VALIDATION REPORT
DLF LIMITED

VALIDATION OF THE
150 MW GRID CONNECTED WIND POWER BASED ELECTRICITY GENERATION PROJECT IN GUJARAT, INDIA

REPORT NO. INDIA-VAL/158/2008

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BUREAU VERITAS CERTIFICATION

VALIDATION REPORT

Date of first issue:	Organizational unit:
06/12//2008	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
DLF Limited	Dr. Sanjay Vashishtha

Summary:

Bureau Veritas Certification has made the validation of the 150 MW grid connected Wind Power based electricity generation project in Gujarat, India project of DLF Limited located in Kutch, Gujarat, India on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM0002 version 07and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.:	Subject Group:
INDIA-VAL/158/2008	CDM

Project Title:
150 MW grid connected Wind Power based electricity generation project in Gujarat, India

Work carried out by:
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Work verified by:
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Indexing terms

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Abbreviations change / add to the list as necessary

CAR/s	Corrective Action Request/s
CDM	Clean Development Mechanism
CEA	Central electricity authority
CER	Certified Emission Reductions
CL/s	Clarification Request/s
CO	Carbon monoxide
CO_2	Carbon Dioxide
CUF	Capacity Utilization Factor
DLF	DLF Limited
DOE	Designated Operational Entity
EF	Emission factor
EIA	Environmental Impact Assessment
GERC	Gujarat Electricity Regulatory Commission
GHG	Green House Gas(es)
GSEB	Gujarat State Electricity Board
I	Interview
IETA	International Emissions Trading Association
kW	Kilowatt
kWh	Kilowatt- hour
MoV	Means of Verification
M/s.	Messers [i.e. organization / entity]
MW	Megawatt
MWh	Megawatt-hour
NGO	Non Government Organization
O&M	Operation & Maintenance
PCF	Prototype Carbon Fund
PDD	Project Design Document
PLF	Plant load factor
PLR	Prime lending rate
PO/s	Purchase Order/s
PPA	Power purchase agreement
RBI	Reserve Bank of India
SPM	Suspended particulate matter
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Validation and verification manual
WTG/s	Wind Turbine Generator/s

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1 INTRODUCTION

DLF Limited has commissioned Bureau Veritas Certification to validate its CDM project 150 MW grid connected Wind Power based electricity generation project in Gujarat, India (hereafter called "project activity") at Kutch, Gujarat, India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria. The report is based on the Version 1 of the CDM validation and verification manual [VVM].

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 GHG Project Description

The DLF Limited is a leading real estate and infrastructure development company based in Gurgaon, India.

The project activity involves the installation of a wind farm of 150 MW installed capacity enabling generation of electricity by 100 number of

Wind Turbine Generators (WTGs) each of capacity 1.5 MW. All of these WTGs are located in the Kutch district, state of Gujarat, India.

The electricity generated by the wind farm will be exported to the Western regional grid of India.

Validation team validated the accuracy of the project description through a combination of steps consisting of review of contract (Ref 2) and purchase documents (Ref 3), (Ref 4) related to the project activity, commissioning certificates (Ref 11) for the WTGs, site visit and interview of the project participant and their representatives. The confirmation that the electricity will only be exported and not used for captive consumption is available through PPAs (Ref 13).

The validation team is of the opinion that the description of the project activity in the PDD accurately describes the project activity design.

1.4 Validation team

The validation team consists of the following personnel:

Sandeep Lele
Bureau Veritas Certification Team Leader, Climate Change Verifier

R. Reghu Kumar
Bureau Veritas Certification, Climate Change Verifier

M/s. Sushil Budhia & Associates
Practicing chartered accountant, Financial Expert

H. B. Muralidhar
Bureau Veritas Certification, Internal reviewer

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a CDM project is expected to meet;

- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of five tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in Appendix A to this report.

Validation Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Validation Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the validation team has identified a need for further clarification.

Validation Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3**	**Summary of project owner response**	**Validation conclusion**
If the conclusions from the Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by DLF Limited and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests DLF Limited revised the PDD and resubmitted it on December 2008.

The validation findings presented in this report relate to the project as described in the PDD version 3.

This version of the PDD is in line with the latest format for the PDD and version 07 of the guidance for completion of the PDD.

