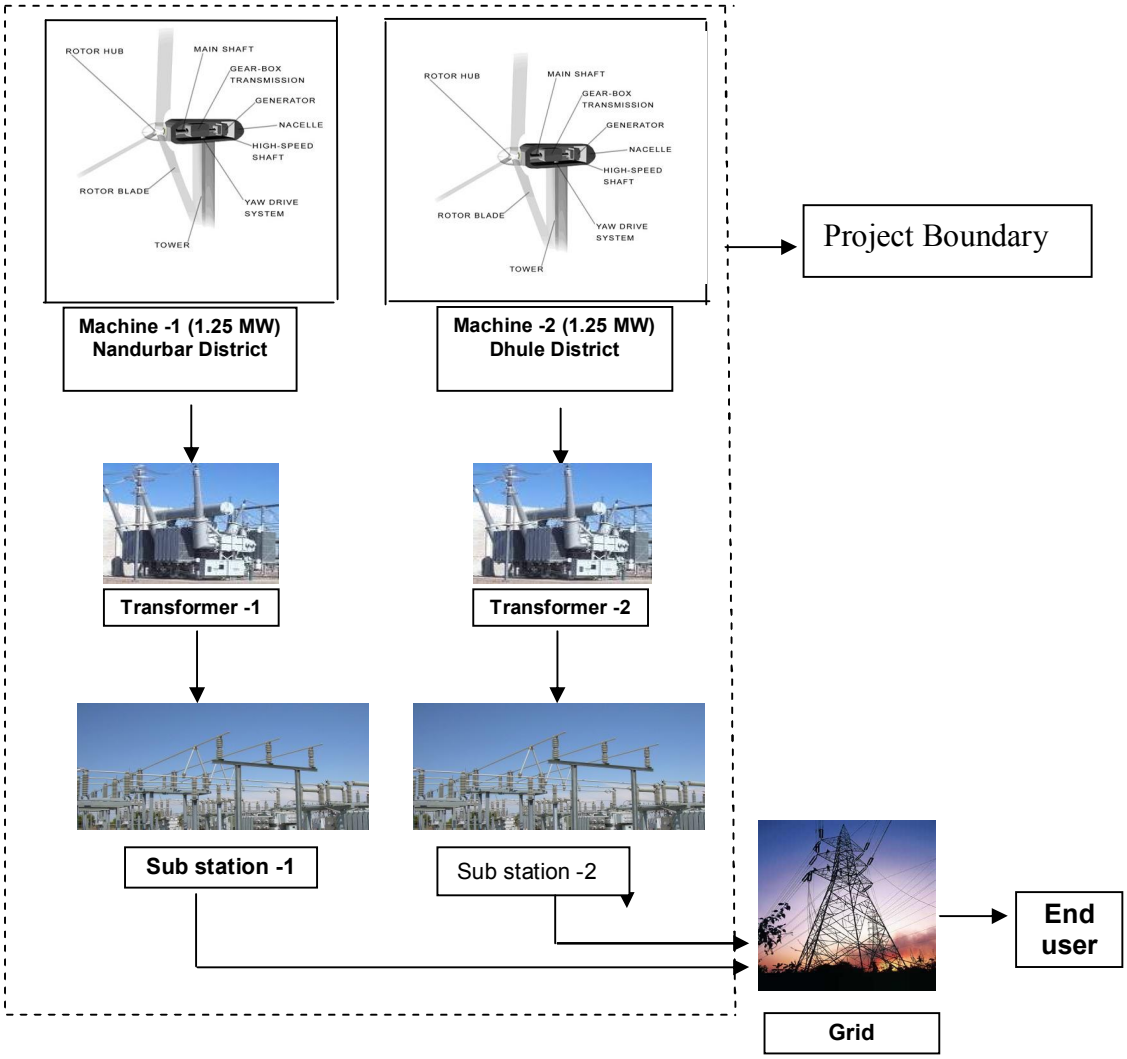
The technical details of the equipments are as follows:

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		Approx 10% of	Approx 10% of

		kWh	active energy	active energy
18	Wind power density	Watt/m^2	289	289
19	Capacity Utilization	%	20	20

The project boundary consists of wind energy generators, the transformers, the metering equipments for each generator and the corresponding substations for both the machine 1 and machine 2 till the point of evacuation. The expected level of activity is restricted to take place within the defined project boundary.

Project Boundary:



1.10 Compliance with relevant local laws and regulations related to the project:

Environmental clearances are not applicable to wind power projects in India as they do not contribute to air or water pollution. Projects requiring an environmental clearance are listed under the Schedule I of the Environment Impact Assessment Notification dated 27/01/1994 and its subsequent amendments. Therefore, they do not require the Clearances (Air and Water) from the local Pollution Control Board.

Apart from the environmental clearance, the following clearances were obtained for the project activity in compliance with the relevant laws and regulations.

Clearances/Agreements	Source	Date	Supporting Document
Power Purchase Agreement (PPA)	Maharashtra state electricity distribution co. ltd (MSEDCL)	29-Apr-05	Copy of PPA
Permission for grid connectivity	Maharashtra state electricity distribution co. ltd (MSEDCL)	22-Aug-05	Consent order fron MSEDCL
Certificate of commissioning - Machine -1	Maharashtra state electricity distribution co. ltd (MSEDCL) O & M circle, Dhule	29-Mar-06	Commissioning Certificate
Certificate of commissioning - Machine -2	Maharashtra state electricity distribution co. ltd (MSEDCL) O & M circle, Dhule	31-Mar-06	Commissioning Certificate

1.11 Identification of risks that may substantially affect the project's GHG emission reductions or removal enhancements:

The major identified risks that substantially affect the projects GHG emission reductions are:

The fluctuation in the availability of wind and the uncertainty in the power sector policies that affect project revenues.

1.12 Demonstration to confirm that the project was not implemented to create GHG emissions primarily for the purpose of its subsequent removal or destruction.

The project does not create any GHG emissions. The project was implemented as a green field project and as a clean energy project primarily aimed at GHG emissions reductions and contribution to sustainable development. There was no intention to create GHG emissions during its implementation for its subsequent removal. The promoter submits an undertaking letter stating the same.

