CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 03 - in effect as of: 28 July 2006

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Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.
03	22 December 2006	• The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

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SECTION A. General description of project activity

A.1 Title of the project activity:

>> 8.75 MW Wind Power Project by Taurian Iron & Steel Company Private Limited in District Sangli, Maharashtra, India.
Version 01
Date- 03/05/2007

A.2. Description of the project activity:

>>

Description of the project activity

Over the last 25 years, considerable progress has been made in wind energy technology and its application for grid power generation. Consequently significant progress has been made to harness wind for electricity generation in different parts of the world. Globally installed capacity has crossed 60000 MW, with over 10000 MW erected in 2006. Wind now provides 0.5% of the world's electricity supply.

The proposed project activity involves the establishment of a wind farm of 8.75 MW installed capacity enabling generation of electricity by Suzlon 1250 kW Wind Electricity Generators in Sangli district in the state of Maharashtra in western India. The project location at Sangli is in the 40 potential wind sites identified by Ministry of Non Conventional Energy Sources (MNES, now called MNRE – Ministry of New and Renewable Energy), Government of India, having wind power density of 388 W/m^2 and 398 W/m^2 respectively at 50 m height.

Table 1: Ownership details of the companies

Name of the Company	Number of WEGs	Total Installed Capacity	Location
Taurian Iron & Steel Company Private Limited	7 x 1250 kW	8.75 MW	Waiphale,Tisangi,Dahiwadi,Ghatnandre District : Sangli

The electricity generated from the project will be initially fed into a 33 kV grid, and will then be further stepped up to 110 and 230 kV grid lines.

The electricity generation from this wind park will contribute to annual GHG reductions estimated at 15517 tCO_2e (tonnes of carbon dioxide equivalent). Although the project life is envisaged as 20 years, it is proposed that the project activity needs to mitigate the risks involved in Renewable Energy Technology for the first 10 years. During the proposed 10 years crediting period, the project is expected to reduce approximately 155170 tCO_2e, thereby generating equivalent amount of Certified Emission Reductions ("CERs").

Purpose of the project activity

The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources, the generated output of electricity will be fed to the grid and to contribute to climate change mitigation efforts. This renewable energy will partially substitute the electricity currently evacuated into the grid by the thermal power plants.

Apart from generation of renewable electricity, the project has also been conceived for the following:

- To enhance the propagation of commercialisation of wind turbines in the region
- To contribute to the sustainable development of the region, socially, environmentally and economically
- To reduce the prevalent regulatory risks for this wind park through revenues from the CDM

View of the project participants on the contribution of the project activity to sustainable development

Ministry of Environment and Forests, Govt. of India has stipulated the following indicators for sustainable development in the interim approval guidelines for CDM projects:

a > Social well being – *The CDM project activity should lead to alleviation of poverty by generating additional employment, removal of social disparities and contribution to provision of basic amenities to people leading to improvement in quality of life of people.*
The proposed project activity leads to alleviation of poverty by establishing direct and indirect employment benefits accruing out of operation and maintenance of the project activity. The infrastructure in and around the project area will also improve due to project activity. This includes development of road network and improvement of electricity quality, frequency and availability as the electricity is fed into a deficit grid.

b >Economic well being - *The CDM project activity should bring in additional investment consistent with the needs of the people.*
The project activity leads to an investment of about INR 439.6 million to a developing region which otherwise would not have happened in the absence of project activity. The generated electricity is fed into the Western regional grid through local grid, thereby improving the grid frequency and availability of electricity to the local consumers (villagers & sub-urban habitants) which will provide new opportunities for industries and economic activities to be setup in the area thereby resulting in greater local employment, ultimately leading to overall development. The project activity also leads to diversification of the national energy supply, which is dominated by conventional fuel based generating units.

c > Environmental well being - *This should include a discussion of impact of the project activity on resource sustainability and resource degradation, if any, due to proposed activity; bio-diversity friendliness; impact on human health; reduction of levels of pollution in general.*
The project utilizes wind energy for generating electricity which otherwise would have been generated through alternate fuels (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions. As wind power projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power. Being a renewable resource, using wind energy to generate electricity contributes to resource conservation. Thus the project causes minimal negative impact on the surrounding environment contributing to environmental well-being.

d >Technological well being - *The CDM project activity should lead to transfer of environmentally safe and sound technologies with a priority to the renewables sector or energy efficiency projects that are comparable to best practices in order to assist in upgradation of technological base.*
The project activity leads to the promotion of Wind Electricity Generators (WEGs) into the region, demonstrating the success of small, medium and large sized wind turbines, which feed the generated power into the nearest sub-station, thus increasing energy availability and improving quality of power under the service area of the substation. Hence the project leads to technological well being.

A.3. Project participants:

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Table 2: Project Participants

Name of Party involved (*) ((host) indicates a host party)	Private and/or public entity (ies) Project participants (*) (as applicable)	Kindly indicate if the party involved wishes to be considered as project participant (Yes/No)

Government of India (Host Country)	Taurian Iron & Steel Company Private Limited	No

(*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the party (ies) involved is required.

Note: When the PDD is filled in support of a proposed new methodology (forms CDM-NBM and CDM-NMM), at least the host Party (ies) and any known project participant (e.g. those proposing a new methodology) shall be identified.

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

>> Government of India

A.4.1.2. Region/State/Province etc.:

>> State – Maharashtra
District – Sangli

A.4.1.3. City/Town/Community etc:

>> District – Sangli
Villages- Waiphale, Tisangi, Dahiwadi, Ghatnandre.

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):

>>
The project activity is located in Village Dahiwadi, Tisangi, Ghainandre, and Waiphale, which fall in the Sangli district of the state of Maharashtra. The wind data at the Dhalgaon site is adequately promising. According to the MNES survey the mean annual wind speed at Dhalgaon has been observed as 5.89 m/s (at 20/25 m hub height)[1]. The mean annual wind power density at this site has been observed as 216 W/m^2. The geographical details of the location are given below:

Table 3: Geographic details of the location

Location	District	Latitude N		Longitude E		Elevation
		Deg.	Min	Deg.	Min	Above mean sea level
Dhalgaon	Sangli	17	08	74	59	810

[1] http://www.windpowerindia.com/statwind2.html

Table 4 : The specific location of the WEGs with survey numbers

Wind Turbine No.	Name of Village in Sangli District	Date of Commissioning	Survey No.	Location/Installation No. given by SUZLON
11	Tisangi	24/03/2006	336	G 332
22	Waiphale	24/02/2006	1707	G 373
33	Waiphale	24/02/2006	1713-1709	G 374
44	Waiphale	24/02/2006	1713	G 375
55	Ghatnandre	25/03/2006	423	G 59
66	Dahiwali	27/03/2006	438	G 313
77	Tisangi	27/03/2006	452	G 336