The PDD version 3 has the following main changes with respect to the version 1 which was webhosted –

- Latest format is used.
- Two appendices are added.
- Reference to the relevant documentation is included.
- Description under purpose under section A.2 is updated.
- Coordinates of the windmills are corrected and moved from section A.4.1.4 to Appendix 1.
- Information in section A.4.3 updated to be in line with version 7 of the PDD completion guide (Ref 17).
- Crediting period changed from 10 years to renewable 7 years.
- CER estimate revised.
- Chronology of events included in section B.5.
- Baseline alternatives updated.
- Basic assumptions and benchmark for investment analysis are revised.
- Grid emission factor and its background information are updated.
- Monitoring plan is updated.
- Provision is made for apportioning of the data in case necessary for calculation of emission reductions.
- Environmental impacts information is updated.
- More information is provided on the process and results of the stakeholder consultation.
- Contact information for the project participant is updated.

2.2 Follow-up Interviews

On 16/04/2008 through 18/04/2008 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of DLF Limited were interviewed (see section 6 of this report). The main topics of the interviews are summarized in Table A below.

Table A Interview topics

Interviewed organization	Interview topics
DLF LIMITED	➢ CDM consideration ➢ Methodology application ➢ Baseline determination and emission factor ➢ Benchmark analysis ➢ Additionality ➢ Local stakeholder consultation and resolution of their concerns ➢ Supporting data, evidences and documentation ➢ Resolution of CARs and CLs
Suzlon Limited	➢ Stakeholder consultation process ➢ Monitoring system ➢ Metering system
LOCAL Stakeholder	➢ Views and concerns about the project activity ➢ Confirmation of local stakeholder consultation by DLF Limited

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections, the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 08 Corrective Action Requests and 09 Clarification Requests.
3) The conclusions for validation subject are presented.

3.1 Project Design

Bureau Veritas Certification recognizes that this windmill project of DLF Limited is helping country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because it -

- is approved for voluntary participation by DNA of India
- provides direct and indirect employment to the local people
- provides electricity to the deficient electricity grid of Western region
- provides medical support to the local people through the wind mill supplier
- leads to better quality of life for local people due to above reasons
- leads to reduced fossil fuel consumption
- does not release pollutants like SPM, CO_2, CO, etc.

3.1.1 Approval by parties involved

India is the only party involved in the project activity at this stage and is the host party. Project participant has obtained approval (Ref 9) from DNA of India. Project participant provided copy of this letter to the validation team. The validation team confirmed the authenticity of the approval from the website of DNA of India[1]. The validation team confirms that this letter is in accordance with paragraphs 45 – 48 of VVM version 01.

Corrective action request was raised in relation to incomplete project description and inaccurate location details [CAR 1]. The request was closed after project participant corrected the information.

3.1.2 Project boundary

The spatial extent of the project boundary is assessed through the description in the PDD and the grid structure in India as known from the official data available from the central electricity authority, CEA (Ref 21). The project activity boundary therefore includes the project power plant (windmills) and all power plants connected physically to the Western electricity grid of India that the CDM project power plant is connected to.

The consideration of only CO_2 for the baseline emissions is conservative and in line with the methodology and hence appropriate.
The electricity imported by the project activity is accounted in the net electricity exported by the project activity. There are no other sources of project emissions. Hence, in line with the methodology, project participant has considered project emissions as zero for renewable windmills. Further, it is confirmed that the project does not involve any transfer of equipment from or to the project activity and thus there is no leakage accountable to the project activity.

[1] http://cdmindia.nic.in/cdm_india.htm

The project design is sound and the geographical (Kutch, Gujarat, India) and temporal (20 years) boundaries of the project are clearly defined.
The validation team confirms that the only greenhouse gas relevant to the project activity is CO_2. This gas is addressed by the applied methodology.

3.2 Baseline and Additionality

This 150 MW grid connected Wind Power based electricity generation project in Gujarat, India project of DLF Limited uses the approved consolidated baseline methodology ACM0002, version 07 (Ref 18).