1.13 Demonstration that the project has not created another form of environmental credit (for example renewable energy certificates).

The project has not created any form of environmental credit for itself. There are no renewable energy certification programs in the region. The promoter submits an undertaking letter stating the same.

1.14 Project rejected under other GHG programs (if applicable):

Not applicable. This project is being directly considered under Voluntary Carbon Standard (VCS) 2007.1. The promoter submits an undertaking letter stating the same.

1.15 Project proponents roles and responsibilities, including contact information of the project proponent, other project participants:

Organization:	Magma Fincorp Limited
Street/P.O.Box:	24, Park Street,
Building:	Magma House
City:	Kolkatta
State/Region:	West Bengal
Postfix/ZIP:	700 016
Country:	India
Telephone:	2229 1222
FAX:	2245 7424
E-Mail:	mvchandran@magma.co.in
URL:	www.magma.co.in:8080
Represented by:	M.V.CHANDRAN
Title:	Associate Vice President
Salutation:	Chandran
Last Name:	Chandran
Middle Name:	V for Venkatraman
First Name:	M for Manjapra
Department:	Corporate Finance
Mobile:	98318 67010
Direct FAX:	Nil
Direct tel:	Nil
Personal E-Mail:	victorchandran@gmail.com

Magma Fincorp Limited would be the project participant, and all communications with the validator and/or verifier as well as with the VCS registry would be the entity listed in the table above so as to enable to earn Voluntary reduction credits for the said project.

1.16 Any information relevant for the eligibility of the project and quantification of emission reductions or removal enhancements, including legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and temporal information.):

The project activity generates 3,445 MWh of renewable power and contributes to emission reductions of around 3,096 tCO_2e to the atmosphere, this translates that the project activity replaces around 3,445 MWh of electricity that would have been generated using conventional fossil fuels. 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

1.17 List of commercially sensitive information (if applicable):

The financial workings with relevant information are considered as commercially sensitive information, that is associated with the company.

2 VCS Methodology:

2.1 Title and reference of the VCS methodology applied to the project activity and explanation of methodology choices:

Version 14 of AMS I.D - "Grid connected renewable electricity generation"
Reference:
http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_PHPV5WESAC
MBTJ2YY54GAJYSIEI3HD

2.2 Justification of the choice of the methodology and why it is applicable to the project activity:

AMS I.D Applicability conditions	Project applicability
This category comprises renewable energy generation units, such as photo voltaic, hydro, tidal/wave, wind, geothermal, and renewable biomass, that supply electricity to and/or displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.	The project activity involves wind energy generating units that supply electricity to the regional distribution system (state grid) that is supplied by a number of fossil fuel fired units.
If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable	The project has only renewable components, the capacity of which is lower than 15 MW. The capacity of the project activity would remain within the small scale limits throughout the crediting period.

component. If the unit added co-fires fossil fuel1, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project activity does not included co-fired systems.
Combined heat and power (co-generation) systems are not eligible under this category	The project activity involves only renewable power generation. Hence co-generation systems are not applicable to the project activity.
In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct2 from the existing units.	The project activity involves the installation of new renewable energy generation units where currently no power generation occurs. The aggregate capacity of these units is 2.5 MW which is lower than the threshold limit of 15 MW. Moreover, the project activity would remain within the small scale limits throughout the crediting period.
Project activities that seek to retrofit or modify an existing facility for renewable energy generation are included in this category. To qualify as a small-scale project, the total output of the modified or retrofitted unit shall not exceed the limit of 15 MW.	The project activity involves the installation and implementation of wind energy generators that generates renewable energy. There are no retrofitting or modifications involved, hence this criteria is not applicable

2.3 Identifying GHG sources, sinks and reservoirs for the baseline scenario and for the project:

Baseline Scenario		Project Scenario	
GHG source	Fossil fuel power plants connected to MSEDCL grid	GHG Source	None
GHG sink	Not applicable	GHG sink	Not applicable
Reservoir	Not applicable	Reservoir	Not applicable

2.4 Description of how the baseline scenario is identified and description of the identified baseline scenario:

As per the CDM methodology prescribed by UNFCCC (AMS I.D) specified for this project category in Appendix B to simplified modalities and procedures, "The baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient calculated in a transparent and conservative manner".

Whereas the kWh produced by the WEGs can be monitored directly through energy meters, the methodology AMS.I.D prescribes the calculation of emission factor as per ACM0002. The method "combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology ACM0002" has been used in this document to calculate the emission factor. The operating margin and build margin values for calculation of combined margin are adopted from the latest Central Electricity Authority (CEA)'s CO_2 database.

The project activity displaces electricity from the MSEDCL (Maharashtra State Electricity Distribution Co. Ltd) grid which is part of the NEWNE grid of India. In the absence of this project, equivalent quantity of electricity would be generated from the NEWNE grid. Hence for the calculation of baseline emission factor, all generating sources connected to the NEWNE grid of India have been considered. Therefore the baseline for the project activity would be a product of kWh generated by the WEGs and the emission factor of the NEWNE.

2.5 Description of how the emissions of GHG by source in baseline scenario are reduced below those that would have occurred in the absence of the project activity (assessment and demonstration of additionality):

According to clause 5.8, the project proponent would like to demonstrate additionality using the following steps:

Test 1 – Project test

<u>Step 1: Regulatory Surplus</u>

The project is not mandated by any enforced law, statute or other regulatory framework. The project activity is an entirely voluntary initiative taken up by the project promoter.

Step 2: Implementation Barriers

The project activity was seriously considered in the company's board as early as 28th October 2005. The purchase order was placed on 17th November 2005 and the project was commissioned during March 2006. The power purchase agreement was signed with MSEDCL on 29th April 2006. Meanwhile, the project ownership was under transition. The project activity, till commissioning, was under the ownership of Shrachi Infrastructure Limited. Shrachi Infrastructure Limited was then merged with Magma Leasing Limited (transfer with effect from 1 April 2006). The High Court sanctioned this merger on 12, February 2007. The merger was then approved by the shareholders on 30, March 2007.