Figure 1: Location of Maharashtra in India

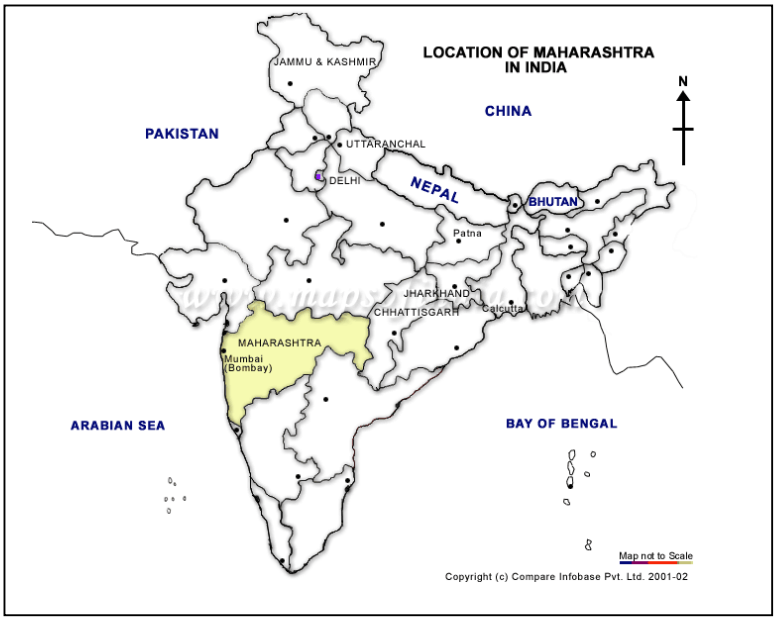


Figure 2: Map of Maharashtra

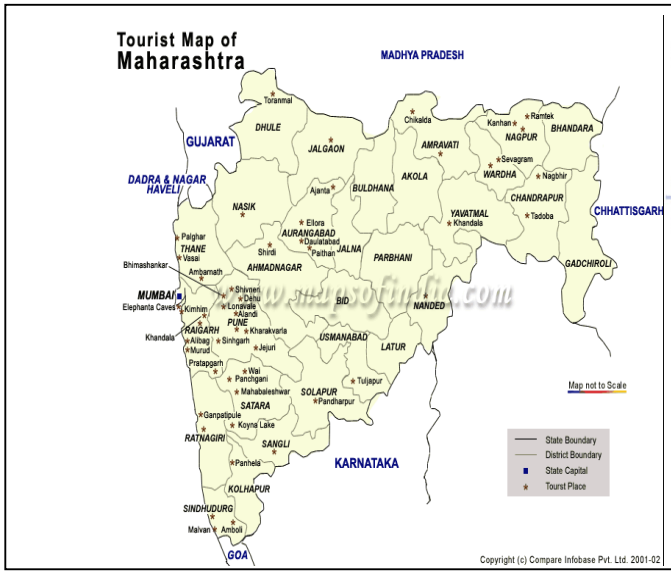
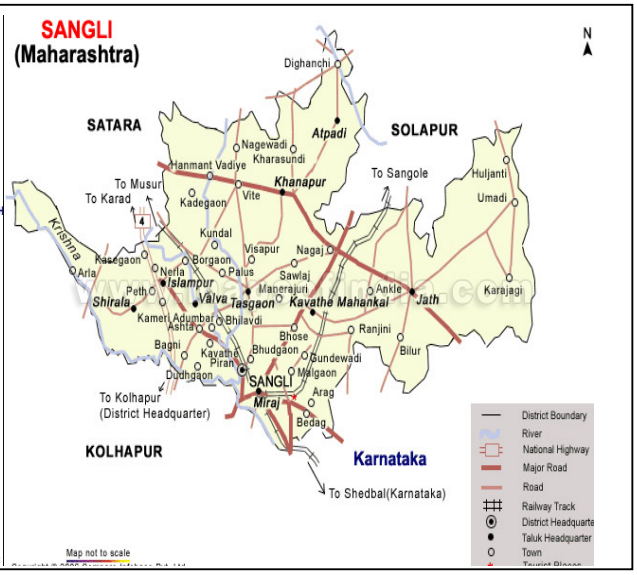


Figure 3: District Map of Sangli



A.4.2. Type and category (ies) and technology/measure of the small-scale project activity:

Type and Category

Since, the capacity of the proposed project is only 8.75 MW, which is less than the maximum qualifying capacity of 15MW, the project activity has been considered as a small scale CDM project activity and UNFCCC indicative simplified modalities and procedures are applied. The project activity utilizes the wind potential for power generation and exports the generated electricity to the grid. According to small-scale CDM modalities the project activity falls under:

Sectoral Scope 1	Energy industries (renewable / non renewable sources)
Type – I	Renewable Energy Projects
Category I-D	Grid connected renewable electricity generation

Technology

In wind energy generation, kinetic energy of wind is converted into mechanical energy and subsequently into electrical energy. Wind blowing at high speeds, has considerable amount of kinetic energy. When this kinetic energy passes through the blades of the wind turbines, it is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected generator also rotates, thereby producing electricity. The technology is a clean technology since there are no GHG emissions associated with the electricity generation. The project installs Suzlon make seven WEGs 1.25 MW individual capacity.

Technology - 1.25 MW WEG

A direct grid-connected high-speed generator, in combination with the multiple-stage combined spur/planetary gearbox of the Suzlon Megawatt Series, offers greater robustness and reliability than a low-speed generator connected to the electrical grid via AC-DC-AC-inverter systems. High-speed asynchronous generator with a multi-stage intelligent switching compensation system delivers power factor up to 0.99. The generated power is free from harmonics and is grid friendly.

Operating Data:

1. Cut in Speed: 3 m/s
2. Rated Speed: 14 m/s
3. Cut out speed: 22 m/s
4. Survival Speed: 67 m/s

Rotor:

1. Blade: 3 Blade Horizontal Axis
2. Swept Area: 3421.19 m^2
3. Rotational Speed: 20.7/13.8 rpm
4. Regulation: Pitch Regulated
5. Rotor Diameter: 66 m
6. Hub Height: 74 m

Generator:

1. Type: Asynchronous 4 / 6 Poles
2. Rated Output: 250 / 1250 kW
3. Rotational Speed: 1006 / 1506 rpm
4. Frequency: 50 Hz

Gear Box:

1. Type: Integrated (1 Planetary & 2 Helical)
2. Gear Ratio: 74.971:1

Yaw System:

1. Drive: 4 electrically driven planetary gearbox
2. Bearings: Polyamide slide bearings

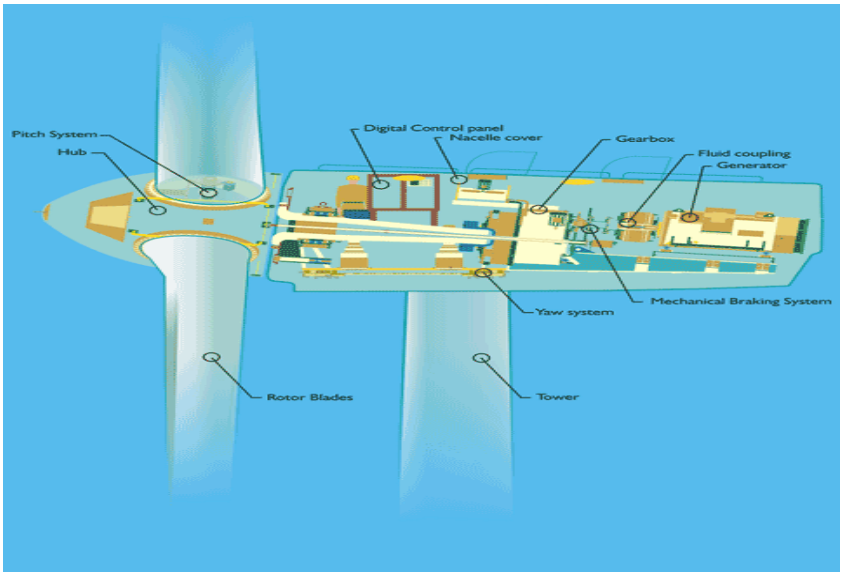
Braking System:

1. Aerodynamic Brake: 3 independent systems with blade pitching
2. Mechanical Brake: Hydraulic fail safe disc braking system

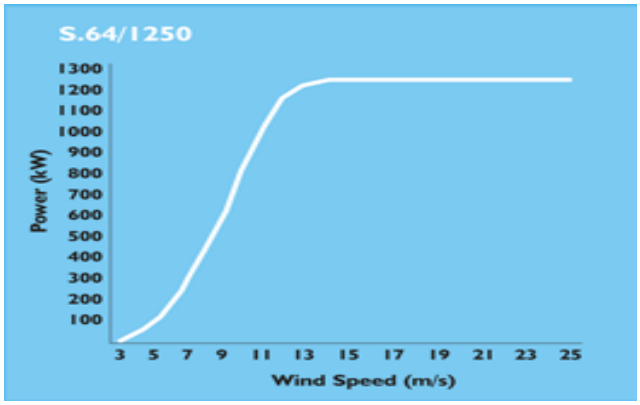
Control Unit:

1. Type: Programmable microprocessor based; high speed data communication, active multilevel security, sophisticated operating software, advance data collection remote monitoring & control option, UPS backup, Real time operating indication.

