Response of Bajaj Auto Ltd
to
the Issues raised in the Review Request

Project Title: "Grid-connected electricity generation from renewable sources at Supa, Taluka Parner, Dist. Ahmednagar, by M/s. Bajaj Auto Ltd. (BAL) using wind Power"

Registration Request Identity: UNFCCC 00000224 CDMP

Communication Reference of Review Request: Mail from Ms.Christine Zumkeller dated 06th March 2006

In this document, we present, **'Preamble and Response Summary'** in the first five pages and in subsequent pages **'Responses to the issues raised in the Individual Review Requests'**

Preamble and Response Summary

The request for registration for the project "Grid-connected electricity generation from renewable sources at Supa, Taluka Parner, Dist. Ahmednagar, by M/s. Bajaj Auto Ltd. (BAL) using wind Power" was made on 6th January 2006.

There have been 5 requests for review. We take this opportunity to respond to the concerns of the Executive Board

We find that five requests addresses the issues of additionality, baseline and monitoring methodologies.

We note that specific reasons for the review against the additionality requirement are available in four of the five requests. However, no specific reasons have been assigned for the baseline and monitoring methodologies in any of the requests. We appreciate that these two are interrelated by paragraph 43 of CDM modalities and procedures which can be stated as
"project activity is additional if an approved and applicable baseline methodology has been followed and the emissions from the project activity is lower than that of baseline emissions".

We therefore believe that our clarifications relating to use of **tool for demonstration and assessment of additionality (which is to be used for demonstration of additionality in ACM0002**) and demonstration that the project activity faced prohibitive barriers below will suffice as clarification to all the issues raised by the CDM EB members.

With reference to the above, BAL, the project participant, provides the clarifications as below to the common and salient points raised in the review requests:

A. Additionality Demonstration

Firstly, the major issue in the review request is that the additionality of the project activity is not convincing. It is stated in the PDD and Validation opinion that the project activity faces technology barrier, investment barrier and barrier due to prevailing practices. We would like to clarify that these barriers are not mentioned in the PDD in order of their significance / importance. However, below the barriers in the order of significance (it is not reproduction of the text in the PDD but rewording and reformatting of the text) is presented:

1. Barrier due to prevailing practice:

Before the establishment of wind farms by BAL in **2000**, in Maharashtra, the total electricity generation through wind totaled to only **24 MW in the State .** At the time of investment, the prevailing practice was small capacities (0.4 MW to 2 MW) involving small investments and exporting power to the State Electricity Board. As opposed, this project is of large capacity **(20 MW)** involving large investment and for **captive consumption**. In this respect, the project is "the first of its kind" and "no such project activity was operational in the region" at the time of investment decision. For the reasons above, in its risk profile, the present project activity is different from that

of the prevailing practice as larger investment is at risk. Similarly, the policy and regulatory uncertainties are more in the case of project activities involving wheeling of power.

Also, the projects of BAL are first amongst wind turbines located in non coastal areas of the State that otherwise have better infrastructure support.

At the time of investment decision there were only two identified active sites for wind power installations in Maharashtra namely Satara and Supa. The Supa project of BAL is located in high terrains, with little or no human habitation and infrastructure etc. At Supa, before the establishment of 20 nos BAL's 1000 KW wind turbines there was only one windmill with 1000 KW capacity that was installed for trial.

2. Other barriers:

Regulatory uncertainties:

At the time of the investment the project participant faced the uncertainty on tariff (introduction of TOD metering), uncertainty regarding the interpretation of transmission loss charges which were revised from 0-1% to 10% and then to 5%, Uncertainty of State Govt. notifications on power credits and also delay in getting such credits. Such uncertainties in tariffs, transmission losses and power credits would have prevented investment in to the project activity but for the potential CDM benefit.

3. Investment barrier:

BAL, the Project Participant, is the world's 4th largest manufacturer of 2 wheelers and are in the business of manufacture of 2 & 3 wheelers. The investment in the Wind Power project undertaken by BAL is substantial compared to any other project in the similar activity in the region or in comparison to the investments by BAL in its core business expansion or supplementation.

In the year 2000 – 2001, BAL decided to get in to wind power generation for captive use. In entering this phase, BAL computed the cost of power generation under different alternatives and the same is given below as mentioned in the PDD -

The alternatives to the project activity are identified as –

- Purchase of power from the grid
- Power generation using coal
- Power generation using windmill without CDM
- Power generation using windmill with CDM

Comparative unit cost of power generation using various alternatives are given hereunder –

Rs. Per Kwh

	Cost of unit power on purchase from grid	Cost of unit Power generated using Coal	Cost of unit power generated using wind mill (without CDM)	Cost of unit power generated (with CDM revenue)
Energy charge	3.28	2.30	4.09	3.91
Demand charge	1.14	1.14	1.14	1.14
Total	4.42	3.44	5.23	5.05

The project participant has chosen wind power generation with CDM revenue even though the other alternatives i.e. purchase from grid and generation using coal would have been cheaper options for BAL. The cost of electricity generation using the wind energy is considerably higher than the alternatives for producing the same amount of power.

Maharashtra Electricity Regulatory Commission (MERC), a Commission appointed under the Electricity Regulatory Commissions (ERC) Act, 1998, after hearing from all parties and interviews with the persons came out with the unit cost of power generation as under –

As per MERC Order in 2003, Electricity Board tariff to industrial consumers is Rs. 3.34 per KWH, cost of thermal is Rs. 3.24 per KWH and the cost of power generated using wind turbines of Rs. 4.10 per KWH without Sales tax incentives and Rs. 3.46 per KWH with Sales tax incentives.

The above data clearly brings out that the unit cost of power generation in windmill is higher than the other alternatives.

4. Technological barrier:

The project activity is at a high altitude and thus has higher possibility of lightning strokes. While the installed lightning arrestors may avoid any physical damage to the wind turbines but they fail to avoid any electrical / electronics disruptions that may be caused due to such lightning. Due to the above given risks the project participant required additional O&M requirement for electrical circuits.

In addition to the above barriers the project activity faced other technical barriers, such as, BAL entering a new field of power generation at a large scale, which completely differs from their core activity of automobile manufacturing; unavailability of technical skill set within the firm and need for further training of the manpower (also retention of such manpower in tough and isolated terrains).

