CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 02 - in effect as of: 1 July 2004)

CONTENTS

SECTION A. General description of project activity

A.1 Title of the project activity:

>> **Grid-connected electricity generation from renewable sources at Satara by M/s Bajaj Auto Ltd. (BAL) using wind Power**
Version: 02
Date : 17/12/2005

A.2. Description of the project activity:

>>
The project Activity

The project activity includes development, design, engineering, procurement, finance, construction, operation and maintenance of wind energy based electric generating stations and supply electricity to the "state electricity grid". The project activity involves generation, operation and maintenance of grid connected electricity generation facility at Satara in Maharashtra with a total generation capacity of 45.2 MW. The main objective of this project is to generate power from non-polluting mechanism thereby displacing the electricity from the grid that is mostly produced by carbon intensive fossil fuels. Ultimately the project activity aims at harnessing the renewable natural resources in the region, and country and thereby displacing non renewable natural resources thereby ultimately leading to sustainable, economic and environmental development.

The electricity generated from this wind farm is supplied to common local substation through local transmission lines duly metered at developer's end. The project activity comprises of supply, erection, commissioning and operation of 112 numbers of stall controlled asynchronous wind electric generator each capacity 350 KW of Suzlon make and 6 numbers of pitch controlled asynchronous wind electric generator each capacity 1000kw of Suzlon make. The planned annual output of the wind farm is 68.8 million units and 13.2 million units respectively, i.e. 82 million units all machines put together. The generated electricity is being supplied to state electricity board of Maharashtra.

The project activity meets several sustainable development objectives including:

- Contributes towards achieving the objective of the policy on wind power generation of Government of India and Government of Maharashtra, which is to promote generation of energy through non-conventional sources to supplement the ever-increasing demand of the state.
- Contribution towards meeting the electricity supply deficit in Maharashtra
- CO_2 abatement and reduction of green house emission through development of renewable technology.
- Rural and Infrastructural development in the areas around the Project
- Reducing the average emission intensity (Sox, Nox, PM etc,) average effluent intensity and average solid waste intensity in the system.
- Conserving natural resource including land, forest, water and the ecosystem
- Strengthening local grid of supply company.

A.3. Project participants:

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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)	**Bajaj Auto Ltd., Pune, Maharashtra**	No

Many other entities from Annex I countries may join as project participants. The list of such participants, if any, will be provided before the project is submitted for registration.

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 (GoI)

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

>> Maharashtra

A.4.1.3. City/Town/Community etc:

>> District - Satara

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

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The project activity is located in the Site 1, Vankusawade wind zone at Satara District in Maharashtra, India. It is located 50 km away from NH4 highway and 1150 mts above mean sea level. The nearest railway station is Satara Railway station.

Latitude: 17^0 42' N

Longitude: $74^0$02' E

A.4.2. Category(ies) of project activity:

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The project activity may principally be categorized in Scope number 1, Sectoral scope – Energy Industries (renewable/non-renewable sources)

A.4.3. Technology to be employed by the project activity:

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The project activity involves 112 windmills of 350KW capacity each. These windmills are of Suzlon make. The WEC's generates a 3-phase power at 50Hz, 415V which stepped up to 33 KV and connected to grid. Similarly, 6 windmills of 1000KW capacity each Suzlon make 3 phase 690V 50Hz wind energy generators installed & connected to the internal 33 KV grid through common metering to deliver wind energy to local evacuation 1) Substation Vankusawade 220/33 KV substation, 3 X 50 MVA transformers capacity 2) Substation Malharpeth 20 Kms away from the site, 220/33 KV substation 2X 50 MVA=100 MVA capacity of transformers.

Salient features of the technology are :

- ✓ Asynchronous generator with stall regulated features with gear box and three blades of FRP, machine mounted on lattice type GI Tower of 50 mtr Ht, computerized control from local as well as SCADA from central monitoring systems.
- ✓ With step up transformer and protection systems

A.4.4. Brief explanation of how the anthropogenic emissions of anthropogenic greenhouse gas (GHGs) by sources are to be reduced by the proposed CDM project activity, including why the emission reductions would not occur in the absence of the proposed project activity, taking into account national and/or sectoral policies and circumstances:

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Maharastra's energy requirement is 6,2652 MU for 2004-2005. Maharashtra State Electricity Board's own generation capacity is not adequate to supply the demand in MSEB area. The additional requirement may be met by either purchasing power or setting up of new electricity generating units. Second, its electricity sector relies overwhelmingly on thermal-based power generation (coal and gas), and has under-developed renewable energy sources such as wind (constitutes only 0.87% of the regional grid power at present). As a result, the region's power grid is a major source of anthropogenic GHGs. In the past capacity additions have primarily been through the addition of coal based thermal power plants.

This CDM project, will displace equivalent unit of electricity generated by thermal and other power plants connected to the grid**.** The CDM project activity, wind based project, represents a small capacity addition and hence will have a marginal effect on the operating generating units connected to the selected grid as well as on the capacity addition to the grid. It is demonstrated in Section B.3 that in the absence of the proposed CDM project activity, the electricity authority would have permitted new thermal and/or other GHG intensive power generation options and/or continued with the existing ones, which would result in the emission of a greater amount of greenhouse gases (GHG) emissions for generating same quantum of power from the proposed project activity.

The project itself is a zero emission power project as it is based on wind, a renewable natural resource. However, there had been some fugitive emission (in the form of carbon dioxide emissions due to movement of vehicles) during the construction phase of the project, but such emission has been considered negligible when compared with the total savings earned by the project through out its lifetime and based on the scale of construction activities involved.

In absence of the project activity, in view of the substantial energy deficit situation in the State of Maharashtra, the capacity/generation addition would have been the new or existing fossil fuel based generation stations connected to it.

On account of the project activity the power generated by the wind power projects shall result in avoidance of such " Business As Usual scenario" (GHG emission in the grid, which would have otherwise occurred, to generate the same power in the absence of the project).

The generation of power with wind power is not a requirement as per the Indian regulatory requirement. Though there are several promotional policies for renewable energy generation in India and specifically in the State of Maharashtra, the share of wind energy in the generation capacity in the State of Maharashtra is only 2.64 % and investment into Wind Turbines is insignificant component of the investments into power sector.

The emission reduction achieved during the 10 year crediting period aggregates to 744,129 tons of CO_2e.

A.4.4.1. Estimated amount of emission reductions over the chosen crediting period:

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The estimated activity is expected to generate an average of 82 MU of electricity during each year of the crediting period. The emission rate of the selected baseline grid (western grid) where the project activity will occur, would displace fossil fuel based electricity generation to the extent of the electricity generated by this wind project. Therefore, the emission reduction achieved during the 10 year crediting period aggregates to 744,129 tons of CO_2e

Years	Annual estimation reductions in tonnes of CO_2 e
2000-2001	31,070
2001-2002	64,225
2002-2003	81,104
2003-2004	81,104
2004-2005	81,104
2005-2006	81,104
2006-2007	81,104
2007-2008	81,104
2008-2009	81,104
2009-2010	81,104
Total estimated reductions (tonnes of CO_2 e)	744,129
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tonnes of CO_2 e)	74,412.9

A.4.5. Public funding of the project activity:

>> There is no Official Development Assistance funding to be used for the project activity.

SECTION B. Application of a baseline methodology

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

>> The approved baseline methodology ACM 0002/version 04 has been used to determine the baseline emissions and emission reduction due to the project activity. The title of this baseline methodology is "Consolidated baseline methodology for grid – connected electricity generation from renewable sources".

B.1.1. Justification of the choice of the methodology and why it is applicable to the project activity:

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This methodology is applicable to grid-connected renewable power generation project activities under the following conditions:

- Applies to electricity capacity additions from:
  1. Run-of-river hydro power plants; hydro power projects with existing reservoirs where the volume of the reservoir is not increased.
  2. Wind sources;
  3. Geothermal sources;
  4. Solar sources;
  5. Wave and tidal sources.