Technical description of technology used:



Power Curve:



Technology transfer

There is no technology transfer involved in the project activity.

A.4.3 Estimated amount of emission reductions over the chosen crediting period:

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Table 5: Estimated amount of Emission Reductions

Years	Annual Estimation of Emission Reduction in tonnes of CO_2e
01/10/2007 - 30/09/2008	15517
01/10/2008 - 30/09/2009	15517
01/10/2009 - 30/09/2010	15517
01/10/2010 - 30/09/2011	15517
01/10/2011 - 30/09/2012	15517
01/10/2012 - 30/09/2013	15517
01/10/2013 - 30/09/2014	15517
01/10/2014 - 30/09/2015	15517
01/10/2015 - 30/09/2016	15517
01/10/2016 - 30/09/2017	15517
Total estimated reductions (tonnes of CO_2e)	155170
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tonnes of CO2 e)	15517

A.4.4.Public funding of the project activity:

>> There is no public funding involved in the project activity.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity:

>>

According to paragraph 2 of Appendix C to the Simplified Modalities and Procedures for Small-Scale CDM project activities (FCCC/CP/2002/7/Add.3), a small-scale project is considered a debundled component of a large project activity if there is a registered small-scale activity or an application to register another small-scale activity:

- With the same project participants
- In the same project category and technology
- Registered within the previous two years; and
- Whose project boundary is within 1km of the project boundary of the proposed small scale activity

The project promoters hereby confirm that there is no registered small scale project activity registered within the previous two years with them in the same project category and technology whose project boundary is within 1km of the project boundary of the proposed small scale activity. Thus the project is not a de-bundled component of any other large scale project activity.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:

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Project Type: I	Renewable energy project
Project Category: I D	Grid connected renewable electricity generation
Version:	12, EB 33, effective from 10th August 2007
Reference:	Appendix B of the Simplified Modalities & Procedures for small scale CDM project activities.

B.2 Justification of the choice of the project category:

>> The project category is renewable electricity generation for a grid system, which is also fed by both fossil fuel fired generating plants (using fossil fuels such as coal, natural gas, diesel, naphtha etc.) and non-fossil fuel based generating plants (such as hydro, nuclear, biomass and wind). Hence, the applicable baseline, as per Clause 29 of Appendix B, indicative simplified baseline and monitoring methodologies is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kgCO2/kWh) calculated in a transparent and conservative manner.

The project activity meets the eligibility criteria to use simplified modalities and procedure for small-scale CDM project activities as set out in paragraph 6 (c) of decision 17/CP.7.

B.3. Description of the project boundary:

>> The project boundary is defined as the notional margin around a project within which the project's impact (in terms of GHG reduction) will be assessed. As per the Appendix B of simplified modalities & procedures for small-scale CDM-project activities, the project boundary is "The project boundary encompasses the physical, geographical site of the renewable generation source."

The project boundary is thus composed of the Wind Energy Generators, the metering equipment for each generator and substation, and the grid which is used to transmit the generated electricity.
The project is supplying the generated electricity to the Western Region Grid, thus the Western grid, which includes all the power plants connected physically to this system, has been chosen as the grid system for the baseline calculation.

Grid System of the proposed project activity:
There are three choices available for choosing the grid system for the project activity, viz. national grid, regional grid or state grid.
In India, electricity is a concurrent subject between the State and the Central Governments. The perspective planning, monitoring of implementation of power projects is the responsibility of Ministry of Power, Government of India. At the state level the state utilities or State Electricity Boards (SEBs) are responsible for generation, transmission, and distribution of power. With power sector reforms there have been unbundling and privatisation of this sector in many states. Many of the state utilities are engaged in power generation also. In addition, there are different central / public sector organizations involved in generation like National Thermal Power Corporation (NTPC), National Hydro Power Corporation (NHPC), etc. in transmission e.g. Power Grid Corporation of India Ltd. (PGCIL) and in financing e.g. Power Finance Corporation Ltd. (PFC).
There are five regional grids: Northern, Western, Southern, Eastern and North-Eastern. Different states are connected to one of the five regional grids as shown in the Table below-

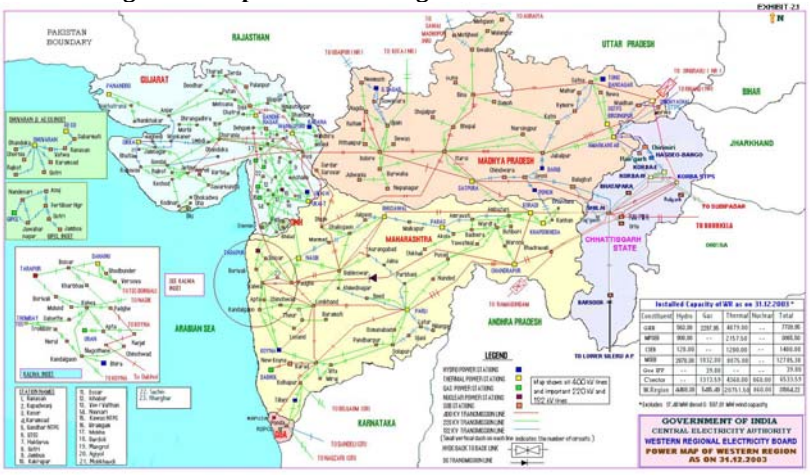
Table 6: States connected to different regional grids

Regional grid	Northern	Western	Southern	Eastern	North Eastern
States	Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttaranchal, Delhi, Chandigarh	Gujarat, Madhya Pradesh, Maharashtra, Goa, Chattisgarh	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Puducherry	Bihar, Orissa, West Bengal, Jharkhand Sikkim	Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura

The management of generation and supply of power within the state and regional grid is undertaken by the state load dispatch centres (SLDC) and regional load dispatch centres (RLDC). Different states within the regional grids meet the demand from their own generation facilities plus generation by power plants owned by the central sector i.e. NTPC and NHPC etc. Specific quota is allocated to different states from the Central sector power plants. Depending on the demand and generation there are exports and imports of power within different states in the regional grid. Thus there is an exchange of power among states in the regional grid. Similarly there exists imports and export of power between regional grids.

The Western Region grid managed by Western Region Electricity Board (WREB) constitutes five states (viz Maharashtra, Madhya Pradesh, Chhatisgarh, Gujarat and Goa) and two Union territories (Daman & Diu and Dadar & Nagar Haveli). These states under the regional grid have their own power generating stations as well as centrally shared power-generating stations. While the power generated by own generating stations is fully owned and consumed through the respective state's grid systems, the power generated by central generating stations is shared by more than one state depending on their allocated share. WREB facilitates the share of power generated by the central generating stations. Presently the share from central generating stations is a small portion of their own generation.