B. Investment Analysis and Barrier Analysis

Also, the review request has stated that in using the additionality tool the project participant muddled up the arguments using the barrier analysis and investment analysis. The arguments similar to that of investment analysis have been used in the barrier analysis. The data and analysis rigor required for undertaking step 2 could not be carried out, due to lack of data in the public domain that is specific to the project activity. BAL computed the unit cost of power generation under different alternatives. As per Maharashtra Energy Regulatory Commission [MERC] Case No 17(3) 3,4,5 of 2002 dated 24/11/2003, a Commission appointed under the Electricity Regulatory Commissions (ERC) Act, 1998, Electricity Board tariff to industrial consumers is Rs. 3.34 per KWH, cost of thermal is Rs. 3.24 per KWH and the cost of power generated using wind turbines of Rs. 4.10 per KWH without Sales tax incentives and Rs. 3.46 per KWH with Sales tax incentives. This data is based on 1.5 years study and extensive consultation by MERC. The data clearly shows that the unit cost of power for windmill is higher than the unit cost of power for one other alternative viz. coal power plant. The unit cost of wind power generation worked out by BAL is in line with the same. As this is a very strong argument for demonstrating additionality, which in fact is barrier that the investment decision for the project activity faced, is included as an investment barrier.

C. The CDM revenue does not help crossing hurdle rate

The review request, has pointed out that IRR with and without CDM revenue is not very different. This is agreed, but it may be pertinent to point out that the computation is based on 4 USD price per CER which is very conservative. In any case, the IRR argument is only used to supplement the other arguments on investment barrier.

D. Evidence the CDM was considered in Project Investment

The review request has also pointed out that no word about the evidence which enables project to pass Step 0 of additionality. With reference to clearance of step 0, the project participant has submitted documentary evidence of the board resolution dated 18/10/2000 which clearly indicated that the investment decision has considered the CDM benefits and to substantiate the commissioning of the windmills after 01/01/2000, we have provided the documents from the local Electricity Board [a government organization] that provide conclusive evidence that the project activity were commissioned between July – December 2001 and this is mentioned by DOE on pages 15 to 17 under section 6 of the validation report..

E. Validation report is not sufficiently transparent

In addition, other comments pertain to the DOE's activity- 'The validation report is not sufficiently transparent and clear in assessing the acceptance of the additionality of the project activity' and 'The DOE has pointed out the need to correct the additionality arguments, but hasn't stated that the project participant has done so'- which in our view is best left to the DOE to respond.

F. Some Additional Points

The project participant further wants to emphasize that the reformatted arguments to demonstrate that the project activity faced prohibitive barriers without CDM project activity, do not use any additional data and information more than that is presented in our PDD submitted for registration or that is not presented to the DOE during the process of validation.

Also, it may be pertinent to point out that the project activities that faced similar barriers, located at the same location, that have come up subsequent to this project activity, with technologies that are similar and involving smaller investments, are already registered as CDM project activities by the CDM EB.

G. Our Request

The issues raised in the Review Request are pertinent. To address these concerns required us to restate and reformat our arguments to improve clarity but did not require addition of any new information and data that needs validation. Keeping this in view, we request that the review process be not conducted and the project may be registered.

Responses to the issues raised in the Individual Review Requests

Request for Review I:

The CDM EB board member has requested for review seeking clarification on validation requirements under :

a) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43 to 52 of the CDM modalities and procedures.
b) The Baseline and monitoring methodologies comply with requirements pertaining to methodologies previously approved by the Executive Board

Response to Review Request I:

The CDM EB board member has not provided any specific observations or reasons for review of the project activity not meeting the condition of a) & b) above. In absence of the same we are not able to provide any specific justification. We believe that our responses to other review request raised by CDM EB board members on the same issues above would provide necessary clarifications.

Request for review II:

The CDM EB board member has requested for review seeking clarifications on validation requirements as mentioned below:

a) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43 to 52 of the CDM modalities and procedures.
b) The Baseline and monitoring methodologies comply with requirements pertaining to methodologies previously approved by the Executive Board

Reasons and background for request for review:

Quote :

"II. a) The project activity (PA) involves the generation of electricity from wind (20 MW) to supply the local grid. The PA uses the methodology ACM0002.

II. b) The main point is additionality which was also questioned in two public comments. Additionality is mainly based on a barrier analysis: technological and investment. Neither seems to be convincing.

II. d) The validation report is not sufficiently transparent and clear in assessing the acceptance of the additionality of the project activity. (B.3.1 of the validation report) it only reflects that the project correctly applies the prescribed "tool for demonstrating additionality". The DOE should qualitatively address the different aspects of the PDD and not just make a desk study.

II. c) The investment barrier for example is based upon an IRR of 9 % without CDM and 9.4 % with CDM to be compared to a hurdle rate of 15 %."

Response to Review Request II:

We provide our response to the CDM-EB member review request:

Response to reason II. a):

The project is for setting up of windmills for generation of electricity for **captive use** at Supa in Maharashtra, connected to Western Grid through local grid 132/33 KV. The project activity involves generation, operation and maintenance of grid connected electricity generation facility with a total generation capacity of 20 MW (Page 2, under section A.2 of the PDD, **Validation Report no. BVQI/INDIA/6.49, Page 5, under section 1.3)**.

Hence, the project activity correctly uses the methodology ACM0002 to estimate baseline emissions and monitoring of emission reduction due to the project activity (Page 6, under B.1 of the PDD).

Response to reason II. b) & II. d):

The two public comments sought clarifications on the additionality demonstration as in the PDD. The issues were well addressed by the project participant and brought out suitably in the Validators' report. We draw your attention to **Validation Report No. BVQI/INDIA/6.49 at appendix B. page 60 to 66 reproduced as Annex I.**

Response to reason II. d):

We understand the response to this comment is to be provided by the DOE. However we add that to demonstrate additionality the project participant has chosen barrier analysis in preference to the investment analysis as stated under section Step 2 at page 11, of the PDD, **Validation Report No. BVQI/INDIA/6.49, page 12, under section 3.2.**

It is stated that the project activity faces technology barrier, investment barrier and barrier due to prevailing practices.