- This methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;
- The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available; and
- Applies to grid connected electricity generation from landfill gas capture to the extent that it is combined with the approved "Consolidated baseline methodology for landfill gas project activities. (ACM0001).

In case of the project under consideration:

- Electricity capacity additions are from Wind resources
- There is no switching from fossil fuels to renewable energy at the site of the project activity
- The geographic and system boundaries for the relevant electricity grid (Western) can be clearly identified and information on the characteristics of the grid is available

B.2. Description of how the methodology is applied in the context of the project activity:

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The following alternatives including the CDM project activity have been evaluated for checking regulatory and the financial viability of each alternative proposed:

- ✓ Use of a higher GHG intensive fuel like Coal for power generation, in keeping with the existing/ prevalent trend and prevailing practice in the State of Maharashtra
- ✓ Bajaj Auto Ltd had an option of the state electricity grid to fulfil its power requirement.
- ✓ Generation of electricity using wind as a renewable source of energy for power generation, without CDM revenue
- ✓ Generation of electricity using wind as a renewable source of energy for power generation with CDM revenue

None of the alternatives that the project proponent had, in order to meets it's power requirements are restricted by the regulations, including the environment regulations. Out of the all the alternative scenarios to the project activity, the first two are financially feasible alternatives and the GHG emissions in the second alternative are less than that of first one.

Alternatives	Permitted by regulations	Financial Feasibility
Use of a higher GHG intensive fuel like Coal for power generation,	Yes	Yes
Option of the state electricity grid to fulfil its power.	Yes	Yes
Generation of electricity using wind as a renewable source of energy for power generation, without CDM revenue	Yes	No

Out of the alternative scenarios, the first two are financially feasible alternatives and the baseline emissions in the state electricity grid , would be less than those in case of a higher GHG intensive fuel

like Coal for power generation. The emission reduction calculation has followed a conservative approach, while selecting the state electricity grid as the baseline scenario.

Baseline emission rate calculation

The baseline emissions (*BEy* in tCO_2) are the product of the baseline emissions factor (*EFy* in tCO_2/MWh) times the electricity supplied by the project activity to the grid (*EGy* in MWh) minus the baseline electricity supplied to the grid in the case of modified or retrofit facilities ($EG_{baseline}$ in MWh), as follows:

$BEy = (EGy - EG_{baseline}) * EFy$

In the case of this project activity $EG_{baseline} = 0$

$BE_y = EG_y \times EF_y$

The baseline information is provided under Annex 3. The details of the calculations are provided under section E.

Selection of Grid

The management of generation and supply of power within the regional grid is undertaken by the load dispatch centers (LDC). 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 with in different states in the regional grid. Thus there is trading of power between states in the grid. Similarly there are imports and export of power between regional grids.

Since the CDM project would be supplying power to the regional grid it is also preferred 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.

The baseline scenario considers that the electricity would have otherwise been generated by operation of existing power plants in the western grid and by addition of new generation sources.

Combined Margin Calculations

The impact on the operating margin accounts for the fact that the system operator will adjust the output of other existing plants on the system in response to the output of the proposed project.

The second contribution is on the build margin (delaying or avoiding the construction of future power plants). This second contribution accounts for the fact that even a small project is likely to delay the commissioning of new generation sources, if not directly displace a specific other new generating source. In fact, this delay effect is a reasonable assumption where (a) there is a planned or unplanned sequence of new facilities to be built, and (b) the timing of construction is affected by the need to balance supply and demand, either through maintaining the reserve margin above a threshold level. In fact, this delay effect can be expected to effect total emissions at the build margin to a degree that is comparable in magnitude to the effect on the project's effect on emissions at the operating margin.

The baseline emission factor (EFy) has been calculated as a combine margin (CM) consisting of the combination of operating margin (OM) and build margin (BM). Therefore, OM has been calculated based on 'existing actual and historical emission of last 3-years average', and BM has been calculated based on power plants capacity additions in the electricity system that comprise 20% of the system

Calculations for the CM is based on data collected from authenticate official sources Central Electricity Authority (CEA)) and Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Workbook Table 1.2 and Table 1.4. All generation data collected are 3-year average based on recent statistics available at time of this PDD submission.

Step 1. Calculating the Operating Margin emission factor ($EF_{OM,y}$)
The "Simple OM" method has been selected as per guidelines provided in ACM0002/version 04, since low-cost/must run resources (hydro, wind and nuclear) in the chosen (western grid) constitute less than 50% of total grid generation in the five most recent years.

Further, generation data from Western grid and CEA for the last five year shows that low-cost must run resources are only 8.98% of the grid generation. Moreover power plants based on wind resources (may/may not be low cost option) are not must run as their performance is based on availability of appropriate wind speed and power density, which is uncertain.

Therefore, the present project activity can use *Simple OM method.* The simple OM is calculated following the ACM0002/version 04 methodology, using a 3-year average data, based on the most recent statistics available. This option does not call for updation based on *ex post* monitoring.

Step 2. Calculate the Build Margin emission factor ($EF_{BM,y}$)
A mix sample of plants that reasonably represents recent trends in Western electric sector expansion approximates the system build margin. The proposed mix is the power plants capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently. Given this assumption regarding the build margin, the baseline build margin emissions (BM) rate is approximated as the weighted average emission rate for the identified mix of recent plants. Further, out of the given option of ex-ante and combination of ex-ante and ex-post calculation, ex-ante calculation deems fit in project case.

Step 3. Calculate a baseline emission factor EF_y
The baseline emission factor has been calculated as the weighted average of the Operating Margin emission factor **($EF_{OM,y}$)** and the Build Margin emission factor **($EF_{BM,y}$)** where equal weights have been provided as default.

No leakage has been considered in the calculation, as per recommendations of the ACM0002/version 04. Therefore, the emission reduction is actual baseline emission (BEy), since the project activity is based on wind resources and will not have any project emissions.

Variable	Data Source
EG_Y= Electricity supplied to the grid by the project proponent	Electricity supplied by the project to the grid by the deemed revenue receipt of sales being captive consumption. This requires monitoring of individual electricity generation from each of the turbines comprising the various sub projects jointly by the project proponent and

	the Electricity Board every month.
Parameter	Data Source
$\underline{EF_{OM,y}}$	Calculated by using CEA General Review Report
$\underline{EF_{BM,y}}$	Calculated by using CEA General Review Report

B.3. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity:

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1. Demonstrating the additionality of the project

The project activity will be defined additional if anthropogenic emissions of GHGs by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.

Within the scope of the adopted baseline methodology, additionality has been demonstrated by crossing certain barriers as per the following steps, which are organised below as per the CDM Meth Panel guidelines as explained in the baseline methodology adopted for this project activity.