Figure 4: Map of Western Region Grid



Since the CDM project would be supplying electricity to the western regional grid it is preferable to take the regional grid as project boundary than the state boundary. It also minimizes the effect of inter state power transactions, which are dynamic and vary widely. Considering free flow of electricity among the member states and the union territory through the Western Region Load Dispatch Centre (WRLDC), the entire western grid is considered as a single entity for estimation of baseline.

B.4. Description of baseline and its development:

The approach adopted for selecting the baseline scenario for the project is based on the existing actual emissions. The project generates electricity and supplies it to the western regional grid. In the absence of the CDM project, the grid would have continued to draw electricity from the current sources of generation.

Appendix B to the simplified Modalities and Procedures for Small-Scale CDM project activities (FCCC/CP/2002/7/ADD.3) gives two options for calculating the baseline for a Type I D project:

(a) The Weighted average of the "approximate operating margin" and the "built margin" or the Combined Margin

OR

(b) The weighted average emissions (in tCO_2 eq./MWh) of the current generation mix.

As per the *Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories* the baseline should be calculated in a conservative and transparent manner.

Below is a comparison of the Emission Co-efficient from the two methods mentioned above. Only the more conservative of two would be used for the calculation of emission reductions.

Combined Margin Emission Co-efficient:

Step 1: Calculation of Operating Margin Emission Factor
The operating margin emission factor has been calculated using a 3 year data vintage:
The $EF_{OM,Y}$ is estimated to be:

Simple Operating Margin (tCO2/MWh) (excl. Imports)						
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
North	0.98	0.98	1.00	0.99	0.97	0.99
East	1.22	1.22	1.20	1.23	1.20	1.16
South	1.02	1.00	1.01	1.00	1.00	1.01
West	0.98	1.01	0.98	**0.99**	**1.01**	**0.99**
North-East	0.73	0.71	0.74	0.74	0.71	0.70
India	1.02	1.02	1.02	1.03	1.03	1.02

For the year 2004-2005 the $EF_{OM,Y}$ is 0.9903 tCO_2/MWh
For the year 2005-2006 the $EF_{OM,Y}$ is 1.0119 tCO_2/MWh
For the year 2006-2007 the $EF_{OM,Y}$ is 0.9933 tCO_2/MWh

Thus the final $EF_{OM,Y}$ based on three years average is estimated to be **0.9985** tCO_2/MWh.

Step 2: Calculation of the Build Margin Emission Factor $EF_{BM,Y}$

Build Margin (tCO2/MWh) (excl. Imports)						
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
North					0.53	0.60
East					0.90	0.97
South					0.71	0.71
West					0.77	**0.63**

North-East	0.15	0.15
India	0.70	0.68

The $EF_{BM,y}$ is estimated as 0.6300 tCO_2/MWh (with sample group m constituting most recent capacity additions to the grid comprising 20% of the system generation).

Step 3: Calculation of Baseline Emission Factor EF_y
The baseline emission factor EF_y is calculated as the weighted average of the Operating Margin emission factor ($EF_{OM,y}$) and the Build Margin emission factor ($EF_{BM,y}$):

$EF_y = w_{OM} EF_{OM,y} + w_{BM} .EF_{BM,y}$

Where the weights w_{OM} and w_{BM}, are 75% and 25% respectively, and $EF_{OM,y}$ and $EF_{BM,y}$ are calculated as described in Steps 1 and 2 above and are expressed in tCO_2/MWh.

Baseline Emission factor: **0.9064 tCO_2/MWh**

Weighted Average Emission Co-efficient:

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

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
North	0.72	0.73	0.74	0.71	0.72	0.72
East	1.09	1.03	1.09	1.08	1.05	1.05
South	0.74	0.75	0.82	0.84	0.78	0.74
West	0.90	0.92	0.90	0.90	0.92	**0.88**
North-East	0.42	0.41	0.40	0.43	0.48	0.33
India	0.82	0.83	0.85	0.85	0.84	0.81

The weighted emission rate for the current generation mix as per the CEA CO2 Baseline database is **0.8828O_2/MWh**

As calculated from the CEA published baseline data of the Indian power sector, the weighted average emission rate gives a more conservative emission co-efficient than the Combined Margin (CM) baseline. Thus, approach (b) the weighted average emissions (in tCO_2eq/MWh) of the current generation mix has been taken for the calculation of baseline.

Moreover, the *Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories* also specifies that the applicable emission co-efficient data should be as per the year in which project generation occurs. The actual emission reductions will then be calculated in each year of the crediting period based on the observed net generation and the weighted average emission factor for the respective year.

Details of Baseline data:
Data for Weighted Average Emission Rate (tCO_2/MWh) has been obtained from the following:
'The CO2 Baseline Database for the Indian Power Sector'
Central Electricity Authority (CEA), Ministry of Power.
Version 2
Dated: 21st June 2007
http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm
This database is prepared as per ACM0002 version 6.

B.5.Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

>> Justification for additionality of the project

UNFCCC simplified modalities seek to establish additionality of the project activity as per Attachment A to Appendix B, which listed various barriers, out of which, at least one barrier shall be identified due to which the project would not have occurred any way. Project participants identified the following barriers for the proposed project activity:

1) Investment Barriers

a) Barrier due to generation risk

The companies were aware of the associated risks involved in investing in wind energy, primarily due to the non-availability of wind energy over a significant part of the year. This is the biggest constraint in the project as various factors like wind speed, direction, intensity and others; determine the production of electricity and efficiency of the windmills, at all times. Any parameter that is non-conducive at a given point in time, will significantly affect the electricity generation capacity and output, thereby generating less revenue from sale of power. These parameters are controlled by nature and thus, it is an investment barrier of paramount importance.
Despite the higher establishment costs in comparison to the conventional generation methods (Hydro, Thermal etc.), the installed WEGs deliver a CUF that is much lower than the former. For instance, the CUF estimated for the project is 20% percent only (Exhibit A, Facility Description, Wind Energy Purachase Agreement). Thus, to produce the same amount of electricity, the project costs of WEGs will be much higher as compared to the conventional power plants. The investment in this project is as high as INR 439.6 million, while the alternative would have been to invest in thermal energy, where the national average PLF is 80% and thereby reduce the costs by less than half. The companies were also aware of the risks due to the non-availability of wind energy over a significant part of the year. This is the biggest constraint in the project as various factors like wind speed, direction, intensity and others; determine the production of electricity and efficiency of the windmills, at all times.

(b)Availability Based Tariff (ABT)

All SERCs have been advised to introduce the ABT regime at the state level[2]. According to the ABT, all future tariffs shall be determined on the basis of a confirmed delivery by the generator. Here, the producer shall be required to provide prior schedules of the quantity of electricity expected to be generated from the source, over a time frame of 24 hours and, at an interval of every 15 minutes. In case the electricity generated is lower than the specified amount, the producer shall be penalized for the deficit electricity at the UI (Unscheduled Interchange) rate prevailing at that time.

Introducing the ABT to Maharashtra for investors in renewable energy occurs as a barrier. Investment in wind carries has an inherent risk, as the generation cannot be guaranteed (because there is no control over the fuel supply – wind). This could lead to a situation where the MSEB may prefer to buy energy from risk free energy sources such as thermal power plants. As per the ATB the MSEB buys this safe energy for Rs. 5.70 per kWh whereas the price for wind energy is Rs. 3.50 per kWh. The investors were aware of the possibility of ABT being introduced in Maharashtra at the time of purchase of the WEGs, and also that even at lower prices they were at a risk of not selling his energy.