We would like to clarify that these barriers are not mentioned in the PDD in their significance / importance. However the text below provides the barriers in the order of significance (it is not reproduction of the text in the PDD but rewording and reformatting of the text)

Barrier due to prevailing practice:

Before the establishment of wind farms by BAL in **2000**, in Maharashtra, the total electricity generation through wind totaled to only **24 MW in the State**. (Page 15, under section Sub-step 4b of the PDD,) The details of the ownership and the sizes are as given below :

Owner	Make	Total Installed capacity (MW)	No of wind turbines	Location	Date / Year of Commissioning
NEPC India Ltd	NEPC	0.450	2	Chalkewadi	1997
REPL Eng Ltd	BONUS	0.320	1	Chalkewadi	1997
Sub-Total		**0.770**			
Borax Moraji Ltd	Vestas	0.225	1	Thoseghar	30-3-1998
Borax Moraji Ltd	Vestas	0.225	1	Thoseghar	29-9-1998
Bharat Forge Ltd	Enercon	2.070	9	Thoseghar	23-6-1998

Owner	Make	Total Installed capacity (MW)	No of wind turbines	Location	Date / Year of Commissioning
HMTD Eng Pvt. Ltd	Vestas	0.225	1	Thoseghar	23-8-1998
Seth & Sura Engineers	Vestas	0.225	1	Thoseghar	24-3-1999
Sahani Enterprises	Vestas	0.225	1	Thoseghar	24-3-1999
Ghodawat Pan Masala Ph I	Suzlon	0.350	1	V'vade	18-11-1998
Ghodawat Pan Masala Ph II	Enercon	0.230	1	Thoseghar	31-11-1998
Sub-Total		**3.775**			
Ghodawat Pan Masala Ph III	Suzlon	3.500	10	V'vade	12-3-1999
Savita Chemicals Ltd	Suzlon	1.050	3	V'vade	20-3-1999
Nav. Mah. Chakan Oil Ltd	Suzlon	0.350	1	V'vade	22-3-1999
Dhariwal Industries Ltd	Suzlon	7.000	20	V'vade	24-3-1999
Ghodawat Pan Masala Ph IV	Suzlon	1.400	4	V'vade	27-3-1999
Patankar Wind Farms P. Ltd	Suzlon	0.350	1	V'vade	27-3-1999
Prestress India Pvt. Ltd	Vestas	0.225	1	Thoseghar	31-3-1999
Snowcem India Ltd	Vestas	0.450	2	Chalkewadi	31-3-1999
Khanna Indust. Pipes Ltd	Vestas	0.225	1	Thoseghar	7-5-1999
Borax Moranji Ltd	Vestas	0.450	2	Thoseghar	17-7-1999
Bajaj Electricals Ltd Ph I	Suzlon	2.800	8	V'vade	22-8-1999
Sharp Engineers Ph I	Vestas	0.225	1	Thoseghar	26-8-1999
Sharp Engineers Ph II	Vestas	0.225	1	Thoseghar	27-8-1999
Bharat Forge Ltd Ph II	Enercon	1.610	7	Thoseghar	28-12-1999
Sub-Total		**19.860**			
Grand Total		**24.405**			

Source : Maharashtra Energy Development Agency : Annual Report – 2001-2002

As per the table above, the prevailing practice of investment in wind power in the State of Maharashtra was mainly into low capacity installations and primarily for sale to the State Electricity Board.

At the time of investment (in the year 2000), this project activity was significantly larger installation in size (capacity) than the largest wind power installation in the region (Page 14, under section Sub-step 4b of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 52, CAR 3**). The order of investment was also highest in comparison to the wind farm establishments that existed in the region.

The prevailing practice was small capacities (0.4 MW to 2 MW) involving small investments and exporting power to the State Electricity Board. As opposed, this project is of large capacity **(20 MW)** involving large investment and for **captive consumption**. In this respect, the project is "the first of its kind" and "no such project activity was operational in the region" at the time of investment decision.

In its risk profile, the present project activity is different from that of the prevailing practice as larger investment is at risk. Similarly, the policy and regulatory uncertainties are more in the case of project activities involving wheeling of power.

At the time of investment decision there were only two identified active sites for wind power installations in Maharashtra namely Satara and Supa, which is clear from the table highlighted above.

The Supa project of BAL is located in high terrains, with little or no human habitation and infrastructure etc. At Supa, before the establishment of 20 nos BAL's 1000 KW wind turbines there was one windmill with 1000 KW capacity that was installed for trial. Also, BAL were the first to install 20 nos of 1000 KW wind turbines in India.

Also, this project activity is one of the first non coastal wind installation in the State of Maharashtra and coastal installation have better infrastructure support.

Other barriers:

Regulatory uncertainties:

At the time of the investment the project participant faced the uncertainty on tariff (introduction of TOD metering), uncertainty regarding the interpretation of transmission loss charges which were revised from 0-1% to 10% and then to 5%, Uncertainty of State Govt. notifications on power credits and also delay in getting such credits.(Page 12 & 15, under section Sub-step 3 & 4b of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 53, CAR 3**). The interpretation of the transmission loss charges by State Electricity Board and Wind power producers were different and lead to dispute. The dispute took a long period to get clarified by MERC, a Commission under Electricity Regulatory Commissions (ERC) Act, 1998, formed primarily for tariff purpose, in 1998.

Such uncertainties in tariffs, transmission losses and power credits would have prevented investment in to the project activity but for the potential CDM benefit.

Investment barrier:

The investment is substantial compared to any other project in the similar activity in the region.

Total additions to Plant and Machinery in core business during 5 years (1997 – 2002) was Rs. 7.3 billion and investment in windmill projects was Rs. 2.9 billion during 2 years 2000 & 2001. The investment into the project activity is substantial in comparison to that of BAL's investment into the expansion of its core business activity.

The alternatives to the project activity are identified as –

- Purchase of power from the grid
- Power generation using coal
- Power generation using windmill without CDM
- Power generation using windmill with CDM

Comparative unit cost of power generation using various alternatives are given hereunder –

Rs. Per Kwh

	Cost of unit power on purchase from grid	Cost of unit Power generated using Coal	Cost of unit power generated using wind mill (without CDM)	Cost of unit power generated (with CDM revenue)
Energy charge	3.28	2.30	4.09	3.91
Demand charge	1.14	1.14	1.14	1.14
Total	4.42	3.44	5.23	5.05

The project participant has chosen wind power generation with CDM revenue even though the other alternatives i.e. purchase from grid and generation using coal would have been cheaper options for BAL (Page 7, under section B.2 and Page 13, under section Step 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 11, section 3.2**) The cost of electricity generation using the wind energy is considerably higher than the alternatives for producing the same amount of power. (Refer Annex II)

Maharashtra Electricity Regulatory Commission (MERC), a Commission appointed under the Electricity Regulatory Commissions (ERC) Act, 1998, after hearing from all parties and interviews with the persons came out with the unit cost of power generation as under –

As per MERC Order in 2003, Electricity Board tariff to industrial consumers is Rs. 3.34 per KWH, cost of thermal is Rs. 3.24 per KWH and the cost of power generated using wind turbines of Rs. 4.10 per KWH without Sales tax incentives and Rs. 3.46 per KWH with Sales tax incentives.