With the project history been described as above, the company faced the following barriers that are described in the following sections:

Investment Barrier

The project activity involves huge capital investment for the purchase and installation of wind machines. Wind availability is a major factor that impacts electricity generation and the revenues from wind power project depend on the generated electricity generation, which is not under the control of the project promoter.

The project proponents worked out on the financial viability of the project activity where the Internal Rate of Return (IRR) was 5.98%. The company considered the commercial lending rate of the Reserve Bank of India as the benchmark, which is 10.25% during the period September - October 2005[1]. The IRR considering VCU (Voluntary Carbon Units) benefits works out to be around 10.18%.

With huge up front costs, the company has obtained 75% of the project cost as loan from IREDA. The company has to manage paying interest to IREDA and paying back the principle amount within six years (Repayment period) apart from handling of funds to operate the installed wind machines.

[1] http://www.rbi.org.in/scripts/WSSView.aspx?Id=9244

With respect to actual generation, it was also observed that only 65% of the minimum guaranteed generation was achieved[2] over a period of wind mill's operation, which works out to be a barrier in terms of achieving the full potential of generation as expected by the promoter.

The initial proponents (Shrachi Securities Limited) were facing a financial crunch during the initial stages of the project activity. Shrachi has indicated the same to the equipment suppliers, where they have indicated that in case funding for the project activity cannot be arranged, they would stop the project and Suzlon will have to return the advance payment made[3]. As anticipated, the loan sanctioning from IREDA happened only in May 2006. However, they could source funding from other sources – Magma's merger. Therefore, it is evident that the merger was crucial deciding factor for the project activity to continue.

Step 3: Common Practice

Installed Power Generation Capacity (MW) as on 31-03-2006

SL. NO.	REGION	HYDRO	THERMAL				NUCLEAR	R.E.S.@	TOTAL
			COAL	GAS	DSL	TOTAL			
1	Northern	11061.88	17592.50	3213.19	14.99	20820.68	1180.00	694.59	33757.15
2	Western	6681.33	20941.50	5080.72	17.48	26039.70	1300.00	1098.83	35119.86
3	Southern	10967.71	15992.50	3434.50	939.32	20366.32	880.00	4233.49	36447.52
4	Eastern	2496.53	13662.38	190.00	17.20	13869.58	0.00	111.67	16477.78
5	N. Eastern	1113.07	330.00	771.50	142.74	1244.24	0.00	46.86	2404.17
6	Island	5.25	0.00	0.00	70.02	70.02	0.00	5.42	80.69
7	All India	32325.77	68518.88	12689.91	1201.75	82410.54	3360.00	6190.86	124287.17

Capative Genrating capacity connected to the Grid (MW) = 14636

The total power generated in India as of 31.03.06 is indicated in the table above (CEA Annual Report 2005 -06). Out of the total generation, only 5.70% is from renewable sources including wind (MNES – Annual Report 2005). The report also states that 7100 MW is the capacity that accounts for this 5.70%, out of which wind power is 4434 MW (Source: http://mnes.nic.in/annualreport/2005_2006_English/CH2/5.htm).

[2] Reference: Guaranteed generation mentioned in the Purchase order dated 17.11.2005 Vs the actual generation achieved as per the generation report for the year 2005-2008
[3] Letter to Suzlon

More specifically in the state of Maharashtra, the total thermal generation as on March 2006 is about 12, 442.3 MW (which includes thermal, nuclear and hydro). (Source: CEA database, version 2).

Type	Installed Capacity (MW) as on March 2006 (Source: CEA, version 2).
Thermal	8757
Nuclear	860
Hydro	2825.3
Wind*	1001.3

* Source: Indian Wind Power Directory 2006

We observe that the total installed capacity of wind in the state of Maharashtra as on March 2006 is 1001.3 (Source: Indian Wind Power Directory 2006). With this we can assume that wind constitutes a about 7% of the grid mix in Maharashtra, which is a small proportion. Therefore, we can conclude that even in the state of Maharashtra wind power technology penetration is still low.

As per the Indian Wind Power Directory 2006, the state wise wind power installations for Maharashtra indicates that a total of 1001.3 MW (starting from 1992 – 93 till March 2006) has been installed. Further, the Directory also mentions that a total of 545.1 MW has been installed in the year 2005 – 2006 alone. With the total installed capacity of wind in the considered region, an analysis is being carried out to ascertain the total capacity of wind projects that has sought carbon revenues.

Projects that have sought CDM revenues were based on the data collated from different sources such as UNFCCC, IGES, and UNEP – CDM Pipeline.

The number of projects located in Maharashtra taken through the CDM have been compiled during the considered period, i.e., financial year 2005 – 06 (ending March 2006). Further, we have also compiled data on projects availing carbon benefits in the region up from 2000 up to March 2006 (as only projects starting after the year 2000 are eligible under CDM). Data on projects availing / seeking carbon credits though

CDM only is available in the public domain since voluntary carbon markets was not prevalent at that time.

The results reveal that in the year 2005 – 06 (start date of project activity is November 2005) a total of 425 MW have been taken through the CDM. Details pertaining to projects that have formally appointed a DOE and have undertaken the validation process only can be collated since there is no other authentic source of reference to obtain data on CDM projects (and there is no information on non CDM projects). Therefore, the remaining capacity (excluding the total capacity taken under CDM) is assumed to either have not considered CDM or have not approached a DOE / UNFCCC.

This analysis clearly indicates that over 50% (425 out of 545.1 MW, which is about 77%) of the total installed capacity in the state has considered CDM benefits. The remaining 120 MW (23%) can be assumed not to have considered CDM, due to the non availability of data on the public domain on the same.

Comparing only small scale projects (capacity of the project activity is less than 15MW), the data reveals that about 200 MW (FY 2005-06) have been taken through CDM route.

Also, if the total installed capacity from March 1992 till March 2006 is compared with the total projects taken under CDM, the results still reveal that a majority of the projects have considered CDM. A total of 701 MW (starting from 2000 till March 2006) out of the 1001.3 (March 1992 – March 2006) have been taken under the CDM route, which is about 70%.

This highlights the fact that CDM / VCS revenue is a key factor for wind projects in this region. (Please refer Annex 4 for list of project activities in Maharashtra taken through CDM).