[2] According to Section 5.7.b of the National electricity Policy (Feb 2005) “the Availability Based Tariff (ABT) regime introduced by CERC at the national level has had a positive impact. It has also enabled a credible settlement mechanism for intra-day power transfers from licenses with surpluses to licenses experiencing deficits. SERCs are advised to introduce the ABT regime at the State level within one year”.

(c)State Power Sector Performance Ranking

The state of Maharashtra is not the best suitable destination for investment in power sector. According to the performance rating of the state power sectors across all states carried out by ICRA / CRISIL at the instance of the Ministry of Power (MoP), Maharashtra is placed only sixth amongst the states with wind potential. This rating is taken from the report of 2004. Though a third review of the report based primarily on the data obtained till December 2005, has been released in June 2006, when the commissioning of the project took place there was only data of 2004 available and therefore this data is considered. It is clear from the report that investment in the states of Andhra Pradesh, Karnataka, Tamil Nadu and Gujarat are better options than Maharashtra. Based on their analysis carried out for all the states in India, the results specific to the states with available wind potential are summarized in Table 7:

Table 7: Score of the ICRA / CRISIL Report on State Power Sector

Rank	State	State Govt.	SERC	GENERATION	T&D	Financial Risk	Others	Commercial Viability	Total
Maximum score		**17.00**	**13.00**	**6.0**	**21.00**	**23.00**	**5.00**	**15.00**	**100**
1	Andhra Pradesh	8.75	10.75	4.75	11.75	14.75	2.75	3.25	56.75
2	Karnataka	9.50	9.50	5.50	7.25	13.75	3.75	2.00	51.25
3	Gujarat	9.69	2.50	3.75	9.30	15.50	3.75	6.50	50.99
4	Rajasthan	9.00	4.00	5.20	7.25	12.63	3.75	-	41.83
5	Tamil Nadu	4.75	9.00	3.00	9.50	9.63	1.75	2.00	39.63
6	**Maharashtra**	**7.25**	**4.00**	**4.00**	**4.50**	**12.25**	**1.25**	**4.50**	**37.75**
7	Kerala	4.00	0.50	2.50	13.00	10.00	3.00	1.25	34.25
8	Madhya Pradesh	6.90	3.00	2.00	6.10	4.75	-	2.00	24.75

Furthermore, the 2006 edition of the Report on State Power Sector Performance Ratings shows that Maharashtra is not the best state to invest in, even today. The report lists various problems that are being faced in the Maharashtra power sector. The report states that the problems in the power sector have led to stagnancy in the generation capacity of the state for the last 5 years. Addition to power generation by the private sector in this period has been minimal. There has also been an increase in the rate of failures in the distribution network. The issuance of tariff orders has been delayed and all these problems have resulted in the MSEB incurring an accumulated loss of a whopping INR 19.08 billion as on March 31 2005.

The two ICRA reports of 2004 and 2006 clearly suggest that Maharashtra, as of today as well as during the time the investor purchased the WEGs, was not the best state for investment in the power sector and the project proponent has undertaken a considerable risk while investing in this state.

Barrier 2. Operational Risk

A Wind farm might face variety of risks during the phase of its operation. Some of them are enlisted below:

a) Right of way – The problem of right of way is basically characterized by mass scale protests by the nearby villagers against the operation of the WEGs. This can lead to ceased operation of WEGs i.e. no generation of electricity and even transferring of these WEGs to other areas. Such problems have recently cropped up in the districts of Sangli (one of the location of the project) and Dhule in the state of Maharshtra (**http://forums.bharat-rakshak.com/viewtopic.php?t=2869&start=40&sid=907fccac520aa09e90c0f205b7b82245**) inspite of obtaining No Objection Certificates (NOC) from the village panchayats. This poses a

great risk to the present project as it has already suffered from the mishap of cable theft. Thus, incidences like these in the state of Maharashtra act as a great barrier to smooth implementation of the project.

b) **Grid related problems** -Wind generated electricity do not form part of the base load to the grid. The infrequent nature of wind power is the main reason behind it. In case of low demand or the requirement of maintaining the grid stability, wind power is often disconnected from the grid. This leads to loss of the generated electricity and thus loss to the revenue earned by the investors. There are various other grid related problems which face wind power for example poor grid availability, grid outages etc.

For instance, on the 25th February, 2007, a major grid disturbance occurred where in the 400 kV and 220 kV lines in Western Maharashtra tripped. Below is an extract from the press release of the incident (Source: http://www.wrldc.com/):

"Preliminary reports indicate that a fault occurred around Phadge, Nagothane ,Bableshwar area of Maharashtra causing multiple line trippings. These trippings led to islanding of Gujarat, Western Maharashtra and Mumbai system and loss of generation of around 4000 MW in Western grid including Tarapur nuclear station."

Such incidences cause loss of the generated electricity. Although the loss is applicable to all sources, it is more crucial for a renewable energy sources as these are not as competitive and efficient on other grounds like technology, cost of electricity etc.

Barrier 3: Regulatory Barrier -

A healthy regulatory environment is a pre-requisite for the development of wind power in the country, due to the inbuilt disadvantages of this source. Following are few of the issues which question the feasibility of wind power projects in the existing scenario.

Short Term PPA –

The power purchase agreement signed between project participants and the utility will last only for 13 years from the date of commercial operation. Beyond this period, the tariff rate applicable is highly likely to change. Keeping in mind the following issues, decrease in the tariff rates would not be surprising:

- Unhealthy financial status of the utilities
- Introduction of Availability Based Tariff
- Competitive Bidding

Thus, for the rest of the seven years of operation of the project, great deal of uncertainty will exist among the present investors.

Barrier 4: Prevailing practice –

Independent Power Producers in India usually operate through thermal installations because they can give guaranteed generation against the demand. Table 8 shows, that private sector investment in the financial year 2004-05 relied primarily on thermal power projects. RE technologies, especially wind energy projects can provide electricity but the generation is controlled by nature and the power producer cannot commit to the consistent delivery of electricity. In 2004-05 only **14.4%** of private investments were made in wind power (Table 8)

Table 8 : Sector wise Installed Generation Capacity in Maharashtra

Ownership	Modewise Breakup (MW)							
		Thermal						Grand Total
Sector	Hydro	Coal	Gas	Diesel	Total	RES*	Nuclear	
State	2831.66	6425	912	0	7337	74.76	0	10243.42
Private	**447**	**1650**	**1660**	**0**	**3310**	**631.92**	**0**	**4388.92**
Central	0	1339	397.28	0	1736.33	0	852.06	2588.39
Total	**3278.66**	**9414.05**	**2969.28**	**0**	**12383.33**	**706.68**	**852.06**	**17220.73**

(Source: Infraline.com, data for March 2006)

* RES includes wind energy and other renewable energy sources.

The private investment in wind electricity generation is therefore not the prevailing business practice in the state and the proposed project is hence, additional.

Apart from this, the central government envisaged by 2012 a capacity addition of 100,000 MW (Source: Development of Ultra Mega Power Projects, Ministry of Power) for which five Ultra Mega Power Projects (UMPP) of capacity 4000 MW each are being brought up. The projects were awarded on International competitive bidding (ICB) basis. Out of them, two have been awarded to private parties. Owing to the principle of large scale economies, these projects have managed to quote very low prices (lowest bid for Rs. 1.19) as compared to other sources of energy. Incidentally, four of these five UMPP's would be located in the western region and Maharashtra would be drawing heavily from these generating stations. Below is the table from the same report, which states the ***demand stated and the tentative allocation of power from these projects*** to the respective states.