The internal rate of return and debt equity ratios with and without CDM benefits is presented in the PDD as an additional argument to support investment barrier.

The IRR of 9% without CDM revenue and 9.4% with CDM revenue was calculated on a stand alone windmill project basis without considering sales tax incentives, capital subsidy, accelerated depreciation under income tax that accrue to the other segments of the business. The project participant would have enjoyed substantially higher sales tax benefits if the investments were made in alternatives to the project activity. The PDD in its answer to one of the public comments highlights that IRR has been computed on a stand alone basis. This has been addressed in **Validation Report No. BVQI/INDIA/6.49, page 64 to 65**.

The estimate of IRR with CDM revenue was estimated at CER price of US$4. BAL was aware that the forecast of prices ranged from US$4 to US$20. On a conservative basis, it has been worked out at CER price of US$ 4 resulting in the IRR with CDM revenue at 9.4%. At US$ 20 the comparative figures is 10.95% with CDM revenues. At a CER price of US$20 the IRR is significant for BAL to go ahead with CDM project activity.

Technological barrier:
The project activity is at a high altitude and thus has higher possibility of lightning strokes (Page 12, under section Step 3, point no 4 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 62, Appendix B**). Such risks are higher at this site. While the installed lightning arrestors may avoid any physical damage to the wind turbines but they fail to avoid any electrical / electronics disruptions that may be caused due to such lightning.

Due to the above given risks the project participant required additional O&M requirement for electrical circuits.

In addition to the above barriers the project activity faced other technical barriers, such as, BAL entering a new field of power generation at a large scale, which completely differs from their core activity of automobile manufacturing (here compare with IRR's expected from investments in to known automobile business and unknown wind power generation), which made BAL face barriers due to unavailability of technical skill set within the firm and further training of the manpower (also retention of such manpower in tough and isolated terrains). (Page 11, under section Step 3, Point no 1 to 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 12, Section 3.2**).

Response to reason II. c):

The IRR of 9% without CDM revenue and 9.4% with CDM revenue was calculated considering the revenue from and expenditure on the project activity - windmill project - without considering sales tax benefits and income tax benefits (accelerated depreciation) that accrue to the other segments of the business. The project participant would have enjoyed substantially higher sales tax benefits if the investments were made in alternatives to the project activity. This has been also clarified in the **Validation Report No. BVQI/INDIA/6.49, page 64 to 65.** Such benefits could also accrue to the other segments of the business due to investment in alternatives to the project activity.

The CDM revenue was calculated with a CER price of US$ 4. BAL was aware of the forecasts of potential prices ranging up to US$ 20. On a conservative basis, it has been worked out at CER price of US$ 4 resulting in the IRR with CDM revenues at 9.4%. At US$ 20 the comparative figures is 10.95% with CDM as against 9% without CDM.

We request this response be read in conjunction with **Validation Report no. BVQI/INDIA/6.49, Page 64 to 65** reproduced as Annex III.

Request for Review III:

The CDM EB board member has requested for review seeking clarifications on validation requirements as mentioned below :

a) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43 to 52 of the CDM modalities and procedures.
b) The Baseline and monitoring methodologies comply with requirements pertaining to methodologies previously approved by the Executive Board

Reasons and background for request for review:

Quote:

"III. a) The argumentation regarding the investment barrier analysis is not sufficient for demonstration of additionality of project, as is based only on the comparison of the IRR of the project with the average IRR in the sector, showing however that the difference is quiet small.

III. b) The DOE has pointed out the need to correct the additionality arguments, but hasn't stated that the project participant has done so."

Response to Review Request III:

Response to reason III. a):

Investment barrier:

The investment is substantial compared to any other project
And also in comparison with BAL's investment in its core business viz manufacturing of motorized two and three wheeler vehicles.
Total additions to Plant and Machinery in core business during 5 years (1997 – 2002 was Rs. 7.3 billion and investment in windmill projects was Rs. 2.9 billion during 2 years 2000 & 2001.

The alternatives to the project activity are identified as –

- Purchase of power from the grid
- Power generation using coal
- Power generation using windmill without CDM
- Power generation using windmill with CDM

Comparative unit cost of power generation using various alternatives are given hereunder –

Rs. Per Kwh

	Cost of unit power on purchase from grid	Cost of unit Power generated using Coal	Cost of unit power generated using wind mill (without CDM)	Cost of unit power generated (with CDM revenue)
Energy charge	3.28	2.30	4.09	3.91
Demand charge	1.14	1.14	1.14	1.14
Total	4.42	3.44	5.23	5.05

The project participant has chosen wind power generation with CDM revenue even though the other alternatives i.e. purchase from grid and generation using coal would have been cheaper options for BAL (Page 7, under section B.2 and Page 13, under section Step 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 11, section 3.2**) The cost of electricity generation using the wind energy is considerably higher than the alternatives for producing the same amount of power. (Refer Annex II)

Maharashtra Electricity Regulatory Commission (MERC), a Commission appointed under the Electricity Regulatory Commissions (ERC) Act, 1998, after hearing from all parties and interviews with the persons came out with the unit cost of power generation as under –

As per MERC Order in 2003, Electricity Board tariff to industrial consumers is Rs. 3.34 per KWH, cost of thermal is Rs. 3.24 per KWH and the cost of power generated using wind turbines of Rs. 4.10 per KWH without Sales tax incentives and Rs. 3.46 per KWH with Sales tax incentives.

The internal rate of return and debt equity ratios with and without CDM benefits is presented in the PDD as an additional argument to support investment barrier.

The IRR of 9% without CDM revenue and 9.4% with CDM revenue was calculated on a stand alone windmill project basis without considering sales tax incentives, capital subsidy, accelerated depreciation under income tax. The project participant would have enjoyed substantially higher sales tax benefits if the investments were made in alternatives to the project activity. The PDD in its answer to one of the public comments highlights that IRR has been computed on a stand alone basis. This has been addressed in **Validation Report No. BVQI/INDIA/6.49, page 64 to 65**.