3.2.1 Assessment of applicability conditions of the methodology –

1. Grid connectivity was verified through PPA (Ref 13), samples of records of generation share certificate by GSEB, single line sketch and physical connection to the grid at sites.
2. The project activity involves wind mills alone and therefore is a renewable energy project
3. The purchase orders for the windmills indicate that the windmills are new and therefore amount to capacity addition. It also confirms that the project activity does not involve retrofit and/or modifications to the existing equipment.
4. The location of windmills is in Gujarat. As per CEA data (Ref 21), Gujarat comes under Western regional grid, the geographic and system boundaries of which are clearly identified and information on the characteristics of the grid is available.
5. During the site visit, it was noted and known through the stakeholder interviews that the project participant had no prior activity at the site of the windmills. The project participant also confirms this. Therefore the project activity is not a fuel switch activity.

The validation team therefore agrees that the project activity meets all the applicability conditions and all other stipulations of the selected approved methodology ACM0002 version 07 (Ref 18).

3.2.2 Baseline identification

Validation team assessed the baseline identification using the provisions of the applicable methodology and the 'additionality tool' (Ref 19) to see if each of the steps therein was followed.

Project participant has provided the steps for identification of the baseline scenario in section B.5 of the PDD. Validation team confirms that these steps are in line with the provision of the additionality tool (Ref 19).

Accordingly, project participant identified 3 possible alternatives to the project activity, viz. project activity without CDM benefits, power displaced in the grid and power from various renewable sources. All of these alternatives are legally allowed in India. The validation team agrees that this list is complete since the only alternative that is not considered is power generation using fossil fuel, which according to the methodology ACM0002 (Ref 18), is not a feasible alternative for a grid connected renewable electricity project.
Of these identified alternatives, renewable sources are correctly ruled out by project participant either based on high cost [for solar] or unavailability of the respective renewable source in the region [tidal / wave / hydro / biomass, etc.]. Then, through additionality, project participant has proven that project activity without CDM would not be implemented. Therefore, the baseline scenario applicable to the project activity is - electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system". This is in line with the methodology.

Validation team confirms that project participant has stated the assumptions and data including the references and sources in sections B.5 of the PDD. The validation team has verified the references and finds them to be correctly quoted and relevant.

Validation team confirms that there is no law in India that mandates installation of a renewable energy based power plant. Project participant has referenced the relevant policies of the Indian government in section B.4 of the PDD.

It is noted that the selected baseline scenario is in line with the selected approved methodology (Ref 18). Validation team therefore confirms that the selected baseline scenario reasonably represents what would happen in the absence of the project activity.

Project participant has used the official published data on operating and build margin emission factors (Ref 21). The version of the data (Ref 21) used is as available on the date of validation. This data is published by central electricity authority, CEA who is the sole authority for the publication of such data in India. This data is based on the emission factor tool (Ref 20). Project participant has applied weight factors for the OM and BM [75% & 25% respectively] as specified in the tool to arrive at the emission factor for the combined margin. Accordingly, the combined margin emission factor is 901.05 tCO_2/GWh [0.90105 tCO_2/MWh].
Validation team agrees to this emission factor since it is based on the official background data published by CEA. The validation team further notes that the emission factor is not provided by DNA but by the

competent authority. The provisions of para 64 of EB43 in this regard therefore are not applicable.

Clarification requests [CL 2] and [CL 9] were issued for explanation on baseline alternatives. Project participant clarified and updated the identification to close the request.

3.2.3 Additionality

CDM consideration
Project participant provided copies of the contract (Ref 2) and purchase orders (Ref 3), (Ref 4) for the project activity. Of these, the purchase orders were issued subsequent to the contract with the windmill supplier, M/s. Suzlon. Since for windmills, there cannot be any other real action before the contract and purchase of WTGs, the validation team accepted the corresponding date as the starting date for the project activity. Accordingly, 07/09/2007, which is the date of the contract, is accepted as the starting date of the project activity.

As evidence towards awareness of CDM, project participant has provided an internal circular dated 17/07/2007 (Ref 5) regarding Dr. Sanjay Vashishtha who previously was working with M/s. Suzlon, the WTG supplier and also has experience in CDM consultancy.

Validation team assessed the serious consideration of CDM from the extract of the meeting of the finance committee of the board of directors, dated 03/09/2007 (Ref 6). The validation team physically checked the ledger book (Ref 7) of board meeting records and observed that the extract provided was verbatim same as that recorded in the minutes book number 4 of the finance committee on page 495 at serial number 11. Copy of this extract of the meeting is attached along with this validation report.
The minutes of the meeting clearly record that “The CDM benefit will improve the internal rate of return (IRR) of the project and is expected to make the project financially viable”.