Sr No	State	Sasan (MP)	Mundra (Guj.)	Akaltara (Chh.)	Ratnagiri (Mah,.)	Coastal Site Karnataka
1	Delhi	600		750		

2.	U.P	1000	500	1000		
3.	Uttranchal	200				
4.	Punjab	1000	1000			
5.	Rajasthan	500	750	750	500	300
6.	Haryana	850	700	700		
7.	M.P	1500		1000	500	
8.	Chhatis-garh	500		1500	500	
9.	Gujarat		1600			
10	Maharashtra		1500	1000	2000	1000
11	Karnataka				500	1500
12.	TamilNadu			500		1000
13.	Kerala					200
14.	A.P					
	Total	6150	6050	6300	4000	4000

12.2 After detailed discussions on the above projected demand, tentative power allocation from the proposed five Ultra Mega Power Project was agreed which is summarized in the Table given below:

Sr No	State	Sasan (MP)	Mundra (Guj.)	Akaltara (Chh.)*	Ratnagiri (Mah,.)	Coastal Site Karnataka
1	Delhi	500		-		
2.	U.P	500	300	-		
3.	Uttranchal	100				
4.	Punjab	600	500			
5.	Rajasthan	400	400	-	500	300
6.	Haryana	450	400	-		
7.	M.P	1200		-	500	
8.	Chhatis-garh	250		-	500	
9.	Gujarat		1600			
10	Maharashtra		800	-	2000	1000
11	Karnataka				500	1500
12.	TamilNadu			-		1000
13.	Kerala					200
14.	A.P					
	Total	4000	4000	-	4000	4000

- Demand from this project was noted but final distribution chart would be prepared after Chhattisgarh Government conveys its acceptance to the various conditions associated with development of Ultra Mega Projects.

Source: Development of Ultra Mega Power Projects, Ministry of Power

With market forces favouring fossil fuel based conventional power plants in the future and government's full fledged support to these projects (Refer: Paragraph 3 of Development of Ultra Mega Power Projects, Ministry of

Power) the western region in the coming years is soon going to become highly carbon intensive. Thus, clearly, the prevailing practice in the state and the region is that of investing into conventional power plants.
The present wind power project, if successful with the help of CDM benefits, will serve as a small contribution towards the development of clean energy and would serve as an example to other investors planning to invest into wind energy.

CDM benefit

The barriers outlined above have the potential to render the present project unviable. In a scenario like this, risk mitigating mechanisms like CDM revenues can help the project to a great deal. The CDM benefits not only act as cushion in reaching the appropriate project IRR but also help in meeting the necessary outflows for the execution of the project.

CDM benefit sharing:

The PPA signed for the present project between the investors and the Maharashtra State Electricity Distribution Company (MSEDCL) consists of clause which says,

"MERC shall be approached to review the tariff structure once the project becomes eligible for CDM or similar credits and much mechanism for sharing of CDM or similar credits between the seller and the MSEDCL. The decision of the MERC will binding on both the parties."

Benefit sharing of this sort decreases the net expected revenues to the project and thus affects the returns. Moreover, no fixed proportion of the CDM sharing has been mentioned, thus causing huge uncertainty in the returns to the project. In such a case, a healthy benefit from CDM will ensure that any legible proportion of benefit sharing stated by the MERC does not affect the returns to the project greatly.

The following is an extract from the MERC order in the matter of application filed by the (i) Maharashtra state electricity board [mseb], (ii) Shri pratap g. Hogade, (iii) Renewable energy developers Association of Maharashtra [REDAM], and (iv) Indian wind energy Association [inwea] For Procurement of wind energy & wheeling for third party-sale and/ or self-use, 2002, which discusses the regulatory commission's policy to introduce the concept of CDM benefit sharing.

> "The Commission understands that several renewable energy projects may be eligible for the benefits available through the "Clean Development Mechanism" under Kyoto Protocol. While these benefits are not available to a large number of projects which are on the verge of commercial viability, they can be availed of in future. Since the consumer is supporting the renewable energy projects by way of higher tariffs, it is essential that any such credits secured by a project should be shared on an equitable basis by the developer with the utility and its consumers. The Commission shall review the tariff structure for RE Projects that become eligible for CDM or similar credits, and devise a system, which will enable sharing of benefits between the consumers and the project developers at that stage."

The extract also mentions that once the project has been registered as a CDM project the tariff for the project would be reviewed. Thus, uncertainty also lies in the tariff which would be applicable to the entire project.

Though the investors are eligible for the entire CDM benefits for investing into clean technology yet they would be entitled to only a small portion of it because of the policy of sharing with the utility. Moreover, the financial returns to the project initially conceived would also change if and when the commission revises the tariff applicable. Thus a

great deal of uncertainty exists even after the investors become entitled to CDM benefits. The importance of the CDM benefits to the project is reflected from the fact that the investors still want to go for apply for CDM benefits.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

>>

The project category is renewable electricity generation for a grid system, which is also fed by both fossil fuel fired generating plants (using fossil fuels such as coal, natural gas, diesel, naphtha etc.) and non-fossil fuel based generating plants (such as hydro, nuclear, biomass and wind). Hence, the applicable baseline, as per Clause 29 of Appendix B, indicative simplified baseline and monitoring methodologies is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kgCO2/kWh) calculated in a transparent and conservative manner.

Appendix B to the simplified Modalities and Procedures for Small-Scale CDM project activities (FCCC/CP/2002/7/ADD.3) gives two options for calculating the baseline for a Type I D project:

(c) The average of the "approximate operating margin" and the "built margin"
OR
(d) The weighted average emissions (in tCO_2 equ/MWh) of the current generation mix.

As per the Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories the baseline should be calculated in a conservative and transparent manner. Since according to the baseline data published by the Central Electricity Authority (CEA), the weighted average emission rate gives a more conservative emission co-efficient, baseline approach (b) the weighted average emissions (in tCO_2 e/MWh) of the current generation mix has been taken for the calculation of baseline.

B.6.2. Data and parameters that are available at validation:

EF_y

Data / Parameter:	Weighted Average Emission Rate (tCO2/MWh) (incl. Imports)
Data unit:	tCO_2/MWh
Description:	Emission factor of the existing generation mix
Source of data to be used:	CEA : 'The CO2 Baseline Database for the Indian Power Sector' Version 2, 21st June 2007 URL: http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm
Value Applied:	Details of the data values are given in the baseline calculations in Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	- More conservation than Combined Margin Emission Factor - Emission factor is used in the calculation of emission reductions. - The emission factor is calculated. - The data is calculated yearly - 100% of the data is monitored - The data will be archived electronically
Any comment:	Used to calculate emission reductions

B.6.3 Ex-ante calculation of emission reductions:

The baseline is calculated using the weighted average emission rate approach. The baseline emission factor is calculated in the following steps:

Step 1: Calculation of Weighted Average Emission Rate (tCO2/MWh) (incl. Imports)

The weighted emission rate for the current generation mix as per the CEA CO2 Baseline database is 0.8828 tCO_2/MWh (EF_y)

Step 2 : Calculation of Baseline Emissions (BE_y)
Baseline emissions due to displacement of grid electricity are the product of the baseline Weighted Average Emission Rate (tco2/MWh), times the electricity supplied by the project activity to the grid (EG_y), over the crediting period.
$BE_y = EG_y . EF_y$

Baseline Emissions = 15517 tCO2e/yr

Step 3 : Calculation of Emission Reductions (ER_y)
The emission reductions by the project activity during a given year y is the difference between Baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (L_y).