As per the VCS Standard 2007.1,

"Step 3: Common Practice

• project type shall not be common practice in sector/region, compared with projects that have received no carbon finance.

Wind as a renewable green technology of energy production is not a common practise in the region considered. Even with this small proportion of energy generation being wind which is not a common practise, a majority of projects have considered Carbon revenues. Refer analysis above and Annex 4.

• *if it is common practice, the project proponents shall identify barriers faced compared with existing projects.*

Wind technology is not a common practice in the region, considering the penetration of this technology compared to other forms of power generation technologies.

• *demonstration that the project is not common practice shall be based on guidance in the GHG Protocol for Project Accounting, Chapter 7"*
The GHG Protocol for Project Accounting, Chapter 7 (Page 46 – 49) has been followed to justify the common practice test of the VCS standard 2007.1 for this project activity.

Summary
It may be noted from the above that the promoters faced prohibitive and real risks that acted as barriers to investing in wind energy projects. In spite of the above barriers, the project promoters have gone ahead and taken the risk of investing in wind energy projects which is not their core area of business. The project promoters hope that in the long run the revenue through sale of VCUs would help the wind power business to run in a sustainable manner.

In the absence of this GHG emission reduction project, there would not be any GHG emission reduction as the grid would have continued to remain an emission intensive source of electricity. Though the Ministry of Non-conventional Energy Sources (MNES)-India has plans under which 10% of the total power generated would be from renewable sources by 2012, there is no enforced law for realizing this objective.

3 Monitoring:

3.1 Title and reference of the VCS methodology (which includes the monitoring requirements) applied to the project activity and explanation of methodology choices:

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/CDMWF_AM_PHPV5WESACMBTJ2YY54GAJYSIEI3HD

3.2 Monitoring, including estimation, modelling, measurement or calculation approaches:

The energy exported from the project to the grid (EGy) would be monitored as mentioned in section 3.3 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.
Please refer section 3.4 for detailed information on the monitoring frequency, and roles and responsibilities.

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

As per VCS 2007.1, article 6.5.1 - Monitoring, quantification and reporting related to the methodology,
"The project proponent shall select or establish criteria and procedures for selecting relevant GHG sources, sinks and reservoirs for either regular monitoring or estimation.
"The project proponent shall justify in the VCS PD not selecting any relevant GHG source, sink and reservoir for regular monitoring."
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 measured every hour and the consolidated report 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.

A brief description on the data to be monitored is presented below:

Data / Parameter:	$EG_{BL,y}$
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	3,445 MWh/year
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:	-

3.4 Description of the 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.

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.

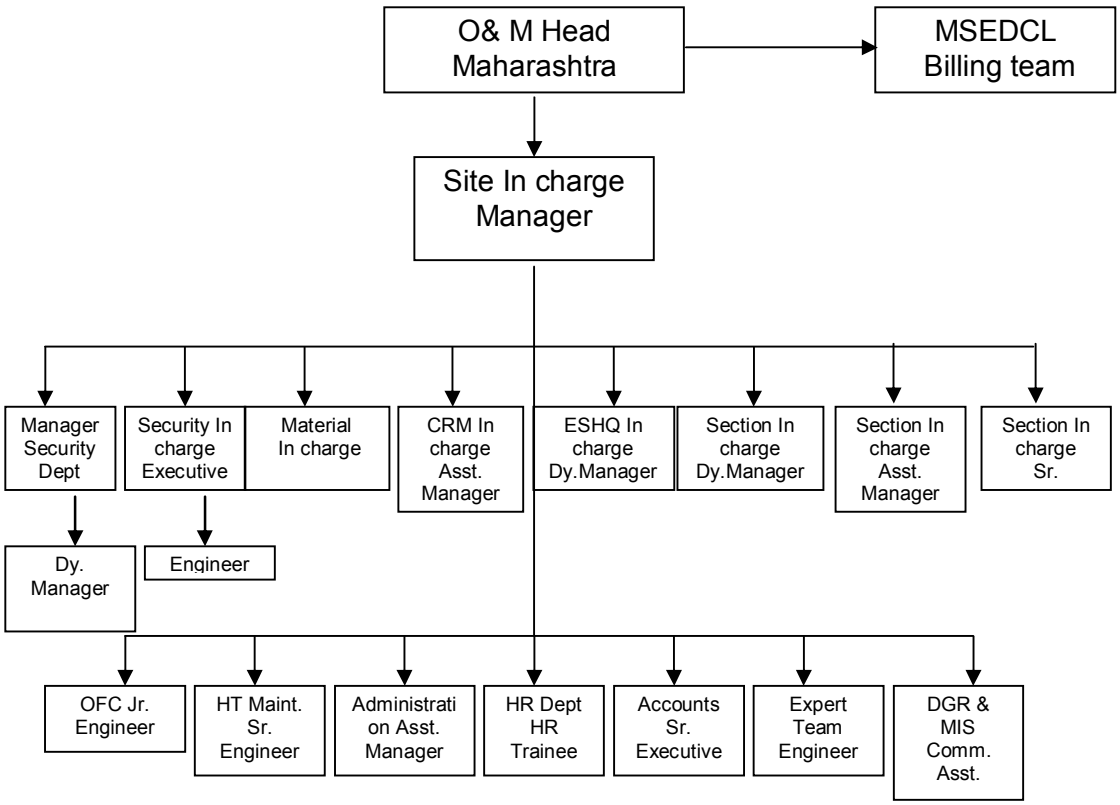
SISL is the responsible entity for collecting the necessary data in order to monitor emission reductions generated by the project activity.

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.

Calibration and Testing of meters are done annually. The Main meter and Check meter are tested for accuracy by MSEDCL's testing division. The MSEDCL 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 MSEDCL 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 MSEDCL are additional responsibilities of the CRM in charge. In case of any issues in the generation reports or payment, both the MSEDCL 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 MSEDCL sub-stations. This data is used for billing purposes and this meter is maintained by MSEDCL.

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 MSEDCL.