Project participant provided the PDD for validation to DOE first on 08/01/2008.
It is evident that the project participant requested validation within 4 months of the decision and start date of the project activity and 2 months before the commissioning of last of the windmills on 10/03/2008. This is a reasonable time within which the validation was requested subsequent to the decision and there has been real action to secure CDM status in parallel to the implementation of the project activity.

From the above discussions, it is seen that the project participant was aware of CDM prior to the start date of the project activity and even prior

to the decision for the project activity. From the minutes of the meeting, it is seen that the benefits of CDM were a decisive factor in the decision to proceed with the project activity. Further, continuing and real actions were taken by project participant to secure CDM status in parallel with the implementation of the project activity. This is in line with para 5 of Annex 46 of EB41.

The validation team therefore agrees that project participant has effectively proven that CDM was seriously considered in the decision to proceed with the implementation of the project activity.

Investment analysis
Project participant has attempted to prove the additionality using both the investment analysis and the barrier analysis.

The validation team validated the assumptions in the investment analysis as follows –

Parameter, Value	Source of information	Validation justification
Cost of wind mills, INR 8,833 Million	Contract & POs with Suzlon	Reflects realistic values and therefore eliminates ambiguity and need for sensitivity. Since the date of decision and the contract are very close, it can be agreed that the value was reasonably known at the time of decision.
Project Capacity, MW 150	POs & PPA	Self explanatory
Number of machines, 100	POs	Self explanatory
Location, Appendix 1 of PDD	Site visit and internet [Google Earth] on sampling basis, PPA, available commissioning certificates.	The location is generally confirmed through site visit, PPA and commissioning certificates. Coordinates were verified on sampling basis using Google Earth.

Parameter, Value	Source of information	Validation justification
PLF, 26.5%	Project participant's confirmation and webhosted PDD.	Project participant had stated this value in the webhosted PDD. The average of the maximum values of CUF [capacity utilization factor] stated by GERC as achieved in the past in Gujarat is approx 23%. The GERC order concludes that CUF of 23% is considered as a reasonable estimate. According to GERC order a PLF of 25.68% is the maximum achieved PLF in Gujarat region. It is noted that project participant has considered base PLF value much higher than that achieved in the Gujarat region. Project participant has clarified that this consideration was on account of better design of WTGs. Validation team agrees with the project participant's opinion that windfarms in India typically do not yield PLF stated by the suppliers. This has been evident through the verified and certified data of the windmill CDM projects till date. Project participant has also conducted sensitivity analysis for PLF to an extent of +/- 10% in line with the guidance on investment analysis (Ref 22). The validation team therefore agrees that this assumption is reasonable.
Insurance charges, 0%		Conservative
O&M cost in base year, 1.5%	GERC tariff order	As per official data and hence eliminates any ambiguity.
Escalation in O&M cost, 5%	GERC tariff order	As per official data and hence eliminates any ambiguity.
Tariff, INR 3.37/kWh	GERC tariff order, cross compared in PPA	In Gujarat, the tariff is fixed for 20 years as defined in the GERC tariff order. Hence no escalation is applicable for the tariff.
Loan, 70% of project cost	GERC tariff order, cross compared with actual loan documents	70% is official data definitely known at the time of decision. Further, the actual loan is 68% of the total project cost. This difference amounts to 2% of the project cost or approx. 17.35% of project revenues. Hence, sensitivity is not necessary on this value.
Interest on term loan, 10.25%	GERC tariff order, cross compared with actual value.	The actual interest is 10.5%. Hence this assumption is conservative.
Loan tenure, 7 years	Loan document	This value is conservative as compared to 10 years stated in GERC order.

Parameter, Value	Source of information	Validation justification
Loan moratorium, 1 year	Loan document	To keep consistency with basis for loan tenure.
CER price, Euro 12/CER	Market data and stated in webhosted PDD version.	This value is applicable for the year 2006-07, which is conservative with respect to time of decision.
Baseline EF, 901.05 tCO_2/GWh [0.90105 tCO_2/MWh]	CER spreadsheet (Ref 14), PDD	As explained in section 3.2.2 of this report.
Auxiliary consumption, 0%		Conservative
Benchmark, 12.75% PLR	PLR published by RBI (Ref 23) as on 24/07/2007	Official data published by the central governing bank, i.e. Reserve Bank of India for the period relevant to the date of decision. Project participant has considered a conservative value for benchmark since it only considers the lending rate by a bank and does not add the required rate of return to this value. Validation team therefore agrees that this can be acceptable as a benchmark for the project activity and is suitable since it is compared with project IRR of the project activity.