Steps for Additionality Check	**Demonstration of crossing Additionality Check Steps**	**Conclusion**
Step 0: Preliminary screening based on the starting date of the project activity. Has construction of the project already started? If yes, is there verifiable evidence to justify that CDM was seriously considered at the start of the project?	✓ Yes, the procurement and commissioning started after January 2000, and the project is in operation at present. *Bajaj Auto Ltd. had gained awareness regarding the clean development mechanism in 1999-2000 through various seminars and conferences and published literature.* The BAL's management had taken a decision to go ahead with the project, after duly considering CDM benefits under the Kyoto Protocol. There is documentary evidence to such decision that could be verified by the validator.	The project activity has crossed step 0 of additionality demonstration, and can move to step 1.
Step1: Identification of alternatives to the project activity consistent with current laws and regulations		

Steps for Additionality Check	Demonstration of crossing Additionality Check Steps	Conclusion
Sub-step 1a. Define Alternatives to the project activity	✓ Use of a higher GHG intensive fuel like Coal for power generation, in keeping with the existing/ prevalent trend and prevailing practice in the State of Maharashtra ✓ Bajaj Auto Ltd had an option of the state electricity grid to fulfil its power requirement. ✓ Generation of electricity using wind as a renewable source of energy for power generation, without CDM revenue ✓ Generation of electricity using wind as a renewable source of energy for power generation with CDM revenue	
Sub-step 1b. Enforcement of applicable laws and regulations	✓ Electricity generation from wind farm is not a legal requirement or a mandatory choice. ✓ There are, state and sectoral policies, primarily framed to encourage wind based power project to attract more private investment as there are many anticipated risks under the project and requires good amount of equity to be involved. ✓ The Indian Electricity Act of 2003 does not restrict or empower any authority to restrict the fuel choice for power generation. In addition, it may be noted that the draft National Electricity Policy (revised in August 2004) asserts 'coal would necessarily continue to remain the major fuel'. ✓ The applicable environmental regulations do not restrict the use of wind energy for power generation. There is no legal requirement on the choice of a particular technology for power generation. Thus it is clear that none of the alternatives that the project proponent had, in order to meets it's power requirements are restricted by the environment regulations, nor do they oppose any legal requirement enforced. Thus the project activity is not the only baseline scenario permitted by the regulations	The project activity has crossed step 1 (1a and 1b) of additionality demonstration, and can move to either step 2 or step 3 or both.
Step 2: Investment analysis Determine financial attractiveness of the project activity excluding consideration of revenue from CDM	We have chosen Barrier analysis in preference to the Investment Analysis	The project activity has crossed step 2 of additionality demonstration, and can move to step 4.
Step 3: Barrier analysis	*The project activity faces the following barriers that would have prevented its implementation, but do not prevent implementation of the identified alternative to the project.* ✓ <u>Technological barriers:</u> 1. The principal activity of the Group is the manufacture of two and three wheeler vehicles. Other activities of the Group include among others, insurance and retail	The project activity has crossed step 3 of additionality demonstration, and can move to step 4.

Steps for Additionality Check	Demonstration of crossing Additionality Check Steps	Conclusion
	financing. In order to explore the power sector, for power generation using renewable resource thereby displacing the fossil fuel based grid electricity was a risky position for the project proponent 2. The unavailability of the power sector expertise within Bajaj Auto Ltd. led to their dependency on a third party to help them develop these wind farms. 3. With a view to sustain their desire of power generation using renewable resource in order to mitigate the emission while meeting their power requirement, the project proponent had to upgrade the skill set of their existing man power for the maintenance and operation of these wind farms. 4. The project proponent was well educated of the fact that, occurrence of a fire accident, at the level of the windmills, will result in complete destruction of the entire connected circuit. The fire may be caused due to the natural occurrence of thunderstorm cum lightening strokes, which is a frequent phenomenon during the rainy season in this region. Also it is known fact that the lightening arresters fail, in case of the windmills. Occurrence of any such event may have led to a complete loss of investment. Investment Barrier 5. The optimum generation of power depends upon the **average available wind** in a year. The occasion of this average wind being available is very uncertain. The slightest change in the wind direction, which may lower the availability of the average wind can/will change the complete power output pattern. There is no mechanism which can guarantee the required average wind direction as well as speed that is required for a consistent availability of average wind. Also the extent to which the topology of the region affects the speed of the wind makes any kind of investments in wind farm very vulnerable 6. The risks associated with the uncertainty caused by the natural forces on power generation can be minimised only by going for larger wind farms. Larger wind farms would mean going beyond the captive requirement of the project proponent and further subjecting oneself to PPA risks. 7. There is uncertainty of state Govt notifications on power credits and also delay in getting such credits. 8. BAL had made a heavy investment on unrelated non-core business of wind mill Plant and machinery to the	

<table>
<tr><th>Steps for Additionality Check</th><th>Demonstration of crossing Additionality Check Steps</th><th>Conclusion</th></tr>
<tr><td></td><td>
extend of Rs 2,034 Millions
9. Only with CDM revenue the internal rate of return and debt service coverage ratio becomes comparable to that of the benchmarks desired in the power sector and the business
• The minimum annual debt service coverage ratio acceptable to lenders for any project is 1.25 in the Indian context. Given the risk profile of wind energy projects, a minimum annual debt service coverage ratio of at least 1.40 is required. Without CDM revenues, the minimum debt service coverage ratio is below 1.25 in all years. Even with carbon revenues, it is marginally better but still below 1.40 in all years. In the context of debt service, there is therefore very little margin and a marginal drop in the revenues (i.e., on account of drop in generation due to changes in wind profile or another change in the wind policy) can bring the project to default. The project IRR is 8.76 % without carbon revenues and 9.17 % with carbon revenues based on 20 year cash flows implying inadequate returns to investors of the project. The benchmarking average IRR of Core business is around 14.5%.
<table>
<tr><th></th><th colspan="3">Annual Debt Service Coverage Ratio</th></tr>
<tr><th></th><th>Without CDM revenues</th><th>With CDM revenues</th><th>Bench Mark</th></tr>
<tr><td>Year 1</td><td>(0.11)</td><td>(0.11)</td><td rowspan="11"></td></tr>
<tr><td>Year 2</td><td>0.46</td><td>0.46</td></tr>
<tr><td>Year 3</td><td>0.57</td><td>0.57</td></tr>
<tr><td>Year 4</td><td>0.59</td><td>0.59</td></tr>
<tr><td>Year 5</td><td>0.60</td><td>0.60</td></tr>
<tr><td>Year 6</td><td>0.66</td><td>0.66</td></tr>
<tr><td>Year 7</td><td>0.72</td><td>0.94</td></tr>
<tr><td>Year 8</td><td>0.79</td><td>0.83</td></tr>
<tr><td>Year 9</td><td>0.88</td><td>0.92</td></tr>
<tr><td>Year 10</td><td>0.99</td><td>1.03</td></tr>
<tr><td>Average</td><td>0.69</td><td>0.72</td><td>1.40</td></tr>
</table>
Comparative unit cost of power generation using various alternatives are given hereunder -
<table>
<tr><td></td><td>Cost of</td><td>Cost of unit</td><td>Cost of</td><td>Cost of unit</td></tr>
</table>
</td><td></td></tr>
</table>

<table>
<tr><th>Steps for Additionality Check</th><th>Demonstration of crossing Additionality Check Steps</th><th>Conclusion</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>unit power on purchase from grid</td><td>Power generated using Coal</td><td>unit power generated using wind mill(without CDM)</td><td>power generated (with CDM revenue)</td></tr>
<tr><td>Energy charge</td><td>3.28</td><td>2.30</td><td>4.16</td><td>3.97</td></tr>
<tr><td>Demand charge</td><td>1.14</td><td>1.14</td><td>1.14</td><td>1.14</td></tr>
<tr><td>Total</td><td>4.42</td><td>3.44</td><td>5.30</td><td>5.11</td></tr>
</table>
Barriers due to prevailing practice:

o If we look at the grid penetration of wind power projects in various states, it is evident that Tamil Nadu is by far the leader having achieved over 10% penetration. However, penetration level of wind farms in Maharashtra is at 2.64% clearly indicating that it is not a common practice</td><td></td></tr>
<tr><td>Step 4:
:Is the project common practice?</td><td></td><td></td></tr>
<tr><td>Sub Step 4a; Analyze other activities similar to the proposed project activity:</td><td>✓ Wind based power projects are set up in six other states in India as shown below, with lowest penetration rate of 0.96% in Andhra Pradesh to highest penetration rate of 10.66% in Tamil Nadu. Thus, similar project activities are common in some parts of the country.
<table>
<tr><th>State</th><th>Grid penetration[1]</th></tr>
<tr><td>Andhra Pradesh</td><td>0.96%</td></tr>
<tr><td>Gujarat</td><td>1.95%</td></tr>
<tr><td>Karnataka</td><td>2.12%</td></tr>
<tr><td>Maharashtra</td><td>2.64%</td></tr>
<tr><td>Rajasthan</td><td>1.35%</td></tr>
<tr><td>Tamil Nadu</td><td>10.66%</td></tr>
</table>
Even though similar activities have occurred in the state of Maharashtra, the project activity differs from the others as below:</td><td>The project activity has crossed step 4 of additionality demonstration, and can move to step 5.</td></tr>
</table>