4. GHG Emission Reductions:

4.1 Explanation of methodological choice:

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 CO2 emission factor of NEWNE which has been obtained from the CO2 baseline database for the Indian Power Sector as provided by the CEA, the Ministry of Power, Government of India (GoI). Following are the values obtained from the same for the NEWNE:

Simple OM ($EF_{OM,y}$)=0.9992 tCO_2/MWh

BM ($EF_{BM,y}$) = 0.5977 tCO_2/MWh

The Combined Margin CO_2 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:

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

Calculation of baseline emissions (BE_y):

$BE_y = (EG_y * EF_y)$

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

Emission Reductions (ER_y):

$ER_y = BE_y$

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

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

$= (0.75 * 0.9992) + (0.25 * 0.5977)$

$= 0.8988\ tCO_2/MWh$

Calculation of baseline emissions (BE_y):

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

$=(3,445) * (0.8988)$

$= 3,096\ tCO_2e$

Emission Reductions (ER_y):

$ER_y = BE_y - PE_y - LE_y$

The project activity does not contribute to any project emissions or leakage. Hence PE_y and LE_y =0,

Therefore the above equation reduces to

$ER_y = BE_y$

$= 3,096\ tCO_2e$

Year	Electricity Exported (MWh)	Combined Margin Emission Factor (tCO_2e/MWh)	Estimation of baseline emission reductions tCO_2e
April 2006- March 2007	3,445	0.8988	3,096
April 2007- March 2008	3,445	0.8988	3,096
April 2008- March 2009	3,445	0.8988	3,096
April 2009- March	3,445	0.8988	3,096

2010			
April 2010- March 2011	3,445	0.8988	3,096
April 2011- March 2012	3,445	0.8988	3,096
April 2012- March 2013	3,445	0.8988	3,096
April 2013- March 2014	3,445	0.8988	3,096
April 2014- March 2015	3,445	0.8988	3,096
April 2015- March 2016	3,445	0.8988	3,096
Total	34450	0.8988	30960

4.3 Quantifying GHG emissions and/or removals for the project:

There are no project emissions due to this project activity.

4.4 Quantifying GHG emission reductions and removal enhancements for the GHG project:

The GHG emission reductions for this project would be the baseline emissions quantified above in 4.2 as there are no project emissions or leakage.

The results of GHG emission reduction will be equal to the baseline emissions as tabulated below:

Period	Baseline Emissions (tCO_2)	Project Emissions (tCO_2)	Leakage (tCO_2)	Emission Reductions (tco_2)
2006	3,096	0	0	3,096
2007	3,096	0	0	3,096
2008	3,096	0	0	3,096
2009	3,096	0	0	3,096

2010	3,096	0	0	3,096
2011	3,096	0	0	3,096
2012	3,096	0	0	3,096
2013	3,096	0	0	3,096
2014	3,096	0	0	3,096
2015	3,096	0	0	3,096

5. Environmental Impact:

This is not applicable as the project activity does not fall under the purview of Environmental Impact Assessment notification of the Ministry of Environment and Forests (MoEF) - Government of India (Reference: Environment Impact Assessment Notification dated 27/01/1994 and its subsequent amendments)4.The generation of power from wind energy is not listed under the Schedule I – List of Projects requiring Environmental Clearance from the Central Government. (ENVIRONMENT IMPACT ASSESSMENT NOTIFICATION S.O.60(E), dated 27/01/1994).

6 Stakeholders comments:

The stakeholder process took place on 24th November 2008 at the CMS -3 location at Dhule, Maharashtra. Various Stakeholders of the project attended the meeting and expressed their views on the project. Personal invitations were printed and used by the project promoter to request for the participation of the stakeholders.

The stakeholder process took place in a transparent manner wherein the project promoter explained the technical and functional aspects if the project activity in detail. The stakeholders enquired on the specific electricity generation by the wind energy generators owned by the project promoter. The stakeholders felt that the project activity contributes significant amount of power to take care of the electricity demand in the region.

The stakeholders also expressed their contentment on the generation of clean power that is exported to the grid. The other comments provided were that the project activity provides a chain of employment activities, load shedding is being avoided due

[4] Reference: *http://www.envfor.nic.in/)*

to the project activity, local villagers are benefitted directly and indirectly by the project activity.

All the comments were recorded in the response sheets which were distributed to all the stakeholders to express their views on the project activity. Sufficient time (twenty minutes) was given for the stakeholders to fill in the responses sheets. Photographs were taken during the process and the same is available with the project promoter.

7 Schedule:

Major project mile stones:

Milestones	Period
Board Resolution (Shrachi Infrastructure Limited)	28-Oct-05
Purchase Order	11-Nov-05
Commissioning	29-Mar-06
	31-Mar-06
Power Purchase Agreement	29-Apr-06
Sanction of loan	29-May-06
Transfer date (Shrachi Infrastructure Limited to Magma Leasing Limited)	1, April 2006
High Court Sanctioning (for Merger of Shrachi Infrastructure Limited and Magma Leasing Limited)	12, February 2007
Shareholder's Consent (Shrachi Infrastructure to Magma Leasing Limited)	30, March 2007
Magma's Internal mail on understanding the GHG reduction process	24-Apr-07
Magma Leasing Limited corresponding with international consultants for carbon funding for their projects	May - June 07
Magma's Internal mails on triggering the GHG reduction program	10-Sep-07
Correspondence with Symbiotic research and Magma	Dec 2007 - Jan 2008
Proposal from Vetas to Magma	December 13, 2007
Magma Participation in the Carbon Conference	12-Feb-08
Enquiry from Asia Carbon to Magma	25-Feb-08
Proposal from Emergent Ventures India Pvt Ltd to Magma	25 -Feb-08
E-mail correspondence with EVI and Magma	28 and 29th -Feb-08
Initial correspondence with consultants (Magma and EY)	28-May-08

Agreement signed with consultants	12-Sep-08
Raising validator quotes	29-Oct-08
Proposal from SGS	11-Nov-08
Appointment of validator	11-Nov-08
Stakeholder Consultation Process	24-Nov-08

8 Ownership:

8.1 Proof of Title:

The ownership of the plant, equipment and process generating emissions reductions will rest with project participant. The promoter submits an undertaking letter stating the same. Apart from this, the project activity related clearances and documents like purchase order, was signed between the concerned parties and the promoter which evidences the fact that the project is currently owned by the promoter.