The validation team validated the assumptions as above and observed that they are in order. The financial expert verified the IRR calculations and observed them to be in order.

The financial expert and the validation team hereby confirm that project participant has applied all the statutory levies and taxes as per the then valid rules. Project participant has also applied incentives like accelerated depreciation and provisions of section 80IA [deferred tax benefit] as per Indian Income Tax Act (Ref 26). However, since the project activity does not generate sufficient profits, the accelerated benefits are not absorbed within the project activity and hence do not ultimately affect the IRR value.

The validation team therefore confirms that the project IRR for the project activity without CDM is 8.78% and is less than the applicable benchmark of 12.75%. The project IRR for the project activity with CDM benefit is 11.51% and is also less than the identified benchmark. Further, this IRR is close to the benchmark applied and is more than the interest on the loan component. This IRR is based on a conservative rate of Euro 12 per CER where as the prevailing rate at that time was in the range of Euro 16. In this context, it can be considered that the project is more viable with CDM benefits.

The only variable, which is more than 20% of the project cost or the project revenue is PLF. Project participant, has conducted sensitivity analysis for PLF with 10% variation with respect to the base value of 26.5%. The project IRR values with sensitivity are 10.35% and 12.98% without and with the CDM benefit respectively. It is seen that the IRR crosses the benchmark value with sensitivity when CDM benefits are considered.

The validation team therefore is of the opinion that the project activity is proven to be additional.

Barrier analysis
Project participant has attempted barrier analysis through the discussions on prevailing practice, organizational barrier and other barriers.
However, the validation team is of the opinion that none of these barriers are proven to be prohibitive in nature.
The assessment of these barriers is detailed in the protocol at Appendix A to this validation report.

Common practice analysis
The geographical scope of the common practice is limited to the state of Gujarat. Validation team agrees with this because the regulatory and tariff policies in India with respect to the windmills change from state to state. Therefore, the regulatory environment for the windmills would be comparable only at the state level.

Project participant has provided the following key information for common practice analysis –

1. Project participant identified windfarm projects in Gujarat of capacity more than 15 MW by a single investor. This ensures that the comparison is done with projects of similar scale and nature. There were 8 such projects at the time of decision on the project activity implementation.
2. Project participant then analysed these projects for CDM status. In case the project is implemented without CDM status, project participant provided explanation of how the project activity is different from the respective project. Only 2 of these 8 projects did not avail CDM status.
3. For the project by M/s. Gujarat Guardian Limited, project participant has proven through publicly available sources that the project is intended for captive utilization of power while the project activity does not. Project participant has also provided evidence that the project has availed other carbon credits.
4. For the project by M/s. IPCL, project participant has proven through publicly available sources that the project is intended for captive utilization of power while the project activity does not. Further, project participant has also demonstrated that the IPCL project was eligible for

different incentives [e.g. banking provision, cut in the duties, sales tax incentive, etc.] from Gujarat government while the project activity is not.

Project participant has therefore demonstrated that the project activity is not a common practice.

The information on similar large scale projects was validated using the Indian wind power directory (Ref 24).

Clarification request [CL 1] was raised to explain how project participant could organize WTGs in a very short time. Project participant proved the possibility through written explanation and confirmation from the supplier (Ref 30).
Project participant had initially considered benchmark based on GERC tariff order, which is not acceptable to EB [CL 3]. Project participant revised the benchmark to use only the prime lending rate [PLR] data available from the Reserve Bank of India.
A corrective action request [CAR 2] was raised since the IRR was observed to exceed the original benchmark, the barriers were not proven to be prohibitive and the common practice analysis was not in line with the additionality tool.
In response, project participant rationalized the basic assumptions with justification as validated in the table above. Project participant also has explained the reason for the considerable difference between the earlier IRR value and the revised IRR value. This response is available in the protocol in Appendix A. Since the revised basic assumptions are checked and validated, the request is closed for the IRR issue.
Project participant updated the common practice information, which is now in order as explained above.
However, project participant has not provided convincing explanation on barriers. Hence, though the barriers exist, the validation team does not consider barriers as contributing to the additionality of the project activity.