[1] Wind installed capacity divided by total capacity available/allocated to the respective state power sector. The installed capacity of wind has been taken as on 31.3.03 from MNES Annual Report 2002-03. The total capacity

Steps for Additionality Check	Demonstration of crossing Additionality Check Steps	Conclusion
Sub-step 4b. Discuss any similar options that are occurring	✓ Before Bajaj Auto made an investment into the wind farms there were similar activities that were being conducted in the region but the investment made by Bajaj Auto was the highest any project proponent made in similar activity in that region. ✓ During the initial period there was no evacuation facility available at site Vankusawade. The generated power was connected to the substations which were 30 to 40 km away from the site with inadequate capacity. Hence BAL faced poor grid availability and loss of generation till 2003 which was not the case with similar projects around the region ✓ After 2003 GOM has erected new substation at site Vankusawade 220/33 KV with 3X 50 KVA in a phased manner, which has helped BAL to connect with the nearest evacuation facility . Other investors in Wind farm in that region that followed Bajaj Auto did not face such barriers. ✓ Initially State Electricity Board was reluctant to purchase wind power as per rates approved by GoI/GoM. Power sale to 3rd party was not economical as rates were always lower than the prevailing rates of SEB. Hence last option was self-use and BAL chose to be a self-user. Subsequently, after commissioning of project, MERC has declared tariff order for wind power and confirmed tariff rate for wind power shall be in line with GoI/GoM with no wheeling charges and transmission losses. As such power sale to SEB became more attractive. This ruling by MERC dated 24.11.2003 has reduced benefits of self-user or sale to 3rd party as compared to the power sale to SEB. ✓ Before the establishment of wind farms at Satara by BAL the total electricity generation through wind in Maharashtra totalled to only 24 MW[2]. BAL was the first to install a wind farm of the capacity of 39.2 MW, the largest wind farm establishment till that time. The BAL wind farm project is thus business unusual in terms of its Capacity i.e no other project of similar size existed in that region. Secondly the project becomes additional due to the difference in Power Policies[3,4] that it has faced as described below: o Wind Farms established prior to BAL's installations	

available/allocated to respective state power sector has been taken as on 31.1.2003 from Ministry of Power Annual Report 2002-03.

[2] As per the data published in the annual bulletin of 2003 Maharashtra Energy Development Agency for Non-Conventional Energy sources

[3] Policy on wind power generation, Government of Maharashtra – Industries, Energy & Labour Department. Resolution No. NCP 1097/CR-57/NRG-7.

[4] NOC from State Electricity Board

Steps for Additionality Check	Demonstration of crossing Additionality Check Steps	Conclusion
	were charged 0% -1% transmission losses depending on the transmission distance. This CDM project activity was charged 10% transmission losses which was later reduced to 5 %, by MERC. In effect the other wind power projects in Maharashtra that have been established earlier, faced charges to the tune of 0%-1% for transmission losses, while the project activity faced charges to the tune of 5% for transmission losses. ✓ It is our understanding that the project of similar size that have been put up after this project, are being structured as CDM projects and are at different stages of CDM project cycle.	
Step 5: Impact of CDM registration	✓ Registering the project activity as a CDM activity provides a significant amount of revenue, improving the project's cash flow and hence it's financial viability. Bajaj Auto Ltd anticipates that the estimated CDM revenue flows will be in the range of Rs. 0.15 to Rs. 0.19 per kWh of net generation, which is approximately 5% of the project gross revenues from sale of electricity. The CDM revenues will assist the investors in realizing returns commensurate with the risks in development and operations of the project. .	

B.4. Description of how the definition of the project boundary related to the baseline methodology selected is applied to the project activity:

>>

The project boundary encompasses the physical, geographical site of the 45.2 MW project sited at the project location specified in Section A.4.1.4 above. It would include the wind turbine installations and pooling and the sub-stations. The power plants connected to the western grid form the part of the project boundary.

B.5. Details of baseline information, including the date of completion of the baseline study and the name of person (s)/entity (ies) determining the baseline:

>>

Dr. P. Ram Babu of PricewaterhouseCoopers (P) Limited, whose contact information is set out below has assisted the project sponsor in determining the application of baseline methodology

The baseline study was completed on the 13/09/2005.

Organization:	PricewaterhouseCoopers (P) Ltd.
Street/P.O.Box:	252, Veer Savarkar Marg,Shivaji Park, (Opp. Shivaji Park Maidan,Next to Mayor's Bungalow)

Building:	3rd Floor, A Wing
City:	Dadar (W), Mumbai
State/Region:	Maharastra
Postcode/ZIP:	400 028.
Country:	India
Telephone:	+ 9122 5669 1000 (Board), + 9122 5669 1496 (Direct)
FAX:	+ 9122 5654 7804 / 05
E-Mail:	
URL:	www.pwc.com
Represented by:	
Title:	Associate Director
Salutation:	Dr.
Last Name:	Ram Babu
Middle Name:	
First Name:	P
Department:	Sustainable Business Solutions
Mobile:	+91-9820135929
Direct FAX:	+91-22-24913417
Direct tel:	+91-22-56619341
Personal E-Mail:	ram.babu@in.pwc.com

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:

08/03/ 2000

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:

Not Applicable (NA)

C.2.1.2. Length of the first crediting period:

>>

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

08/03/2000

C.2.2.2. Length:

10 years and 0 Months

SECTION D. Application of a monitoring methodology and plan

D.1. Name and reference of approved monitoring methodology applied to the project activity:

>>

Approved monitoring methodology ACM0002 / Version 04 Sectoral Scope: 1, "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources", by CDM Meth Panel

D.2. Justification of the choice of the methodology and why it is applicable to the project activity:

>>

The monitoring methodology is used in conjunction with the adopted baseline methodology (ACM0002/ version 04) that is applicable to electricity capacity additions from wind sources.

Since this project activity is not geothermal project, the methodology requires monitoring of the following:

- Electricity generation from the proposed project activity;
- Operating margin emission factor, if needed based on choice of methodology
- Build margin emission factor of the grid, if needed based on choice of methodology

For the project activity to establish its creditable emission reduction, it has to record the actual electricity generation, which would displace equivalent units of electricity at the operating and build margin of the Maharashtra grid. Since the simple OM emission factor is calculated based on a 3-year average, based on the most recent statistics available at the time of PDD preparation, its updation based on ex post monitoring is not required. For BM calculation, option 1 (refer ACM0002/version 04) has been chosen, which is calculated ex ante based on the most recent information, hence its monitoring is also not required. Thus, under the monitoring protocol for the project it is required to:

- Monitor and record the actual units of electricity generation by the wind farms

Therefore, with the given requirements of the wind farms CDM project and the selected monitoring methodology, it is justified that the applied monitoring methodology (ACM0002/version 04) for zero-emissions grid-connected electricity generation from renewable sources is the correct choice for the monitoring plan of the CDM project activity.

D.2. 1. Option 1: Monitoring of the emissions in the project scenario and the baseline scenario

D.2.1.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:

The project is a zero-emissions grid-connected electricity generation from Wind energy – a renewable source.

D.2.1.2. Description of formulae used to estimate project emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

>>

Not applicable.