The estimate for the financial indicators with CDM revenue was estimated at CER price of US$4. BAL was aware forecast prices ranging from US$4 to US$20. On a conservative basis, it has been worked out at CER price of US$ 4 resulting in the IRR with CDM revenue at 9.4%. At US$ 20 the comparative figures is 10.95% with CDM. At a CER price of US$20 the IRR is significant for BAL to go ahead with CDM project activity.

Response to reason III. b):

In response to the concern raised on the DOE, we expect the DOE will clarify the issue.

We would like to clarify that the DOE has pointed out the need to correct the additionality argument in his preliminary review.

However after our reply to his preliminary review as mentioned in Validation Report No. BVQI/INDIA/6.49, page 52, under section CAR 3. DOE has been clarified and concluded their opinion as "OK" giving cross reference to CAR3.

Request for Review IV:

The CDM EB board member has requested for review seeking clarifications on validation requirements as mentioned below :

a) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43 to 52 of the CDM modalities and procedures.
b) The Baseline and monitoring methodologies comply with requirements pertaining to methodologies previously approved by the Executive Board

Reasons and background for request for review:

Quote:

"IV. a) The project participant did not provide any convincing argument to justify why the project activity is considered to be additional and the DOE did not make an independent qualitative assessment of the aspect of the PDD.

IV. b) In using the additional tool the project participant muddled up the arguments using the barrier analysis and investment analysis. Moreover, the investment analysis indicated that two alternatives considered would have been cheaper than the proposed project activity."

Response to Review Request IV:

Response to reason IV. a):

We understand the response to this comment is to be provided by the DOE. However we add that to demonstrate additionality the project participant has chosen barrier analysis in preference to the investment analysis as stated under section Step 2 at page 11, of the PDD, **Validation Report No. BVQI/INDIA/6.49, page 12, under section 3.2.**

It is stated that the project activity faces technology barrier, investment barrier and barrier due to prevailing practices.

We would like to clarify that these barriers are not mentioned in the PDD in their significance / importance. However the text below provides the barriers in the order of significance (it is not reproduction of the text in the PDD but rewording and reformatting of the text)

Barrier due to prevailing practice:

Before the establishment of wind farms by BAL in **2000**, in Maharashtra, the total electricity generation through wind totaled to only **24 MW** in the State. (Page 15,

under section Sub-step 4b of the PDD, **)** The details of the ownership and the sizes are as given below :

Owner	Make	Total Installed capacity (MW)	No of wind turbines	Location	Date / Year of Commissioning
NEPC India Ltd	NEPC	0.450	2	Chalkewadi	1997
REPL Eng Ltd	BONUS	0.320	1	Chalkewadi	1997
Sub-Total		**0.770**			
Borax Moraji Ltd	Vestas	0.225	1	Thoseghar	30-3-1998
Borax Moraji Ltd	Vestas	0.225	1	Thoseghar	29-9-1998
Bharat Forge Ltd	Enercon	2.070	9	Thoseghar	23-6-1998
HMTD Eng Pvt. Ltd	Vestas	0.225	1	Thoseghar	23-8-1998
Seth & Sura Engineers	Vestas	0.225	1	Thoseghar	24-3-1999
Sahani Enterprises	Vestas	0.225	1	Thoseghar	24-3-1999
Ghodawat Pan Masala Ph I	Suzlon	0.350	1	V'vade	18-11-1998
Ghodawat Pan Masala Ph II	Enercon	0.230	1	Thoseghar	31-11-1998
Sub-Total		**3.775**			
Ghodawat Pan Masala Ph III	Suzlon	3.500	10	V'vade	12-3-1999
Savita Chemicals Ltd	Suzlon	1.050	3	V'vade	20-3-1999
Nav. Mah. Chakan Oil Ltd	Suzlon	0.350	1	V'vade	22-3-1999
Dhariwal Industries Ltd	Suzlon	7.000	20	V'vade	24-3-1999
Ghodawat Pan Masala Ph IV	Suzlon	1.400	4	V'vade	27-3-1999
Patankar Wind Farms P. Ltd	Suzlon	0.350	1	V'vade	27-3-1999
Prestress India Pvt. Ltd	Vestas	0.225	1	Thoseghar	31-3-1999
Snow cem India Ltd	Vestas	0.450	2	Chalkewadi	31-3-1999
Khanna Indust. Pipes Ltd	Vestas	0.225	1	Thoseghar	7-5-1999
Borax Moranji Ltd	Vestas	0.450	2	Thoseghar	17-7-1999

Owner	Make	Total Installed capacity (MW)	No of wind turbines	Location	Date / Year of Commissioning
Bajaj Electricals Ltd Ph I	Suzlon	2.800	8	V'vade	22-8-1999
Sharp Engineers Ph I	Vestas	0.225	1	Thoseghar	26-8-1999
Sharp Engineers Ph II	Vestas	0.225	1	Thoseghar	27-8-1999
Bharat Forge Ltd Ph II	Enercon	1.610	7	Thoseghar	28-12-1999
Sub-Total		**19.860**			
Grand Total		**24.405**			

Source : Maharashtra Energy Development Agency : Annual Report – 2001-2002

As per the table above, the prevailing practice of investment in wind power in the state of Maharashtra was mainly into low capacity installations and primarily for sale to the State Electricity Board.

At the time of investment (in the year 2000), this project activity was significantly larger installation in size (capacity) than the largest wind power installation in the region (Page 14, under section Sub-step 4b of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 52, CAR 3**). The order of investment was also highest in comparison to the wind farm establishments that existed in the region.

The prevailing practice was small capacities (0.4 MW to 2 MW) involving small investments and exporting power to the State Electricity Board. As opposed, this project is of large capacity **(20 MW)** involving large investment and for captive consumption. In this respect, the project is "the first of its kind" and "no such project activity was operational in the region" at the time of investment decision.

In its risk profile, the present project activity is different from that of the prevailing practice as larger investment is at risk. Similarly, the policy and regulatory uncertainties are more in the case of project activities involving wheeling of power.

At the time of investment decision there were only two identified active sites for wind power installations in Maharashtra namely Satara and Supa, which is clear from the table highlighted above.

The Supa project of BAL is located in high terrains, with little or no human habitation and infrastructure etc. At Supa, before the establishment of 20 nos BAL's 1000 KW wind turbines there was one windmill with 1000 KW capacity that was installed for trial. Also, BAL were the first to install 20 nos of 1000 KW wind turbines in India.