$ERy = BE_y – PE_y – L_y$

- Project Emissions by sources of GHGs due to the project activity within the project boundary are zero since wind power is a GHG emission free source of energy.
- Leakage is not applicable as the renewable energy technology used is not equipment transferred from another activity. Therefore, as per the simplified procedures for SSC project activities, no leakage calculation is required.

Total project activity emissions, including leakage are zero for the project activity.

Therefore, Net anthropogenic emission reductions due to the proposed project are equal to the baseline emissions on a yearly basis. The project activity will evacuate approximately 18900 MWh/yr of renewable power annually to the power deficit Western Region Grid and the annual emissions reductions are equal to 15517 tCO2.

Key baseline information is furnished in Annex 3.

B.6.4 Summary of the ex-ante estimation of emission reductions:

>>

Table 9: Ex-ante estimation of emission reductions:

Year	Estimation of baseline emission reductions (tonnes of CO_2e)	Estimation of project activity emissions (tonnes of CO_2e)	Estimation of Leakage (tonnes of CO_2e)	Estimation of emission reductions (tonnes of CO_2e)
01/10/2007 - 30/09/2008	15517	0	0	15517
01/10/2008 - 30/09/2009	15517	0	0	15517
01/10/2009 - 30/09/2010	15517	0	0	15517
01/10/2010 - 30/09/2011	15517	0	0	15517
01/10/2011 - 30/09/2012	15517	0	0	15517

01/10/2012 - 30/09/2013	15517	0	0	15517
01/10/2013 - 30/09/2014	15517	0	0	15517
01/10/2014 - 30/09/2015	15517	0	0	15517
01/10/2015 - 30/09/2016	15517	0	0	15517
01/10/2016 - 30/09/2017	15517	0	0	15517
Total (tonnes of CO_2e)	**155170**	**0**	**0**	**155170**

B.7 Application of the monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

The following parameter will be monitored during the project activity:
a) EGy

B.7.1 Data and parameters monitored:	
Data / Parameter:	EG_y
Data unit:	MWh
Description:	Electricity supplied to the grid by the project
Source of data to be used:	JMR Sheets/measurement records of the EPC contractor.
Value Applied:	18900 MWh/yr
Justification of the choice of data or description of measurement methods and procedures actually applied :	- Electricity measured is used in calculation of emission reductions. - The electricity is measured with the help of electronic meters both by the operator and the grid representative. - The data is measured hourly and recorded monthly - 100% of the data is monitored - The data will be archived electronically
Any comment:	Electricity is supplied by the project activity to the grid. This is double checked by receipt of sales.

B.7.2 Description of the monitoring plan:

>>

The investors have entered into Operation & Maintenance Agreement with the EPC contractors M/s Suzlon Windfarm Services Limited, for carrying out the necessary maintenance of the installations during the designed life of the project. These respective agencies will be responsible for the operation and maintenance structure that will be implemented in order to monitor emission reductions generated by the project activity is as under:

1 Routine Maintenance Services

Routine Maintenance Labour Work involves making available suitable manpower for operation and maintenance of the Equipment and covers periodic preventive maintenance, cleaning and upkeep of the Equipment including -

a) Tower Torquing
b) Blade Cleaning
c) Nacelle Torquing and Cleaning
d) Transformer Oil Filtration
e) Control Panel & LT Panel Maintenance
f) Site and Transformer Yard Maintenance

2 Security Services
This service includes watch and ward and Security of the Wind Farm and the Equipment.

3 Management Services
a) Data logging in for power generation, grid availability, machine availability.
b) Preparation and submission of monthly performance report in agreed format.
c) Taking monthly meter reading jointly with SEB, of power generated at the Wind Farm and supplied to SEB Grid from the meter/s maintained by SEB for the purpose and co-ordinate to obtain necessary power credit report/ certificate.

4 Technical Services
a) Visual inspection of the WTG and all parts thereof.
b) Technical Assistance including checking of various technical, safety and operational parameters of the Equipment, trouble shooting and relevant technical services.

The responsibility of registration of the project has been assigned to

Mr. Ravindra Kunawat
Taurian Iron & Steel Co.Pvt. Ltd.
302-A, Poonam Chambers,
Dr. Annie Besant Road, Worli,
Mumbai, India- 400 018.

Tel no. 91-22-6669 8000 extn: 8042
Fax : 91-22-66698010/20
E-mail: ravindra.kunawat@tauriansteel.com

Mr. Ravindra Kunawat, has been assigned overall supervision of the project performance including the following:

- Performance review of the WEG installations.
- Arranging for annual verification of the installations for issuance of CERs

The project activity essentially involves generation of electricity from wind, the employed WEGs convert wind energy into electrical energy and do not use any other input fuel for electricity generation. Thus no special ways and means are required to monitor leakage from the project activity.

Leakage
The project activity essentially involves generation of electricity from wind, the employed WEGs convert wind energy into electrical energy and do not use any other input fuel for electricity generation. Thus no special ways and means are required to monitor leakage from the project activity.

Since the project activity does not involve any leakage and only measurement of generated electricity from wind farm installations will form the basis of annual GHG reduction by the project. The project management does not require any extensive training of personnel. The respective EPC contractors do the operation and maintenance of the installations and measurement of generated electricity is done by state electricity utility. The EPC contractors are ISO certified organizations and follow designated procedures for the assigned tasks. One of the EPC contractors (Suzlon) has also implemented SAP3 for stringent management of project. The operation and maintenance structure for the project activity has been given in a flow chart in Annexure 6.

1. The proposed project activity requires evacuation facilities for selling the electricity to the grid. The evacuation facility is essentially maintained by the state power utility (MSEB).

2. The electricity generation measurements are required by the utility and the investors to assess electricity-feed the grid.
3. The project activity has therefore envisaged two independent measurements of generated electricity from the wind turbines.
4. The primary recording of the electricity fed to the state utility grid will be carried out at the HT side of the step up transformer of the Transformer yard at each individual location.
5. The joint measurement will be carried out once in a month in presence of both parties (the developer's representative and officials of the state power utility). Both parties will sign the recorded reading.
6. The secondary monitoring, which will provide a backup (fail-safe measure) in case the primary monitoring is not carried out, would be done at the individual WEGs. Each WEG is equipped with an integrated electronic meter. For the Suzlon windmills, these meters are connected to the Central Monitoring Station (CMS) of the entire wind farm through a wireless Radio Frequency (RF) network. The generation data of individual machine can be monitored as a real-time entity at CMS. The snapshot of generation on the last day of every calendar month will be kept as a record both in electronic as well as printed (paper) form.

B.8 Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)

>>

Date of completion of the baseline study: 08/06/2007

Contact:

Senergy Global Private Limited (Not a Project Proponent)
9th Floor, Eros Corporate Tower,
Nehru Place
New Delhi – 110019
India
Tel: +91 11 4180 5501/02
Fax: +91 11 4180 5504

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

>> 27/03/2006

C.1.2. Expected operational lifetime of the project activity:

>> 20 years 0 months

C.2 Choice of the crediting period and related information:

C.2.1. Renewable crediting period

C.2.1.1. Starting date of the first crediting period:

>> A fixed crediting period is chosen hence this is not applicable.