D.2.1.3. Relevant data necessary for determining the baseline of anthropogenic emissions by sources of GHGs within the project boundary and how such data will be collected and archived:

ID number	Data Type	Data variable	Data unit	Measured (m), calculated (c), estimated (e),	For which Baseline method(s) must this element be included	Recording Frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	For How long is archeived data kept?	Comment

D.2.1.3. Relevant data necessary for determining the baseline of anthropogenic emissions by sources of GHGs within the project boundary and how such data will be collected and archived:										
ID number	Data Type	Data variable	Data unit	Measured (m), calculated (c), estimated (e),	For which Baseline method(s) must this element be included	Recording Frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	For How long is archeived data kept?	Comment
1.EGy	Electricity quantity	Electricity supplied to the grid by the project proponent	MWh	m	Simple OM	Continuous	100%	Electronic/ paper	During the crediting period and two years after	Electricity supplied by the project to the grid can be verified also by the deemed revenue receipt of sales being captive consumption. Whenever there is a break down in the meter, resulting replacements, the data archieved in the meter is fed into a computer storage system. The replaced meter starts from 0. The net electricity generated is calculated from the readings of failed and new meters

D.2.1.4. Description of formulae used to estimate baseline emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

$BEy = (EGy - EG_{baseline}) * EFy$

In the case of this project activity $EG_{baseline} = 0$

BEy = EGy * EFy

where EGy is the electricity supplied to the grid, EFy is the CO_2 emission factor of the grid as calculated under Section E.4.

D. 2.2. Option 2: Direct monitoring of emission reductions from the project activity (values should be consistent with those in section E).

Not required.

D.2.2.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:

Not applicable.

D.2.2.2. Description of formulae used to calculate project emissions (for each gas, source, formulae/algorithm, emissions units of CO2 equ.):

>>

Not applicable.

D.2.3. Treatment of leakage in the monitoring plan

D.2.3.1. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project activity

There is no leakage in this project.

D.2.3.2. Description of formulae used to estimate leakage (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

>>

Not applicable.

D.2.4. Description of formulae used to estimate emission reductions for the project activity (for each gas, source, formulae/algorithm, emissions units of CO2 equ.)

The project activity mainly reduces carbon dioxide through substitution of grid electricity generation with fossil fuel fired power plants by renewable electricity. The emission reduction *ERy* by the project activity during a given year y is the difference between baseline emissions (*BEy*), project emissions (*PEy*) and emissions due to leakage (*Ly*), as follows:

ERy = BE y – PE y – Ly
where the baseline emissions (*BEy* in tCO_2) are the product of the baseline emissions factor (*EFy* in tCO_2/MWh) times the electricity supplied by the project activity to the grid (*EGy* in MWh) minus the baseline electricity supplied to the grid in the case of modified or retrofit facilities ($EG_{baseline}$ in MWh), as follows:
$BEy = (EGy – EG_{baseline})*EFy$
In the case of this project activity $EG_{baseline}$ =0

For this project activity, *PEy* = 0.
ERy = BE y – PE y – Ly
PEy = 0
Ly = 0

D.3. Quality control (QC) and quality assurance (QA) procedures are being undertaken for data monitored			
Data	**Uncertainty level of data (High/Medium/Low)**	**Are QA/QC procedures planned for these data**	**Outline explanation how QA/QC procedures are planned**
1	**Low**	**Yes**	**This data will be directly used for calculation of emission reductions. Sales record to the grid and other records are used to ensure the consistency**

D.4 Please describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects, generated by the project activity

The project activity will be operated and managed by project sponsors who are also the project proponent.Regional Service Heads will be responsible for collecting all the relevant data and provide the same to Environment Specialist at Corporate Office, Pune through the Service Head.

The Environment specialist will verify the data, including the verification and monitoring protocol and visit the sites wherever necessary to independently check the authenticity of the data and take corrective actions wherever required.The Environment specialist will implement an Environment policy to control / monitor the leakages, solid waste management and discharge and monitoring of hazardous waste if any generated during the project operation.

D.5 Name of person/entity determining the monitoring methodology:

>>

Dr. P Ram Babu of PricewaterhouseCoopers (P) Limited, has assisted the project sponsor in determining the application of monitoring methodology.

SECTION E. Estimation of GHG emissions by sources

E.1. Estimate of GHG emissions by sources:

Using the ACM0002/version 04 methodology that is recommended by the CDM Meth Panel, the projected GHG emission reductions for the proposed CDM activity are determined.

The project activity is a wind based power generation project, hence there will be no GHG emissions of from the project activity. Therefore, no calculation is required here.

E.2. Estimated leakage:

>>
Leakage is defined as the net change of anthropogenic emissions by sources of GHGs that occur outside the project boundary, which can be measured and directly attributed to the CDM project activity.

No leakages were identified due to the project activity. Therefore, no calculation is required here.

E.3. The sum of E.1 and E.2 representing the project activity emissions:

>>
Zero.

E.4. Estimated anthropogenic emissions by sources of greenhouse gases of the baseline:

>>
The emission reductions ***ERy*** by the project activity during a given year *y* is

ERy = BE y – PE y – Ly
where the baseline emissions (*BEy* in tCO_2) are the product of the baseline emissions factor (*EFy* in tCO_2/MWh) times the electricity supplied by the project activity to the grid (*EGy* in MWh) minus the baseline electricity supplied to the grid in the case of modified or retrofit facilities ($EG_{baseline}$ in MWh), as follows:
$BEy = (EGy - EG_{baseline}) * EFy$
In the case of this project activity $EG_{baseline} = 0$

For this project activity, *PEy* = 0.
ERy = BE y – PE y – Ly
PEy = 0
Ly = 0

Therefore,

ERy = BEy=EGy * EFy

where *EGy* is the electricity supplied to the grid, *EFy* is the CO_2 emission factor of the grid as calculated below.

The emission factor *EFy* of the grid is represented as a combination of the Operating Margin and the Build Margin. Considering the emission factors for these two margins as $EF_{OM,y}$ and $EF_{BM,y}$, then the *EFy* is given by:

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

with respective weight factors w_{OM} and w_{BM} (where $w_{OM} + w_{BM} = 1$); by default, equal weightage ($w_{OM} = w_{BM} = 0.5$) has been considered.

The Operating Margin emission factor *EF_OMy* is defined as the generation-weighted average emissions per electricity unit generated (tCO_2 / GWh) for all sources serving the western grid, excluding zero- or low-operating cost power plants (hydro, wind and nuclear), based on the average of the five most recent year data and using the following equation (for simple operating margin calculations):

$$EF_{OM,y} = [\sum_{i,j} Fi,j,y * COEFi,j] / [\sum_j GENj,y]$$

where, *TEMy* and *TGENy* are the total GHG emissions and electricity generation supplied to the grid by the power plants connected to the grid excluding zero- or low-operating cost sources. The *Fi,y* and *COEFi,j* are the fuel consumption and associated carbon coefficient of the fossil fuel *i* consumed by power plant j in the grid. *GENj,y* is the electricity generation at the plant *j* connected to the grid excluding zero- or low-operating cost sources.

The CO_2 emission coefficient $COEF_{i,j}$ is obtained as:

$$COEF_{i,j} = NCV_{i,j} * EFCO_{2,i} * OXID_i$$

where:

$NCV_{i,j}$ is the net calorific value (energy content) per mass or volume unit of a fuel i,

$OXID_i$ is the oxidation factor of the fuel (see page 1.29 in the 1996 Revised IPCC Guidelines for default values),

$EFCO_{2,i}$ is the CO2 emission factor per unit of energy of the fuel i.

The Build Margin emission factor *EF_BMy* (tCO_2/GWh) as the generation-weighted average emission factor (tCO_2/MWh) of a sample of power plants *m*, as follows:

$$EF\_BMy = [\sum_{i,m} F_{i,m,,y} * COEF_{i,m}] / [\sum_m GEN_{m,y}]$$

as the default method. The summation over *i* and *m* is for the fuels and electricity generation of the plants mentioned above.

where $F_{i,m,y,}$ $COEF_{i,m}$ and $GEN_{m,y}$ are analogous to the variables described for the simple OM method above for plants *m*.
Project participants choose the first option from two option in the methodology ACM 0002/ version04 for the $EF_{BM,y}$ calculation
Option 1. The Build Margin emission factor $EF_{BM,y}$ *ex-ante* is based on the most recent information available on plants already built for sample group *m* at the time of PDD submission. The sample group *m* consists of either the five power plants that have been built most recently or the power plants capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently.