Also, this project activity is one of the first non coastal wind installation in the State of Maharashtra and coastal installation have better infrastructure support.

Other barriers:

Regulatory uncertainties:

At the time of the investment the project participant faced the uncertainty on tariff (introduction of TOD metering), uncertainty regarding the interpretation of transmission loss charges which were revised from 0-1% to 10% and then to 5%, Uncertainty of State Govt. notifications on power credits and also delay in getting such credits.(Page 12 & 15, under section Sub-step 3 & 4b of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 53, CAR 3**). The interpretation of the transmission loss charges by State Electricity Board and Wind power producers were different and lead to dispute. The dispute took a long period to get clarified by MERC, a Commission under Electricity Regulatory Commissions (ERC) Act, 1998, formed primarily for tariff purpose, in 1998.
Such uncertainties in tariffs, transmission losses and power credits would have prevented investment in to the project activity but for the potential CDM benefit.

Investment barrier:

The investment is substantial compared to any other project in the similar activity in the region.

Total additions to Plant and Machinery in core business during 5 years (1997 – 2002 was Rs. 7.3 billion and investment in windmill projects was Rs. 2.9 billion during 2 years 2000 & 2001. The investment into the project activity is substantial in comparison to that of BAL's investment into the expansion of its core business activity.

The alternatives to the project activity are identified as –

- Purchase of power from the grid
- Power generation using coal
- Power generation using windmill without CDM
- Power generation using windmill with CDM

Comparative unit cost of power generation using various alternatives are given hereunder –

Rs. Per Kwh

	Cost of unit power on purchase from grid	Cost of unit Power generated using Coal	Cost of unit power generated using wind mill (without CDM)	Cost of unit power generated (with CDM revenue)
Energy charge	3.28	2.30	4.09	3.91
Demand charge	1.14	1.14	1.14	1.14
Total	4.42	3.44	5.23	5.05

The project participant has chosen wind power generation with CDM revenue even though the other alternatives i.e. purchase from grid and generation using coal would have been cheaper options for BAL (Page 7, under section B.2 and Page 13, under section Step 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 11, section 3.2**) The cost of electricity generation using the wind energy is considerably higher than the alternatives for producing the same amount of power. (Refer Annex II)

Maharashtra Electricity Regulatory Commission (MERC), a Commission appointed under the Electricity Regulatory Commissions (ERC) Act, 1998, after hearing from all parties and interviews with the persons came out with the unit cost of power generation as under –

As per MERC Order in 2003, Electricity Board tariff to industrial consumers is Rs. 3.34 per KWH, cost of thermal is Rs. 3.24 per KWH and the cost of power generated using wind turbines of Rs. 4.10 per KWH without Sales tax incentives and Rs. 3.46 per KWH with Sales tax incentives.

The internal rate of return and debt equity ratios with and without CDM benefits is presented in the PDD as an additional argument to support investment barrier.

The IRR of 9% without CDM revenue and 9.4% with CDM revenue was calculated on a stand alone windmill project basis without considering sales tax incentives, capital subsidy, accelerated depreciation under income tax that accrue to the other segments of the business. The project participant would have enjoyed substantially higher sales tax benefits if the investments were made in alternatives to the project activity. The PDD in its answer to one of the public comments highlights that IRR has been computed on a stand alone basis. This has been addressed in **Validation Report No. BVQI/INDIA/6.49, page 64 to 65**.

The estimate of IRR with CDM revenue was estimated at CER price of US$4. BAL was aware that the forecast of prices ranged from US$4 to US$20. On a conservative basis, it has been worked out at CER price of US$ 4 resulting in the IRR with CDM revenue at 9.4%. At US$ 20 the comparative figures is 10.95% with CDM revenues. At a CER price of US$20 the IRR is significant for BAL to go ahead with CDM project activity.

Technological barrier:
The project activity is at a high altitude and thus has higher possibility of lightning strokes (Page 12, under section Step 3, point no 4 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 62, Appendix B**). Such risks are higher at this site. While the installed lightning arrestors may avoid any physical damage to the wind turbines but they fail to avoid any electrical / electronics disruptions that may be caused due to such lightning.

Due to the above given risks the project participant required additional O&M requirement for electrical circuits.

In addition to the above barriers the project activity faced other technical barriers, such as, BAL entering a new field of power generation at a large scale, which completely differs from their core activity of automobile manufacturing (here compare with IRR's expected from investments in to known automobile business and unknown wind power generation), which made BAL face barriers due to unavailability of technical skill set within the firm and further training of the manpower (also retention of such manpower in tough and isolated terrains). (Page 11, under section Step 3, Point no 1 to 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 12, Section 3.2**).

We expect that the DOE would respond to concern on the independent qualitative assessment of the aspect of the PDD.

Response to reason IV. b):

BAL in the PDD has argued the following under investment barrier:

- Uncertainties in the wind speed and direction and subsequent power output pattern (as it was not proven at the time of investment decision), as stated under section step 3 of the additionality in page 12 of the PDD.
- Regulatory risks like uncertainty on tariff (introduction of TOD metering) and uncertainty regarding the interpretation of transmission loss charges, uncertainty of State Govt. notifications on power credits and also delay in getting such credits etc. (as mentioned in section step 3, page 12, point 7 of the PDD)
- Quantum of investments in comparison to investments into wind power generation till that time(section Sub-step 4b. page 14 of the PDD) and further pointed out that there were options available that would provide less unit cost of power (section step 3 page 12 point 9 of the PDD)

As per the tool for demonstration and assessment of additionality, version 02, dated 28/11/05, BAL has chosen step 3 instead of step 2.

But the arguments on Unit Cost of Power, IRR, and DSCR; and their comparison to bench mark, was brought out as supporting arguments in investment barriers. Such arguments could not be taken as step 2 of the additionality tool (this was pointed by the DOE during site visit in a discussion) as the available (in the public domain by authentic sources) data was not adequate to demonstrate the additionality using the step 2.

BAL computed the unit cost of power generation under different alternatives. Maharashtra Energy Regulatory Commission (MERC) also came out in 2003 unit cost of power generation by alternatives to the project activity. This document is the result of extensive research and stakeholder consultations by the Commission , and is outlined in the Order, Case No 17(3) 3,4,5 ,2002 dated 24/11/03. The analysis provides a range of unit cost of power for various power generation options located in the State of Maharashtra where the present project activity is located. The range in the unit cost of power arises considering variation in fuel transportation costs, fuel prices, wind speeds, investment costs etc.