8.2 Projects that reduce GHG emissions from activities that participate in an emissions trading program (if applicable):

Not applicable

Annex 1

Baseline Emission Factor:

The Central Electricity Authority (CEA) has published the baseline emission factors database for the various electricity grids in India. The emission factors have been calculated based on UNFCCC guidelines (Tool to calculate emission factor for an electricity system). For further details on the calculation methods and data used, please refer the following web link:

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

In the CEA database, the simple operating margin, build margin and combined margin emission factors of the regional electricity grids have been provided separately for two cases; including electricity imports and excluding electricity imports from other regional grids. Since, emission factors excluding imports are lower, the same has been considered as a conservative approach. The combined margin emission factor for the NEWNE has been considered for this project activity.

CENTRAL ELECTRICITY AUTHORITY: CO_2 BASELINE DATABASE

VERSION	4.0
DATE	Sep-08
BASELINE METHODOLOGY	ACM0002 / Ver 07 and "Tool to Calculate the Emission Factor for an Electricity System", Version 1.1

GENERATION DATA Gross Generation Total (GWh)			
	2005-06	2006-07	2007-08
NEWNE	470,037	499,380	531,539
South	147,355	161,897	167,379
India	617,392	661,277	698,918
Net Generation Total (GWh)			
	2005-06	2006-07	2007-08
NEWNE	437,877	465,361	496,119
South	138,329	152,206	157,315
India	576,206	617,567	653,434
Share of Must-Run (Hydro/Nuclear) (% of Net Generation)			

	2005-06	2006-07	2007-08
NEWNE	18.0%	18.5%	19.0%
South	27.0%	28.3%	27.1%
India	20.1%	20.9%	21.0%
Net Generation in Operating Margin (GWh)			
	2005-06	2006-07	2007-08
NEWNE	359,271	379,471	401,642
South	100,978	109,116	114,702
India	460,249	488,587	516,343
20% of Net Generation (GWh)			
	2005-06	2006-07	2007-08
NEWNE	87,575	93,072	99,224
South	27,666	30,441	31,463
India	115,241	123,513	130,687
Net Generation in Build Margin (GWh)			
	2005-06	2006-07	2007-08
NEWNE	87,764	93,524	100,707
South	28,228	30,442	31,613
India	115,991	123,965	132,320

EMISSION DATA

Absolute Emissions Total (tCO2)			
	2005-06	2006-07	2007-08
NEWNE	368,114,047	385,643,080	406,563,416
South	101,551,293	109,020,456	113,626,240
India	469,665,340	494,663,536	520,189,656
Absolute Emissions OM (tCO2)			
	2005-06	2006-07	2007-08
NEWNE	368,114,047	385,643,080	406,563,416
South	101,551,293	109,020,456	113,626,240
India	469,665,340	494,663,536	520,189,656
Absolute Emissions BM (tCO2)			
	2005-06	2006-07	2007-08
NEWNE	59,023,283	59,042,467	60,193,616
South	19,947,081	21,348,182	22,550,310
India	78,970,364	80,390,649	82,743,926

IMPORT DATA

Net Imports (GWh) - Net exporting grids are set to zero			
	2005-06	2006-07	2007-08
NEWNE	4,853	5,126	8,193
South	0	0	0
Share of Net Imports (% of Net Generation)			

	2005-06	2006-07	2007-08
NEWNE	1.1%	1.1%	1.7%
South	0.0%	0.0%	0.0%

EMISSION FACTORS

Weighted Average Emission Rate (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.84	0.83	0.82
South	0.73	0.72	0.72
India	0.82	0.80	0.80

Simple Operating Margin (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	1.02	1.02	1.01
South	1.01	1.00	0.99
India	1.02	1.01	1.01

Build Margin (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.67	0.63	0.60
South	0.71	0.70	0.71
India	0.68	0.65	0.63

Combined Margin (tCO2/MWh) (excl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.85	0.82	0.80
South	0.86	0.85	0.85
India	0.85	0.83	0.82

Weighted Average Emission Rate (tCO2/MWh) (incl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.84	0.82	0.81
South	0.73	0.72	0.72
India	0.81	0.80	0.79

Simple Operating Margin (tCO2/MWh) (incl. Imports)

	2005-06	2006-07	2007-08
NEWNE	1.02	1.01	1.00
South	1.01	1.00	0.99
India	1.02	1.01	1.00

Build Margin (tCO2/MWh) (not adjusted for imports)

	2005-06	2006-07	2007-08
NEWNE	0.67	0.63	0.60
South	0.71	0.70	0.71
India	0.68	0.65	0.63

Combined Margin in tCO2/MWh (incl. Imports)

	2005-06	2006-07	2007-08
NEWNE	0.85	0.82	0.80
South	0.86	0.85	0.85
India	0.85	0.83	0.81

Annex 2

Abbreviations Used

ABBREVIATION USED	EXPANDED FORM
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^2	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
$EG_{BL,y}$	Net electricity generated by the project activity
AUx_y	Auxiliary Consumption by the project activity

$EG_{gross,y}$	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

Annex 3

List of References

S.No.	Reference
1	Website of Voluntary Carbon standards http://www.v-c-s.org/projects.html
2	Standard format and guidelines for Voluntary Carbon standards. http://www.v-c-s.org/documents.html
3	Kyoto Protocol to the United Nations Framework Convention on Climate Change(UNFCCC) www.unfccc.int/cdm
4	Website of Climate Change Cell, Ministry of Environment & Forest, Govt. ofIndia. http://envfor.nic.in/cdm/host_approval_criteria.htm#
5	Website of United Nations Framework Convention on Climate Change,http://unfccc.int
6	UNFCCC decision 17/CP.7: Modalities and procedures for a clean development mechanism as defined in article 12 of the Kyoto Protocol
7	Website of Reserve Bank of India. http://www.rbi.org.in/scripts/AboutusDisplay.aspx#EP1
8	CENTRAL ELECTRICITY AUTHORITY", http://cea.nic.in/about_us/Annual%20Report/2005-06/CEA%20AR%202006%20Final.pdf
9	Maharashtra Electricity Development Agency http://www.mahaurja.com/pdf/medanote.pdf
10	"POWER SECTOR AT A GLANCE", CENTRAL ELECTRICITY AUTHORITY,NOVEMBER 2008 http://www.cea.nic.in/planning/POWER%20SCENARIO%20AT%20A%20GLANCE/POWER%20SCENARIO%20AT%20A%20GLANCE.pdf as viewed on November 14, 2008

Annex 4

List of project under various stages of CDM cycle (Maharashtra)
FY 2005-06.