Project participants use from these two options the sample group (the power plants capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently) that comprises the larger annual generation.

Using the above formula, the baseline emissions are provided below :

Year	EFy (tCO_2/GWh)	Generation (GWh)	tCO_2e
2000-2001	984.53	31.558488	31,070
2001-2002	984.53	65.234256	64,225
2002-2003	984.53	82.378545	81,104
2003-2004	984.53	82.378545	81,104
2004-2005	984.53	82.378545	81,104
2005-2006	984.53	82.378545	81,104
2006-2007	984.53	82.378545	81,104
2007-2008	984.53	82.378545	81,104
2008-2009	984.53	82.378545	81,104
2009-2010	984.53	82.378545	81,104

E.5. Difference between E.4 and E.3 representing the emission reductions of the project activity:

>>The total emission reductions are 744,129 tCO_2 e for the entire crediting period of 10 years.

E.6. Table providing values obtained when applying formulae above:

>>

Year	Estimation of Project activity Emission Reductions (tonnes of CO_2e)	Estimation of Baseline Emissions(tonnes of CO_2e)	Estimation of leakage (tonnes of CO_2e)	Estimation of emission reduction (tonnes of CO_2e)
2000-2001	**0**	31,070	**0**	31,070
2001-2002	**0**	64,225	**0**	64,225
2002-2003	**0**	81,104	**0**	81,104
2003-2004	**0**	81,104	**0**	81,104
2004-2005	**0**	81,104	**0**	81,104
2005-2006	**0**	81,104	**0**	81,104
2006-2007	**0**	81,104	**0**	81,104
2007-2008	**0**	81,104	**0**	81,104
2008-2009	**0**	81,104	**0**	81,104
2009-2010	**0**	81,104	**0**	81,104
Total (tonnes of CO2e)	**0**	744,129	**0**	744,129

SECTION F. Environmental impacts

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

To conduct this Environment Impact Assessment (EIA) for the project activity, BAL appointed M/s CARE Sustainability, Navi Mumbai. The consultant conducted a Rapid EIA study and prepared report on the same "Environmental Impact Assessment for Wind Energy Farms at Satara, Maharashtra ". However EIA of this project activity (power generation using wind energy) was not an essential requirement as per the Indian environmental regulations.

It should be noted here that though EIA is not a regulatory requirement in India for wind energy projects, still the project sponsors conducted the EIA to study if any irreversible and unacceptable impacts on the environment resulted and would result from the project activity.

The EIA study included identification, prediction and evaluation of potential impacts of the CDM activities (i.e. the generation of electricity through wind energy converters - WEC), its evacuation and transmission to the Maharashtra State Electricity Board at Satara on terrestrial and aquatic environment within the study area.

The EIA also ruled out any trans-boundary impacts due to the project activity.

Key Performance Indicators considered significant during Construction Phase

Environmental issue	Key indicators	Benchmark values / standards
Ambient noise level	Leq day and Leq night calculated based on hourly equivalent noise levels observed	Baseline values measured during pre-project scenario and corresponding NAAQS standards
Soil quality near debris disposal site	Soil contaminants as identified in USEPA or equivalent BIS standards	USEPA soil contaminant threshold limits or equivalent BIS

Key Performance Indicators considered during Operation Phase

Environmental issue	Key indicators	Benchmark values / standards
Ambient noise level	Leq day and Leq night calculated based on hourly equivalent noise levels observed	NAAQS standards
Soil quality near debris disposal site	Soil contaminants as identified in USEPA or equivalent BIS standards	USEPA soil contaminant threshold limits or equivalent BIS standards

Environmental Management Plan for the Wind farms at Satara – Construction Stage

Environmental Issue	Mitigation Measures	Time Frame	Responsibilities	
			Implementation	**Supervision**
Earthwork	All earthwork and construction material should be stored in such a	During entire construction phase	Contractor	BAL

	manner to minimize generation of dust and spillage on roads.			
Noise from construction related plants and equipments	All construction equipment's shall be fitted with exhaust silencers. Damaged silencers to be promptly replaced by contractor.	During construction	Contractor	BAL
Noise impact due to operation of DG sets	DG sets, if used, shall adhere to noise standards of MoEF.	During construction	Contractor	BAL
Noise control measures	The noise levels shall adhere to local laws. Restricted blasting –work hours and intermittent blasting could be few mitigation measures that can be adopted.	Before start of construction of relevant section		BAL
Noise levels near residential areas and sensitive receptors	Construction activity induced noise levels shall be mitigated between The contractor can employ mitigation measures such as restricted and/or intermittent activity	During entire construction of relevant sections	Contractor	BAL
Exposure to loud noise	Workers exposed to loud noise (as per Factories Act requirements) shall wear earplugs/earmuffs.	During construction	Contractor	BAL
Soil erosion	On road embankments, slopes shall be stabilized. The work shall consist of measures as per design, or as directed by the BAL to control soil erosion, sedimentation and water pollution.	During construction	Contractor	BAL
Soil contamination by construction waste and fuels	Oil and fuel spills from construction equipment shall be minimized by good O &M practice. Soils contaminated by such spills shall be disposed as per MoEF requirements.	During construction	Contractor	BAL

Environmental Management Plan for the Wind farms at Satara – Operation Stage

Environmental Issue	Mitigation Measures	Time Frame	Responsibilities	
			Implementation	Supervision

Noise pollution	Monitoring of the noise levels at sensitive receptors as per monitoring plan.	Starting immediately after the completion of construction	Pre approved monitoring lab	BAL
	Noise will become a major problem if congestion or bottleneck situation exists in the road. Such locations causing hindrances to traffic flow shall be rectified. Adequate "no honking" sign boards at sensitive locations shall be installed.	Routinely after operation phase	Pre approved monitoring lab	BAL
	Attenuation at receptor level at refurbishing plants by use of ear muffs	Routinely during operation	BAL	BAL
	Humming sound of wind power	Regular maintenance of the WEC	BAL	BAL
Land pollution	Proper and contained disposal of enamel and paint drums, waste water from sites, other waste at sites	Routinely during operation	BAL	BAL

F.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 environmental impacts of the project are not considered significant by the host party. The EIA for this project is not required as per existing regulations in the host country, i.e., India.

The project proponent has planned mitigation and monitoring measures (detailed in previous section) to address all environmental issues

SECTION G. Stakeholders' comments

>>

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

>>

BAL identified local communities, officials of Grampanchayat, employees of windmill O&M contractor, M/s Suzlon, farmers, retired military personnel, college students, as the most important stake holders with an interest in the CDM activities. Accordingly, BAL displayed a notice to representatives of various stakeholder groups with a brief on the project informing them of the proposed meeting on 15.09.2005 at office of Grampanchayat of Chalakewadi, Tal & Dist. Satara and requesting all to attend meeting or depute representatives.

There were about 28 participants presenting various groups of the local communities, NGOs, employees, contractors, college students, villagers from the vicinity also showed interest in the project and related social & environmental development activities.

This stakeholder meeting involved

a) Welcome address to the representatives by Mr. SP Shinde of Bajaj Auto Ltd.
b) Election of Chairperson for the meeting by the villagers & representatives from amongst themselves.
c) Introduction of project by Mr.SP Shinde, Head of windmill project Bajaj Auto Ltd. on request from Chair.
d) Open house discussion on the merits of the projects with permission of Chair.
e) Summation of the concerns expressed by the stakeholder groups & commitments to address the concerns made by BAL by Chairperson.
f) Preparation & circulation of draft minutes of meeting & signing of MoM.