Since the details of computation are not available, but the basis and results were only available to the project participant, it was not possible to customize the calculation for case of this project activity and conduct the sensitivity analysis as required by the step 2 of the additionality tool. Accordingly, project participant decided to follow step 3 in preference to step 3 and mentioned the results from MERC analysis to support the demonstration on investment barrier that the project has faced at the time of investment.

Request for review V:

The CDM EB board member has requested for review seeking clarifications on validation requirements as mentioned below :

a) The project activity is expected to result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity, in accordance with paragraphs 43 to 52 of the CDM modalities and procedures.
b) The Baseline and monitoring methodologies comply with requirements pertaining to methodologies previously approved by the Executive Board

Reasons and background for request for review:

Quote:

"V. a) The main point is additionality which was also questioned in two public comments. Additionality is mainly based on a barrier analysis: technological and investment. Neither seems to be convincing.

V. b) The investment barrier for example is based upon an IRR of 9 % without CDM and 9.4 % with CDM to be compared to a hurdle rate of 15 %.

V. c) The validation report is not sufficiently transparent and clear in assessing the acceptance of the additionality of the project activity. (B.3.1 of the validation report) it only reflects that the project correctly applies the prescribed "tool for demonstrating additionality".

V. d) The DOE should qualitatively address the different aspects of the PDD and not just make a desk study. Atleast this points should have been discussed by the DOE.

- No word about the evidence which should enable this early started project to pass step 0.
- The DOE rightfully concludes on page 11 that atleast two alternatives would have been cheaper than the project activity, but then only refers to the use of the tool for additionality , without providing any details of its assessments.

In chapter B.3.1 of the checklist the DOE only refers to step 4 and notes that the justification by the Project participant is not adequate. Nevertheless the DOE concludes that this is OK."

Response to Review Request V:

Response to reason V. a) :

The two public comments sought clarifications on the additionality demonstration as in the PDD. The issues were well addressed by the project participant and brought out

suitably in the Validators' report. We draw your attention to **Validation Report No. BVQI/INDIA/6.49 at appendix B. page 60 to 66 reproduced as Annex I.**

To add further to demonstrate additionality, the project participant has chosen barrier analysis in preference to the investment analysis as stated under section Step 2 at page 11, of the PDD, **Validation Report No. BVQI/INDIA/6.49, page 12, section 3.2**.

We understand the response to this comment is to be provided by the DOE. However we add that to demonstrate additionality the project participant has chosen barrier analysis in preference to the investment analysis as stated under section Step 2 at page 11, of the PDD, **Validation Report No. BVQI/INDIA/6.49, page 12, under section 3.2.**

It is stated that the project activity faces technology barrier, investment barrier and barrier due to prevailing practices.

We would like to clarify that these barriers are not mentioned in the PDD in their significance / importance. However the text below provides the barriers in the order of significance (it is not reproduction of the text in the PDD but rewording and reformatting of the text)

Barrier due to prevailing practice:

Before the establishment of wind farms by BAL in **2000**, in Maharashtra, the total electricity generation through wind totaled to only **24 MW** in the State. (Page 15, under section Sub-step 4b of the PDD**).** The details of the ownership and the sizes are as given below :

Owner	Make	Total Installed capacity (MW)	No of wind turbines	Location	Date / Year of Commissioning
NEPC India Ltd	NEPC	0.450	2	Chalkewadi	1997
REPL Eng Ltd	BONUS	0.320	1	Chalkewadi	1997
Sub-Total		**0.770**			
Borax Moraji Ltd	Vestas	0.225	1	Thoseghar	30-3-1998
Borax Moraji Ltd	Vestas	0.225	1	Thoseghar	29-9-1998
Bharat Forge Ltd	Enercon	2.070	9	Thoseghar	23-6-1998
HMTD Eng Pvt. Ltd	Vestas	0.225	1	Thoseghar	23-8-1998
Seth & Sura Engineers	Vestas	0.225	1	Thoseghar	24-3-1999
Sahani Enterprises	Vestas	0.225	1	Thoseghar	24-3-1999
Ghodawat Pan Masala Ph I	Suzlon	0.350	1	V'vade	18-11-1998

Owner	Make	Total Installed capacity (MW)	No of wind turbines	Location	Date / Year of Commissioning
Ghodawat Pan Masala Ph II	Enercon	0.230	1	Thoseghar	31-11-1998
Sub-Total		**3.775**			
Ghodawat Pan Masala Ph III	Suzlon	3.500	10	V'vade	12-3-1999
Savita Chemicals Ltd	Suzlon	1.050	3	V'vade	20-3-1999
Nav. Mah. Chakan Oil Ltd	Suzlon	0.350	1	V'vade	22-3-1999
Dhariwal Industries Ltd	Suzlon	7.000	20	V'vade	24-3-1999
Ghodawat Pan Masala Ph IV	Suzlon	1.400	4	V'vade	27-3-1999
Patankar Wind Farms P. Ltd	Suzlon	0.350	1	V'vade	27-3-1999
Prestress India Pvt. Ltd	Vestas	0.225	1	Thoseghar	31-3-1999
Snow cem India Ltd	Vestas	0.450	2	Chalkewadi	31-3-1999
Khanna Indust. Pipes Ltd	Vestas	0.225	1	Thoseghar	7-5-1999
Borax Moranji Ltd	Vestas	0.450	2	Thoseghar	17-7-1999
Bajaj Electricals Ltd Ph I	Suzlon	2.800	8	V'vade	22-8-1999
Sharp Engineers Ph I	Vestas	0.225	1	Thoseghar	26-8-1999
Sharp Engineers Ph II	Vestas	0.225	1	Thoseghar	27-8-1999
Bharat Forge Ltd Ph II	Enercon	1.610	7	Thoseghar	28-12-1999
Sub-Total		**19.860**			
Grand Total		**24.405**			

Source : Maharashtra Energy Development Agency : Annual Report – 2001-2002

As per the table above, the prevailing practice of investment in wind power in the state of Maharashtra was mainly into low capacity installations and primarily for sale to the State Electricity Board.

At the time of investment (in the year 2000), this project activity was significantly larger installation in size (capacity) than the largest wind power installation in the region (Page 14, under section Sub-step 4b of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 52, CAR 3**). The order of investment was also highest in comparison to the wind farm establishments that existed in the region.