Project ID	Name of the Project (Large Scale)	Status	MW	Start Date
	20.8 MW Grid connected wind electricity generation project at Dhule, Maharashtra.	Validation	20.8	April 1, 2005
	21 MW Vankusawade Wind Project in India	Validation	21	March, 2006
	38.40 MW Bundled wind power project in Maharashtra	Validation	38.4	July 1, 2005
	55.555 MW wind farm project at Maharashtra.	Validation	55.555	March 25, 2000
	Generation of electricity from bundled 25 MW wind energy project aggregated by Resurge Energy Private Limited	Validation	25	March 29, 2005
	GREEN ENERGY TO GRID at Dhule, Maharashtra	Validation	21.25	December 26, 2005
	Grid connected bundled wind based renewable energy project in Maharashtra, India	Validation	43.75	March 25, 2005
Small Scale Projects				
	"15 MW grid connected wind electricity generation project by Aryan Coal Benefications Pvt Ltd." at Village: Ghatnandra, Taluka: Kavathe Mahankal, District Sangli, Maharashtra	Validation	15	Sep-05
	1.25 MW wind energy project, Sangli District, Maharashtra, India	Validation	1.25	Sep-05
	10 MW Bundled Wind Power Project at Nandurbar & Dhule Districts, Maharashtra	Validation	10	Apr-05
15	12.5 MW Small Scale Grid Connected "Wind Electricity Generation Project" by KRBL Ltd., District Dhule, Maharashtra, INDIA	Registered	12.5	Mar-06

	15 MW bundled grid connected renewable energy project in Maharashtra	Validation	15	March 23, 2005
1778	15 MW Wind Energy Project in Maharashtra	Registered	15	2005
	2.45 MW Bundled Wind Power Project in Maharashtra	Validation	2.45	Jan-06
	2.5 MW Bundled Wind Power Project in Maharashtra (India)	Validation	2.5	Jan-06
	2.5 MW Wind Power Project at Dhalgaon, Maharashtra by M/s Gadre Marine Export	Validation	2.5	Sep-05
	3.05 MW Bundled Wind Power Project	Validation	3.05	13-Jun-05
	3.1 MW Bundled Wind Power Project in Maharashtra	Validation	3.1	Oct-05
	3.7 MW Bundle Wind Power Project in Maharashtra	Validation	3.7	Oct-05
1009	3.7 MW Bundled Wind Power Project at Priyadarshini Polysacks Ltd. Dhulia District Maharashtra	Registered	3.7	Sep-05
	3.75 MW Bundled Wind Power Project in Maharashtra	Validation	3.75	Jul-05
	4.8 MW Bundle Wind Power Project by Rajendra Mechanical Industries Ltd., at Brahmanwel, Dist. Dhule, (M.S.), India.	Validation	4.8	13-Oct-05
	4.9 MW Bundled Wind Power Project	Validation	4.9	11-Jun-05
	6.25 MW grid connected wind energy project at Sangli and Dhule districts, Maharashtra	Validation	6.25	Apr-05

	6.25 MW Small Scale Grid Connected Wind Farm Project at district Sangli in Maharashtra, India	Validation	6.25	Nov-05
	7.5 MW bundled small-scale wind project, Sangli District, Maharashtra	Validation	7.5	December 31, 2005
	8.3 MW Wind Electricity Generation Project by Parakh Agro Industries Limited in Dhule, Maharashtra	Validation	8.3	Nov-05
	8.5 MW Wind Energy Project by KS Oils Limited	Registered	8.5	18/10/2005
2163	8.75 MW Wind Power Project by Taurian Iron & Steel Company Private Limited in District	Rejected	8.75	Sep-05
1145	8.75MW Bundle Wind Power Project in Maharashtra	Registered	8.75	Oct-05
	9.9 MW Bundled Wind Power Project in Maharashtra by REI Agro Limited	Validation	9.9	7-Dec-05
1550	Generation of electricity from 12.8 MW capacity wind mills by Avinash Bhosale group at Bhambarwadi, Maharashtra	Registered	12.8	Mar-06
	Generation of electricity from 3.2 MW capacity wind mills by Gujarat JHM at Bhambarwadi, Maharashtra	Registered	3.2	Aug-05
1542	Generation of electricity from 9.6 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd. at Bhambarwadi, Maharashtra	Registered	9.6	Aug-05
	HMIPL WIND POWER CDM PROJECT (Maharashtra and Tamil Nadu)	Validation	2.5	Jan-06
1142	Priyata Intercontinental Wind Power Project, India.	Registered	3.75	Jul-05

From the above table note:

Total Capacity seeking carbon revenue (CDM) – 425.005 MW

Small Scale seeking carbon revenue (CDM) – 199.25 MW

List of project under various stages of CDM cycle (Maharashtra)
Up to March 2006 (From 2000)

Project ID	Name of the Project	Status	MW	Start Date
593	15.4 MW wind farm at Satara District, Maharashtra.	Registered	15.4	**1/5/2000**
	20.8 MW Grid connected wind electricity generation project at Dhule, Maharashtra.	Validation	20.8	April 1, 2005
	21 MW Vankusawade Wind Project in India	Validation	21	March, 2006
	38.40 MW Bundled wind power project in Maharashtra	Validation	38.4	July 1, 2005
	55.555 MW wind farm project at Maharashtra.	Validation	55.555	March 25, 2000
1115	75MW wind power project in Maharashtra by Essel Mining Industries Limited	Registered	75	**Dec-04**
744	Bundled Wind Power Projects in Satara & Supa (Maharashtra in India) managed by Tata Motors Ltd.	Registered	20.85	**14/02/2000**
	Generation of electricity from bundled 25 MW wind energy project aggregated by Resurge Energy Private Limited	Validation	25	March 29, 2005
	GREEN ENERGY TO GRID at Dhule, Maharashtra	Validation	21.25	December 26, 2005
	Grid connected bundled wind based renewable energy project in Maharashtra, India	Validation	43.75	March 25, 2005
221	Grid-connected electricity generation from renewable sources at Satara by M/s Bajaj Auto Ltd. (BAL) using wind Power.	Rejected	45.2	**8/3/2000**
224	Grid-connected electricity generation from renewable sources at Supa, Taluka Parner, Dist. Ahmednagar by M/s Bajaj Auto Ltd. (BAL) using wind Power	Rejected	20	**4/7/2001**