3.2.4 Algorithm and formulae used to determine emission reductions

Project participant has used the algorithm and formulae in line with the Emission Factor tool (Ref 20). The detailed algorithm and formulae used are provided in section B.6.3 of the PDD.

Refer section 3.4 of this report for comments on the calculation of the emission reductions.

3.3 Monitoring Plan

The Project uses the approved consolidated monitoring methodology ACM0002, version 07 (Ref 18). Refer discussions on the applicability of the methodology at section 3.2.1 above.

Validation team considers the monitoring plan to be complying with the requirements of the methodology. The reasons are as follows –

1. According to the methodology, there are only 2 variables that a windmill project needs to monitor. These are EG_y and $EF_{grid,CM,y}$. project participant has included both these parameters in the monitoring plan.
2. Project participant has provided for electronic archiving of all the monitored data. This is stated in section B.7.1 of the PDD.
3. Project participant has provided for keeping the data for 2 years after the end of the last crediting period.
4. The monitoring plan includes requirements for calibration of all the measurement equipment used for monitoring the project activity variables. The meters used for monthly joint meter recording are calibrated by the GSEB and the O&M service provider will calibrate the other meters used in monitoring.
5. The monitoring frequency for EG_y matches with that of the methodology, viz. hourly measurement and monthly recording. The double checking is provided through the use of the sales receipts.
6. $EF_{grid,CM,y}$ is fixed on ex-ante basis for the first renewable crediting period as explained in sections 3.2.2 and 3.4 of this validation report. This is in line with the EF tool as required by the methodology.
7. Project participant has included a few other variables in the monitoring plan to account for the electricity imported by the project activity as well as to provide for an uncertainty where the dates of the recorded data may not coincide with the verification period. Project participant has made a provision to apportion the monthly recorded data using the data recorded daily at the generation meter.
8. Under section B.7.2 of the PDD, project participant has provided additional procedures to deal with data uncertainty, problems with meters, etc.

The validation team physically verified the metering system installed at both the substations of the project activity [CAR 4]. Project participant confirms that the revised description of the metering system is provided by the O&M agency, which is operating the windfarm on day-to-day basis. Project participant has described the metering system in details in section B.7.2 of the PDD. Validation team confirms that the description now correctly represents the metering system available at the project activity sites.

The validation team hereby confirms that the defined monitoring plan can be implemented in the context of the project activity.

The validation team also interacted with the O&M service provider, M/s. Suzlon who is the windmill supplier itself. The agency is experienced in the monitoring system and is managing O&M of numerous other windfarm CDM projects.
The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity.

3.4 Calculation of GHG Emissions

As per ACM0002, the baseline emission sources considered are CO_2 emissions from electricity generation in fossil fuel fired power plants that is displaced due to the project activity.

As required under ACM0002, project participant has calculated the baseline emissions by multiplication of the electricity supplied by the project activity and the grid emission factor. The detailed algorithms are described later under sections B.6.3 of the PDD.

As described in ACM0002, the project emissions are to be considered as zero. Project participant has however, indirectly accounted for project emissions by subtracting the measured electricity imported from the electricity exported by the project activity. With reference to this methodology, project does not lead to any leakage.

Validation team assessed the calculations of estimated CERs as provided by project participant in a spreadsheet (Ref 14). The assumptions in this spreadsheet were validated as follows -

Parameter, Value	Source of information	Validation justification
Project Capacity, MW 150	POs & PPA	Self explanatory
Number of machines, 100	POs	Self explanatory
PLF, 26.50%	Project participant's assumption	Refer section 3.2.3 of this report.
Baseline EF, 901.05 tCO_2/GWh [0.90105 tCO_2/MWh]	CER spreadsheet, PDD	As explained in section 3.2.2 of this report.

The estimated annual average of approximately 313,755 tCO2e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project. All the assumptions for this estimate either come from the assumptions used for investment analysis or grid emission factor as taken from CEA website. These are already validated in sections 3.2.2 of this report. The validation team confirms that the estimates of baseline emissions can be replicated using the information provided. It also can be verified using the spreadsheet (Ref 14) for calculations of CERs.