The agenda of the meeting was fixed as follows:

- Welcome
- Description of the project details
- Queries and responses from the proponent and the stakeholders
- Vote of thanks

After a brief discussion regarding pros & cons of this project, the Chairperson interacted with participants to clarify their doubts & concerns regarding the likely impact of the project. The stakeholder's view Bajaj Auto Ltd. as a reputed company contributing to the local economy. The participants sought clarifications on Kyoto Protocol & CDM process.

Overall there was full agreement that the existing wind power project at Vankusawade & Chalakewadi is beneficial to them.

G.2. Summary of the comments received:

>>The proceedings of the stakeholder consultation process have been recorded and can be presented on request**.** There are no significant concerns articulated by the stakeholders, except the general ones such as:

Plastic bags and such wastes have to be disposed appropriately and should not be littered.
During construction phases, the disturbances to roads have to be minimised

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

>> BAL has promised to ensure that all waste disposals will be managed with utmost diligence and during any heavy machinery transportation due care will be taken to minimise adverse impacts on road infrastructure.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Bajaj Auto Ltd.
Street/P.O.Box:	Mumbai-Pune Road, Akurdi
Building:	Corporate Office
City:	Pune
State/Region:	Maharashtra
Postfix/ZIP:	411 035
Country:	India
Telephone:	(020) 27472851 extn. 6601
FAX:	(020) 27407391
E-Mail:	kpdsa@bajajauto.co.in
URL:	www.bajajauto.com
Represented by:	Kevin P D'sa
Title:	Vice President (Finance)
Salutation:	Mr.
Last Name:	D'sa
Middle Name:	P.
First Name:	Kevin
Department:	Finance
Mobile:	9890500020
Direct FAX:	---
Direct tel:	(020) 27406601
Personal E-Mail:	kpdsa@bajajauto.co.in

Annex 2

INFORMATION REGARDING PUBLIC FUNDING
There is no public funding involved in this project

Annex 3

BASELINE INFORMATION

Variable	Data Source
EG_Y= Electricity supplied to the grid by the project proponent	Electricity supplied by the project to the grid by the revenue receipt of sales. This requires monitoring of individual electricity generation from each of the turbines comprising the various sub projects jointly by the project proponent and the Electricity Board every month.
Parameter	Data Source
$\underline{\mathbf{EF_{OM,y}}}$	Calculated by using CEA General Review Report
$\underline{\mathbf{EF_{BM,y}}}$	Calculated by using CEA General Review Report

Power Plants(List of Plants used to calculate Build Margin component of Baseline)

Type of Power generation		State	Date of addition	Installed capacity	PLF	Gross Gen	Auxiliary Consm %	Net Gen	tCO2/GWh	Total t CO2
Hydro				MW		GWh		GWh		
Indira Sagar HE proj (1,2,3,4)		MP (NHDC)	1-Jan-04,18-Jan-04,27-Feb-04,28-Mar-04	500	0.5	2190	0.6	2176.86		0
Bansagar Tons		MP	24-Aug-02,24-Aug-02	35	0.5	153.3	0.6	152.3802		0
Sardar Sarover HE		Gujurat	9/4/2002	100	0.5	438	0.6	435.372		0
Bansagar Tons-PhIII(2)		MP	8/25/2001	20	0.5	87.6	0.6	87.0744		0
Bansagar Tons-PhII(1)		MP	2/18/2002	15	0.5	65.7	0.6	65.3058		0
Bansagar Tons-PhIII(1)		MP	11/26/2000	20	0.5	87.6	0.6	87.0744		0
Rajghat(1,2,3)		MP	15-10-99,29-09-99,03-11-99	45	0.5	197.1	0.6	195.9174		0
Dudhganga(1,2)		Maharashtra	27-02-00,31-07-99	24	0.5	105.12	0.6	104.48928		0
Koyana (st IV(1,2,3)		Maharashtra	28-03-00,03-03-00,25-11-99	750	0.5	3285	0.6	3265.29		0
Kadana PSSextn		Gujurat	27-05-98	60	0.5	262.8	0.6	261.2232		0
Warna		Maharashtra	26-04-98	8	0.5	35.04	0.6	34.82976		0
Koyana Stage IV		Maharashtra	31-03-99	250	0.5	1095	0.6	1088.43		0
Steam						0		0		0
Khaperkheda TPS	State	Mah	5/31/2000	420	0.75	2759.4	8.4	2527.6104	1131.653	3122682.22
Surat LigniteTPP (Unit1,2)	Pvt	Gujurat	16-01-00,6-11-99	250	0.86	1885.59	8.4	1727.20044	1131.653	2133832.85
Sanjay Gandhi Extn TPP (4)	State	MP	23-11-99	210	0.7	1287.72	8.4	1179.55152	1131.653	1457251.7
Vindyachal STPS (8)(C)	State	MP	26-02-00	500	0.7	3066	8.4	2808.456	1131.653	3469646.92
Wankabori TPS(7)	State	Gujurat	31-12-98	210	0.65	1192.06	8.4	1091.92769	1131.653	1348998.72
Birsinghpur (3)	State	MP	28-02-99	210	0.7	1287.72	8.4	1179.55152	1131.653	1457251.7
Vindhyachal STPS (7)*	State	MP	3/3/1999	500	0.7	3066	8.4	2808.456	1131.653	3469646.92
Gandhinagar TPS	State	Gujurat	19.03.98	210	0.65	1192.06	8.4	1091.92769	1131.653	1348998.72
Chandrapur	State	Maharashtra	1/10/1997	500	0.75	3285	8.4	3009.06	1131.653	3717478.84
Wind						0		0		0
Private		Mah	3/31/2004	6.24	0.27	14.9775	0	14.9774976		0
State		Mah	3/31/2004	1.96	0.27	4.70447	0	4.7044704		0
Pvt		MP	3/31/2004	0.06	0.27	0.14401	0	0.1440144		0
Pvt		Gujurat	3/31/2004	35.29	0.27	84.7045	0	84.7044696		0
State		Goa	3/31/2004	0.11	0.27	0.26403	0	0.2640264		0
wind		Mah	1/6/2001	242.22	0.27	581.386	0	581.386133		0
Gas						0		0		0
Dhuvaran CCPP GT	State	Gujurat	6/4/2003	67.85	0.65	385.149	2.12	376.984006	469.4022	180789.885
Dhuvaran CCPP ST	State	Gujurat	9/22/2003	38.77	0.65	220.077	2.12	215.411494	469.4022	103304.699
Hazira CCGT(1,2)	State	Gujurat	30-09-2001,16-10-01	104	0.65	590.354	2.12	577.838417	469.4022	277113.457
Salgaocar CCGT (1)		Goa	5/7/1999	48	0.75	315.36	2.12	308.674368	469.4022	148030.693
Peguthan CCGT *	Centra	Gujurat	23.10.98	250	0.86	1883.4	2.12	1843.47192	469.4022	884072.195
Baroda ST(1)	Pvt	Gujurat	18-11-97	61	0.86	459.55	2.12	449.807148	469.4022	215713.616
Dabhol CCGT (1,2)	Pvt	Maharashtra	11/12/1998	480	0.82	3460.55	2.12	3387.18673	469.4022	1624390.14
Dabhol CCGT (ST-1)	Pvt	Maharashtra	11/12/1998	260	0.82	1874.46	2.12	1834.72615	469.4022	879877.992
Peguthan (1,2,3)	Centra	Gujurat	22-10-97	135	0.86	1018.22	2.12	996.632366	469.4022	477954.1
					Total	37917.1	GWh	36054.9009		26317035.4
	Total Gross Electrical Ene Gen for WR grid (2003-2004) =					174076	GWh			
	Total Gross Ele Gen from the power plant which is added to the ele					37917.1	GWh			
	The above power plant in the system comprises =				21.8	% of the electricity system				
						BM=			729.9156	
*	Source:table2.7, CEA, General Review 2005,2002-2003,2001-2002,2000-2001,1999-2000,1998-1999,1997-1998									
**	Source:table 6.6, CEA General Review 2003-2004									
**	Source:table2.4,3.4,6.6, CEA, General Review 2005									