Small Scale Projects				
	"15 MW grid connected wind electricity generation project by Aryan Coal Benefications Pvt Ltd." at Village: Ghatnandra, Taluka: Kavathe Mahankal, District Sangli, Maharashtra	Validation	15	Sep-05
	1.25 MW wind energy project, Sangli District, Maharashtra, India	Validation	1.25	Sep-05
	10 MW Bundled Wind Power Project at Nandurbar & Dhule Districts, Maharashtra	Validation	10	Apr-05
531	11.25 MW wind power project in Dhule, Maharashtra, India	Registered	11.25	28/09/2004
15	12.5 MW Small Scale Grid Connected "Wind Electricity Generation Project" by KRBL Ltd., District Dhule, Maharashtra, INDIA	Registered	12.5	Mar-06
792	14.65 MW Wind Power Project in Maharashtra by BF Utilities Ltd	Crediting Period Renewal Request	14.65	31/03/2000
	15 MW bundled grid connected renewable energy project in Maharashtra	Validation	15	March 23, 2005
1778	15 MW Wind Energy Project in Maharashtra	Registered	15	2005
593	15.4 MW wind farm at Satara District, Maharashtra.	Registered	15.4	1/5/2000
	2.45 MW Bundled Wind Power Project in Maharashtra	Validation	2.45	Jan-06
	2.5 MW Bundled Wind Power Project in Maharashtra (India)	Validation	2.5	Jan-06
	2.5 MW Wind Power Project at Dhalgaon, Maharashtra by M/s Gadre Marine Export	Validation	2.5	Sep-05
	3.05 MW Bundled Wind Power Project	Validation	3.05	13-Jun-05

	3.1 MW Bundled Wind Power Project in Maharashtra	Validation	3.1	Oct-05
	3.7 MW Bundle Wind Power Project in Maharashtra	Validation	3.7	Oct-05
1009	3.7 MW Bundled Wind Power Project at Priyadarshini Polysacks Ltd. Dhulia District Maharashtra	Registered	3.7	Sep-05
	3.75 MW Bundled Wind Power Project in Maharashtra	Validation	3.75	Jul-05
237	3.75 MW Small Scale Grid Connected "Demonstration Wind Farm Project" at Chalkewadi, District Satara, State Maharashtra, India.	Registered	3.75	Sep-04
800	4.2 MW Wind power project in Maharashtra, by Bharat Forge Limited	Registered	4.2	31/12/2001
	4.2 MW Wind power project in Maharashtra, by Bharat Forge Limited	Validation	4.2	1-Jan-02
	4.8 MW Bundle Wind Power Project by Rajendra Mechanical Industries Ltd., at Brahmanwel, Dist. Dhule, (M.S.), India.	Validation	4.8	13-Oct-05
	4.9 MW Bundled Wind Power Project	Validation	4.9	11-Jun-05
	6.25 MW grid connected wind energy project at Sangli and Dhule districts, Maharashtra	Validation	6.25	Apr-05
	6.25 MW Small Scale Grid Connected Wind Farm Project at district Sangli in Maharashtra, India	Validation	6.25	Nov-05
	7 MW grid connected wind electricity generation project by Maharashtra Seamless Limited.	Validation	7	2001
	7.5 MW bundled small-scale wind project, Sangli District, Maharashtra	Validation	7.5	December 31, 2005

	8.3 MW Wind Electricity Generation Project by Parakh Agro Industries Limited in Dhule, Maharashtra	Validation	8.3	Nov-05
	8.5 MW Wind Energy Project by KS Oils Limited	Registered	8.5	18/10/2005
	8.55 MW bundled wind project	Validation	3.6	31-Mar-06
2163	8.75 MW Wind Power Project by Taurian Iron & Steel Company Private Limited in District	Rejected	8.75	Sep-05
1145	8.75MW Bundle Wind Power Project in Maharashtra	Registered	8.75	Oct-05
	9.9 MW Bundled Wind Power Project in Maharashtra by REI Agro Limited	Validation	9.9	7-Dec-05
	BF Utilities Wind Energy Project, Maharashtra, India	Validation	14.65	31-Mar-00
986	Bundled 15 MW Wind Power Project in India (Maharashtra, Karnataka, Tamilnadu)	Registered	15	30/09/2004
560	Generation of electricity from 1.2 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd. at Satara, Maharashtra	Registered	1.2	2001
1550	Generation of electricity from 12.8 MW capacity wind mills by Avinash Bhosale group at Bhambarwadi, Maharashtra	Registered	12.8	Mar-06
	Generation of electricity from 3.2 MW capacity wind mills by Gujarat JHM at Bhambarwadi, Maharashtra	Registered	3.2	Aug-05
559	Generation of electricity from 4 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd. at Supa, Maharashtra	Registered	4	2001 (for SNS & SNSS) and 2002 (for SV)
1542	Generation of electricity from 9.6 MW capacity wind mills by Sun-n-Sand Hotels Pvt. Ltd. at Bhambarwadi, Maharashtra	Registered	9.6	Aug-05

	Grid connected bundled small-scale wind project at Satara, Maharashtra, India	Validation	0.7	2000
	HMIPL WIND POWER CDM PROJECT (Maharashtra and Tamil Nadu)	Validation	2.5	Jan-06
1142	Priyata Intercontinental Wind Power Project, India.	Registered	3.75	Jul-05

Note from the above table-

Total Capacity seeking carbon revenue (CDM) – 701.05 MW

Small Scale seeking carbon revenue (CDM) – 298.8 MW