C.2.1.2. Length of the first crediting period:

>> N/A

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

>> 01/10/2007

C.2.2.2. Length:

>>10 years 0 months without renewal

SECTION D. Environmental impacts

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

>> According to Indian regulation, the implementation of the wind park does not require an Environmental Impact Assessment (EIA) study. As per the prevailing regulations of the Host Party i.e. India represented by the Ministry of Environment and Forests (MoEF), Govt. of India and also the line ministry for environmental issues in India, Environmental Impact Assessment (EIA) studies need not to be conducted for the projects which comes under the list whose investment is less than Rs. 1000 millions[3, 4] Since the Wind parks are not included in this list and also the total cost of the project is only Rs 439.6 million, the project activity doesn't call for EIA study.

Also, in the redefined EIA notification i.e. S.O. 1533[5], dated 14th September 2006, Ministry of Environment & Forests (MoEF), Govt. of India, the wind projects are not included in the list of projects that has to get Prior Environmental Clearance (EC) either from State or Central Govt. authorities and hence no EIA study was conducted.

Although an EIA is not required, the possible environmental impacts listed below were analysed:

- Energy generation and emission reduction
- Nature: presence of bird migration tracks, disturbance of breeding grounds (during construction and operation).
- Landscape: possible reflections, disturbance of the landscape
- Noise: acceptable noise levels for nearby living inhabitants, vulnerable nature areas, etc., by means of a global sound profile.
- Soil and water: possible emissions to soil and water, setting of the ground, hydrology
- Security/safety aspects
- Physical use of space of the wind farm, roads and transmission lines

The analysis concluded that there are no reasons and areas for concern. The wind park is located in a sparsely populated area with no vulnerable flora or fauna. The wind park results only in positive environmental impacts (lower emissions) and no negative impacts.

[3] S.O. 60 (E), Environment Impact Assessment Notification, Ministry of Environment and Forests, Govt. of India dated 27th January 1994.

[4] Amendments made on 13th June 2002 vide S.O. 632 (E), Ministry of Environment and Forests, Govt. of India.

[5] Page No: 10, S. O. 1533, Ministry of Environment & Forests (MoEF), Govt. of India, http://envfor.nic.in/legis/eia/so1533.pdf

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

>> The analysis concluded that there are no reasons and areas for concern. The wind park is located in a sparsely populated area with no vulnerable flora or fauna. The wind park results only in positive environmental impacts and no negative impacts

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

- State Electricity Utility (Maharashtra State Electricity Distribution Company limited, MSEDCL)
- Maharashtra Energy Development Agency (MEDA)
- Local villagers (owners of land)

The land used for implementation of the Wind farm belongs to the villagers and has been procured by the EPC contractor "Suzlon Energy Limited" for development of WEG wind farm purposes, thus local stakeholders were approached right from the inception of the project.

The land used for implementation of project was not used for agriculture or any other economic activities, the real estate agencies involved in the land acquisition carried out meetings with the land owners (landowners and prominent people of villages) and apprised them about the proposed project activity.

E.2. Summary of the comments received:

- Clearances and approvals have been received by each of the administrative institutions by the project proponent.
- No objection Certificates from the village Panchayat of all the villages have been taken certifying that the villagers along with the Gram Panchayat have no objection to the windmill installation in their village, and that the project activity has led to no significant negative impacts.

E.3. Report on how due account was taken of any comments received:

>> Since no negative comments were given so no account was taken.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Taurian Iron & Steel Co. Pvt. Ltd.
Street/P.O.Box:	302-A, Poonam Chambers,
Building:	Dr. Annie Besant Road,
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URL:	
Represented by:	Ravindra Kunawat
Title:	MR.
Salutation:	Manager
Last Name:	Kunawat
Middle Name:	--
First Name:	Ravindra
Department:	
Mobile:	--
Direct FAX:	--
Direct tel:	--022 - 66698018
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no recource to any public funding for the Project Activity

Annex 3

BASELINE INFORMATION

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

Annex 4
Technical Specifications of WEGs

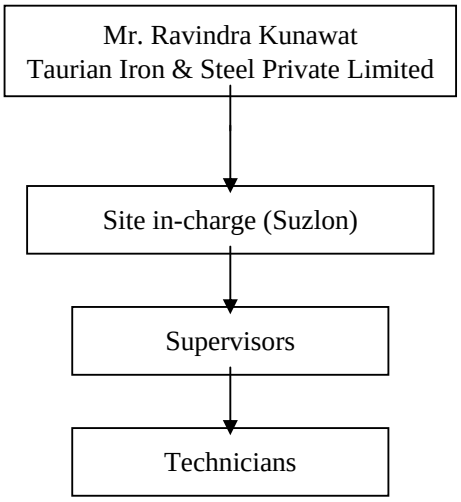
Technical Specifications of various models of SUZLON 1.25 MW WEG

Operating Data	**Models**				
	S.60/1250	**S.64/1250 (50 Hz)**	**S.64/1250 (60 Hz)**	**S.66/1250 (50 Hz)**	**S.66/1250 (60 Hz)**
Rotor diameter	60 m	64 m	64 m	66 m	66 m
Hub height	65 m (variable as per requirements)				
Installed elec. Output	1250 kW				
Cut-in wind speed	3 m/s				
Rated wind speed m/s	14	12	12	14	12
Cut-out wind speed m/s	25				
Survival wind speed m/s	67				
Rotor					
Blade	3 bladed horizontal axis				
Swept area m^2	2828	3217	3421	3421	3421
Rotational Speed	13.9 / 20.8 rpm				
Regulation	Pitch regulated				
Generator					
Type	Asynchronous 4/6 poles				
Rated output	250 / 1250 kW				
Rotational speed	1006/1506 rpm	1006/1506 rpm	1208/1506 rpm	1006/1506 rpm	1208/1506 rpm
Frequency	50 Hz	50 Hz	60 Hz	50 Hz	60 Hz
Gear Box					
Type	Integrated (1 planetary & 2 helical)				
Ratio	74.917:1	74.917:1	89.229:1	74.917:1	89.229:1
Yaw System					
Drive	4 electrically driven planetary gearbox				
Bearings	Polyamide slide bearings				
Braking System					
Aerodynamic brake	3 independent systems with blade pitching				
Mechanical brake	Hydraulic fail safe disc brake system				

Control Unit type	Programmable microprocessor-based; high speed data communication, active multilevel security, sophisticated operating software, advance data collection remote monitoring & control option, UPS back up, Real time operation indication
Tower type	Lattice / Tubular, Hot Dip Galvanized, Epoxy / PU coated

Annex 5

Operation and Maintenance Structure for the CDM project



Annex 6

http://forums.bharat-rakshak.com/viewtopic.php?t=2869&start=40&sid=907fccac520aa09e90c0f205b7b82245

Suzlon closes 44 turbines in Western Maharashtra

Quote:

NEW DELHI, April 27 India's private wind major Suzlon closed 44 wind turbines in western Mahrashtra state due to protests from villagers.

The company said it had no option other than to shut down its turbines, as local residents have demanded more money for the land leased to Suzlon.

Suzlon also sought help from the state government to resolve the matter.

"The company has 222 MW installed capacity in Sangli, of which 74 MW was shut down," said Anil Kane, corporate adviser of the company. He said 74 MW works out to 34 percent of the installed capacity. Company officials met with state government officials on the issue Wednesday.

Suzlon spokesman Vivek Kher said though the company faced trouble for some time, this time the dispute had a serious effect on its power production.

"Despite our efforts to resolve the issue, we have not been getting support from the government. The issue has reached such a stage that we have no option than to defer the installations of turbines in Sangli and Dhule," Kher said. He said the company planned to shift some of the turbines to a neighboring state, mainly Gujarat.

"We are also forced to cancel the turbine installations in few other parts of Maharashtra," Kher said.