3.5 Sustainable Development Impacts

Project participant has identified and analysed the impacts of the project activity during the construction phase and the O&M phase separately. Typically, the impacts related to land use, air, noise, solid and liquid waste, socio-economic and transboundary impacts are analysed.

As per Indian legislation (Ref 27) for EIA, the impacts from windmill projects are not considered to be significant. Hence no public hearing is necessary for these projects. Validation team is of the opinion that the impact assessment conducted by project participant is correct and adequate enough.

In response to [CAR 7], project participant identified the impacts on account of the solid and oily waste generated from the project activity. Project participant has also described adequate control plan for these impacts.

3.6 Comments by Local Stakeholders

Local stakeholder consultation meeting to discuss stakeholder concerns on the proposed Clean Development Mechanism (CDM) project – 150 MW grid connected Wind Power based electricity generation project in Gujarat, India at DLF Limited was held on 10/01/2008 & 11/01/2008 at six different villages (Suthri, Arikhana, Rapargarh, Jakhau, Lathedi, and Chachhi) in the Kutch district of Gujarat state, India. These villages are in and around the area of windmills by DLF Limited and hence relevant for the stakeholder consultation.

The records related to the stakeholder consultation viz. list of participants, photographic record of the stakeholder meeting proceedings is maintained by the project participants (Ref 29).

Project participant has provided sufficient and transparent information on the process of local stakeholder consultation in the PDD. The information indicates that project participant provided sufficient time to stakeholders for providing comments.

Validation team interviewed a few of the local personnel in two of the villages, viz. Jakhau and Rapargarh for confirmation of the information in the PDD.
The stakeholders viewed 150 MW grid connected Wind Power based electricity generation project in Gujarat, India project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development. The local stakeholders interviewed during the site visit of the validation activity endorsed these views. The stakeholders also confirmed the process of invitation as described in the PDD.
However, a head of one of the village councils [Sarpanch] of village Jakhau expressed concerns with respect to the operations of the wind mill supplier and provided documentary evidences of communication with the supplier in this regard. No action was evident from the supplier in this respect. A corrective action request [CAR 8] was raised. Project participant immediately urged the supplier into action. The validation team leader spoke with the Sarpanch over phone after a time gap. However, the Sarpanch was not satisfied with the action. The supplier then provided evidence that the actions were taken. They also provided evidence of their routine social activities, which were earlier endorsed by the other local stakeholders. Additionally, project participant provided a written confirmation (Ref 28) from the earlier unhappy stakeholder after the actions that he was now satisfied with the project activity. The request was closed with these documentary evidences.

In response to a clarification request [CL 8], project participant described the method of inviting comments in section E.1 of the PDD.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the UNFCCC CDM website (http://cdm.unfccc.int) on 14/02/2008 and invited comments within 14/03/2008 by Parties, stakeholders and non-governmental organizations.

Comments were received from 1 person. The project participant provided response to these comments. Validation team took due account of these comments and the respective responses while making the validation opinion. The details of the comments received, responses by the project

participant/s and the explanation of how due account of these is taken by the validation team are attached as Appendix B with this validation report.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the 150 MW grid connected Wind Power based electricity generation project in Gujarat, India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment to determine that the project activity itself is not the baseline scenario.

By synthetic analysis of the description of the project, it is seen that the project is likely to result in reductions of GHG emissions. An analysis of the investment demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (version 03) and the subsequent follow-up interviews has provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

The validation is based on the information made available to us and the engagement conditions detailed in this report.

6 REFERENCES

Category 1 Documents:
Documents provided by Type the DLF Limited that relate directly to the GHG components of the project.

(Ref 1) Project design document, version 03 dated 24/11/2008
(Ref 2) Contract for supply and commissioning 0f 150 MW wind power project, dated 07/09/2007

(Ref 3) Purchase order reference NIL dated 07/09/2007 for supply of 20 nos. of Suzlon 1500 kW rating wind turbine generators [WTGs] without tower
1. Supply of 20 nos. of Suzlon 1500 kW rating wind turbine generators [WTGs] without tower
2. Supply of tubular tower
3. Supply of transformer and electrical items
4. Occupation of land on lease basis
5. Civil work
6. Installation of electrical line for power transmission and metering
7. Arrangement of power evacuation
8. Installation and commissioning of WTGs