The prevailing practice was small capacities(0.4 MW to 2 MW) involving small investments and exporting power to the State Electricity Board. As opposed, this project is of large capacity **(20 MW)** involving large investment and for captive consumption. In this respect, the project is "the first of its kind" and "no such project activity was operational in the region" at the time of investment decision.

In its risk profile, the present project activity is different from that of the prevailing practice as larger investment is at risk. Similarly, the policy and regulatory uncertainties are more in the case of project activities involving wheeling of power.

At the time of investment decision there were only two identified active sites for wind power installations in Maharashtra namely Satara and Supa, which is clear from the table highlighted above.

The Supa project of BAL is located in high terrains, with little or no human habitation and infrastructure etc. At Supa, before the establishment of 20 nos BAL's 1000 KW wind turbines there was one windmill with 1000 KW capacity that was installed for trial. Also, BAL were the first to install 20 nos of 1000 KW wind turbines in India.

Also, this project activity is one of the first non coastal wind installation in the State of Maharashtra and coastal installation have better infrastructure support.

Other barriers:

Regulatory uncertainties:

At the time of the investment the project participant faced the uncertainty on tariff (introduction of TOD metering), uncertainty regarding the interpretation of transmission loss charges which were revised from 0-1% to 10% and then to 5%, Uncertainty of State Govt. notifications on power credits and also delay in getting such credits.(Page 12 & 15, under section Sub-step 3 & 4b of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 53, CAR 3**). The interpretation of the transmission loss charges by State Electricity Board and Wind power producers were different and lead to dispute. The dispute took a long period to get clarified by MERC, an independent Government Body formed primarily for tariff purpose, in 2002.
Such uncertainties in tariffs, transmission losses and power credits would have prevented investment in to the project activity but for the potential CDM benefit.

Investment barrier:

The investment is substantial compared to any other project in the similar activity in the region.

Total additions to Plant and Machinery in core business during 5 years (1997 – 2002 was Rs. 7.3 billion and investment in windmill projects was Rs. 2.9 billion during 2 years 2000 & 2001. The investment into the project activity is substantial in comparison to that of BALs investment into the expansion of its core business activity.

The alternatives to the project activity are identified as –

- Purchase of power from the grid
- Power generation using coal
- Power generation using windmill without CDM
- Power generation using windmill with CDM

Comparative unit cost of power generation using various alternatives are given hereunder –

Rs. Per Kwh

	Cost of unit power on purchase from grid	Cost of unit Power generated using Coal	Cost of unit power generated using wind mill (without CDM)	Cost of unit power generated (with CDM revenue)
Energy charge	3.28	2.30	4.09	3.91
Demand charge	1.14	1.14	1.14	1.14
Total	4.42	3.44	5.23	5.05

The project participant has chosen wind power generation with CDM revenue even though the other alternatives i.e. purchase from grid and generation using coal would have been cheaper options for BAL (Page 7, under section B.2 and Page 13, under section Step 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 11, section 3.2**) The cost of electricity generation using the wind energy is considerably higher than the alternatives for producing the same amount of power. (Refer Annex II)

Maharashtra Electricity Regulatory Commission (MERC), a Commission appointed under the Electricity Regulatory Commissions (ERC) Act, 1998, after hearing from all parties and interviews with the persons came out with the unit cost of power generation as under –

As per MERC Order in 2003, Electricity Board tariff to industrial consumers is Rs. 3.34 per KWH, cost of thermal is Rs. 3.24 per KWH and the cost of power generated using wind turbines of Rs. 4.10 per KWH without Sales tax incentives and Rs. 3.46 per KWH with Sales tax incentives.

The internal rate of return and debt equity ratios with and without CDM benefits is presented in the PDD as an additional argument to support investment barrier.

The IRR of 9% without CDM revenue and 9.4% with CDM revenue was calculated on a stand alone windmill project basis without considering sales tax incentives, capital subsidy, accelerated depreciation under income tax that accrue to the other segments of the business. The project participant would have enjoyed substantially higher sales tax benefits if the investments were made in alternatives to the project activity. The PDD in its answer to one of the public comments highlights that IRR has been computed on a stand alone basis. This has been addressed in **Validation Report No. BVQI/INDIA/6.49, page 64 to 65**.

The estimate of IRR with CDM revenue was estimated at CER price of US$4. BAL was aware that the forecast of prices ranged from US$4 to US$20. On a conservative basis, it has been worked out at CER price of US$ 4 resulting in the IRR with CDM revenue at 9.4%. At US$ 20 the comparative figures is 10.95% with CDM revenues. At a CER price of US$20 the IRR is significant for BAL to go ahead with CDM project activity.

Technological barrier:
The project activity is at a high altitude and thus has higher possibility of lightning strokes (Page 12, under section Step 3, point no 4 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 62, Appendix B**). Such risks are higher at this site. While the installed lightning arrestors may avoid any physical damage to the wind turbines but they fail to avoid any electrical / electronics disruptions that may be caused due to such lightning.
Due to the above given risks the project participant required additional O&M requirement for electrical circuits.

In addition to the above barriers the project activity faced other technical barriers, such as, BAL entering a new field of power generation at a large scale, which completely differs from their core activity of automobile manufacturing (here compare with IRR's expected from investments in to known automobile business and unknown wind power generation), which made BAL face barriers due to unavailability of technical skill set within the firm and further training of the manpower (also retention of such manpower in tough and isolated terrains). (Page 11, under section Step 3, Point no 1 to 3 of the PDD, **Validation Report No. BVQI/INDIA/6.49, Page 12, Section 3.2**).

Response to reason V. b) :

The IRR of 9% without CDM revenue and 9.4% with CDM revenue was calculated on a stand alone windmill project basis without considering sales tax benefits, income tax benefits (accelerated depreciation). This has been addressed in **Validation Report No. BVQI/INDIA/6.49, page 64 to 65**.

The CDM revenue was calculated with a CER price of US$ 4. BAL was aware of the forecasts of potential prices ranging up to US$ 20. On a conservative basis, it has

been worked out at CER price of US$ 4 resulting in the IRR with CDM revenue at 9.4%. At US$ 20 the comparative figures is 10.95% with CDM as against 9% without CDM. We request this response be read in conjunction with **Validation Report no. BVQI/INDIA/6.49, Page 64 to 65** reproduced as Annex III.

Response to reason V. c & d):
In response to the concern raised on the validation report, we expect that the DOE would clarify the issue.

****