2001-2002

Fuel	Units	Consumption	Density (kg/Lt)	10^3 MT	Emission factor ($tCO_2/10^3$ tonnes)* NG =TCO_2/M Cu.m)	Gross Emissions (tCO2)	Gross Electricty generation (GWh)	Auxiliary consumption (%)	Net ele Gen (GWh)
Steam Stations		*		*			*	**	
Coal	000 MT	90588	1	90588	1909.651191	172991482	134422	8.418	123106.4
Furnace Oil	KL	165818	0.93	154.2107	3366.012672	519075.305		8.418	0
Light Oil	KL	34612	0.827	28.62412	3178.375452	90978.2131		8.418	0
LSHS/HHS/HSD	KL	2111037	0.827	1745.828	3210.159207	5604384.54		8.418	0
Gas	MT	1107052	1	1107.052	3193.262123	3535107.22		8.418	0
Lignite	000 MT	1107.052	1	1107.052	1089.926884	1206605.74		8.418	0
Gas stations									0
Natural Gas	M Cu M	3351	1	3351	1931.3547	6471969.6	16071.86	2.199	15718.44
HSD	KL	0	0.827	0	3159.813399	0		2.199	0
Naphtha	KL	139937	0.76	106.3521	3267.726	347529.588		2.199	0
Diesel Stations						0			0
LSHS	KL	0	0.827	0	3210.312561	0	0	0	0
Diesel	KL	0	0.827	0	3159.964348	0	0	0	0
Total						**190767132**			**138824.8**
							Simple OM		1374.157
*	Source ;table 6.1, CEA general Review								
**	Table 5.5, CEA general review								

2002-2003

Fuel	**Units**	**Consumption**	**Density (kg/Lt)**	**10^3 MT**	**Emission factor ($tCO_2/10^3$ tonnes)* NG =TCO_2/M Cu.m)**	**Gross Emissions (tCO2)**	**Gross Electricty generation**	**Auxiliary consumption%**	**Net ele Gen**
Steam Stations		*		*			*	**	GWh
Coal	000 MT	91350	1	91350	1643.994864	150178931	137392	8.74	125383.9
Furnace Oil	KL	135786	0.93	126.281	3439.444786	434336.458		8.74	0
Light Oil	KL	46383	0.827	38.35874	3198.739912	122699.636		8.74	0
LSHS/HHS/HSD	KL	2006346	0.827	1659.248	3230.727311	5360578.29		8.74	0
Gas	MT	204166	1	204.166	3193.262123	651955.555		8.74	0
Lignite	000 MT	19311	1	19311	1115.254709	21536683.7		8.74	0
Gas Stations									0
Natural Gas	M Cu M	3505	1	3505	1931.3547	6769398.22	18713.4	1.91	18355.97
HSD	KL	697009	0.827	576.4264	2996.189524	1727082.87		1.91	0
Naphtha	KL	426280	0.76	323.9728	3267.726	1058654.34		1.91	0
Diesel Stations						0			0
LSHS	KL	0	0.827	0	3230.881648	0	0	0	0
Diesel	KL	0	0.827	0	2996.332657	0		0	0
Total						**187840320**			**143739.9**
*	Source ;table 6.1, CEA general Review					Simple OM			**1306.807**
**	Table 5.5, CEA general review								

2003-2004

Fuel	Units	Consumpt	Density (kg/Lt)	10^3 MT	Emission factor ($tCO_2/10^3$ tonnes)* NG =TCO_2/M Cu.m)	Gross Emissions (tCO2)	Gross Electricty generation	Auxiliary consumption %	Net ele Gen (GWh)
Steam stations		*		*			*	**	GWh
Coal	000 MT	89075	1	89075	1505.648617	134115651	136910.13	8.4	125409.7
Furnace Oil	KL	1187213	0.93	1104.108	3323.684991	3669707.49		8.4	0
Light Oil	KL	10685	0.827	8.836495	3131.263642	27669.3955		8.4	0
LSHS/HHS/HSD	KL	423797	0.827	350.4801	3162.576279	1108420.11		8.4	0
GAS	KL	33884	0.827	28.02207	3193.262123	89481.8084		8.4	0
Lignite	000 MT	2560	1	2560	1136.430431	2909261.9		8.4	0
Gas Stations									0
Natural Gas	M Cu M	3721	1	3721	1931.3547	7186570.84	21508.12	2.12	21052.15
HSD	KL	2767	0.827	2.288309	3126.965829	7155.46405		2.12	0
Naphtha	KL	1082436	0.76	822.6514	3267.726	2688199.24		2.12	0
Diesel Stations									0
LSHS	KL	0	0.827	0	3162.72736	0	0	0	0
Diesel	KL	0	0.827	0	3127.115209	0		0	0
Total						**151802117**			**146461.8**
*	Source ;table 6.1, CEA general Review					**Simple OM**			**1036.462**
**	Table 5.5, CEA general review								

Calculation of Baseline Project emission

Simple OM		tCO_2/GWh
2001-2002		1374.16 tCO_2/GWh
2002-2003		1306.81 tCO_2/GWh
2003-2004		1036.46 tCO_2/GWh
Simple OM	EFOM,y	1239.14 tCO_2/GWh
BM	EFBM,y	729.92 tCO_2/GWh
CM	EFy	984.53 tCO_2/GWh

Annex 4

MONITORING PLAN

ID number	Data Type	Data variable	Data unit	Measured (m), calculated (c), estimated (e),	For which Baseline method(s) must this element be included	Recording Frequency	Proportion of data to be monitored	How will the data be archived ? (electronic/ paper)	For How long is archeived data kept?	Comment
1.EGy	Electricity quantity	Electricity supplied to the grid by the project proponent	MWh	M	Simple OM	Continuous	100%	electronic	During the crediting period and two years after	Electricity supplied by the project to the grid can be verified also by the deemed revenue receipt of sales being captive consumption.

The points given below detail the monitoring plan

- The Electronic Meter that is used for monitoring is the Export-Import Energy Meter and is , installed before State Electricity Board's grid.
- Its is a three phase, Four wire, 50Hz,110 Volts, 6Amp,Time of Day (ToD), 0.2 class Export-Import tri- vector Energy meter.
- The calibration procedure followed requires calibrating the meter once in a 12 month, by the State Electricity Board (SEB). SEB is State Electricity Board functions under Government of Maharashtra (GoM) as per Central Electricity Act & it is responsible for Energy Meter calibration check with their calibrated Refrence Standard Meter having tracability with International Standards through Institute for Design of Electric Measuring Instruments, Sion, Mumbai (IDEMI, Govt. of India Institution).
- The Purchaser/ wheeling agent of power, performs calibration check in presence of representative of owner.
- The import and export of electricity is continuously monitored by the export/ import meter and the data is recorded on a monthly basis jointly by the proponent and the electricity board.

- This meter is located at the delivery point of wind power in SEB's grid. This accounts for the import of electricity that is used by the Project proponent. Hence the net electricity generated is calculated from the joint meter reading and recorded /archived in paper/electronic

- The complete monitoring responsibility is carried out as follows:

    - Monitoring is joint responsibility of both owner as well as State Electricity Board (SEB) hence, daily monitoring is in the scope of owner

    - Monthly monitoring is a joint responsibility. All services are provided by SEB to the owner of wind farm.

    - Though the ownership of the meter is with owner, but it is in possession of SEB's sealed meter box under lock & Key as per statutory requirements. Owner can only see readings through glass window of sealed meter box

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