(Ref 4) Purchase orders reference NIL dated 18/09/2007 for 80 number of WTGs for the following –
1. Supply of 80 nos. of Suzlon 1500 kW rating wind turbine generators [WTGs] without tower
2. Supply of tubular tower
3. Supply of transformer and electrical items
4. Occupation of land on lease basis
5. Civil work
6. Installation of electrical line for power transmission and metering
7. Arrangement of power evacuation
8. Installation and commissioning of WTGs

(Ref 5) Circular reference NIL dated 17/07/2007 as evidence for awareness of CDM before decision

(Ref 6) Extracts of the minutes of meeting of the finance committee of the board of directors, dated 03/09/2007

(Ref 7) Ledger book containing original of the above minutes [maintained at administrative office of the project participant]

(Ref 8) Application for DNA approval vide letter reference DLF/DNA/01 dated 10/12/2007

(Ref 9) Fax message dated 26/12/2007 from DNA of India regarding meeting with the national CDM authority

(Ref 10) Host country approval letter reference no. 4/24/2007-CCC dated 21/07/2008, 2 pages.

(Ref 11) Commissioning certificate the windmills in the project activity with following details
1. GEDA/..../3391 dated 19/10/2007 for 1 WTG
2. GEDA/..../3953 dated 27/11/2007 for 4 WTGs
3. GEDA/..../5901[2] dated 31/01/2008 for 10 WTGs
4. GEDA/..../5964 dated 06/02/2008 for 17 WTGs
5. GEDA/..../6736 dated 05/03/2008 for 22 WTGs
6. GEDA/..../353 dated 15/04/2008 for 46 WTGs

[2] This number on the copy of the certificate is illegible

(Ref 12) Sanction of term loan reference PF/NNH/1151 dated 29/12/2007
(Ref 13) Power purchase agreements with following details
1. GUVNL/COM/WF/227/269 dated 22/02/2008 for 15 WTGs
2. GUVNL/COM/WF/227/270 dated 22/02/2008 for 17 WTGs
3. GUVNL/COM/WF/227/271 dated 22/02/2008 for 41 WTGs
4. Reference NIL dated 14/11/2008 for 27 WTGs
(Ref 14) CER calculation spreadsheet
(Ref 15) IRR calculations spreadsheet[3]
(Ref 16) Product leaflet for 1.5 MW Suzlon WTG

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

(Ref 17) PDD completion guidance - Guidelines for completing the project design document (CDM-PDD) and The proposed new baseline and monitoring methodologies (CDM-NM), version 07
(Ref 18) ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources, version 07
(Ref 19) Additionality tool - Tool for the demonstration and assessment of additionality, version 05.2
(Ref 20) Emission Factor tool - Tool to calculate the emission factor for an electricity system, version 1.1
(Ref 21) CEA baseline database, version 03 dated 15/12/2007 [http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm]
(Ref 22) Guidance on the Assessment of Investment Analysis, Annexure 45, EB 41
(Ref 23) Website of reserve bank of India [http://www.rbi.org.in/home.aspx#]
(Ref 24) Indian Wind Power directory, 2007
(Ref 25) GERC tariff order number 2 of 2006 dated 11/08/2006
(Ref 26) Income Tax Act, Government of India [http://law.incometaxindia.gov.in/TaxmannDit/DisplayPage/dpage1.aspx]
(Ref 27) EIA notification, S.O. 1533 dated 14th September, 2006
(Ref 28) Letters from various village council heads [including Mr. Vagher] confirming their satisfaction with the project activity.

[3] Note: The IRR spreadsheet requires the user to have the 'Analysis ToolPak' from the Add-Ins sub-menu under Tools menu of MS Excel.

(Ref 29) List of participants and photographs of the local stakeholder consultation meetings at different villages.

(Ref 30) Letters reference NIL dated 12/08/2008 and 28/08/2008 by M/s. Suzlon Energy Limited explaining and confirming the possibility of supply of WTGs at short notice.

Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

/1/ Mr. C. Punacha, DLF Utilities Private Limited

/2/ Dr. Sanjay Vashishtha, DLF Utilities Private Limited

/3/ Mr. Kaushik Bhattacharya, DLF Utilities Private Limited

/4/ Mr. Ankur Jain, Dy. GM: Corporate Affairs, DLF Limited

/5/ Mr. Dwijal Mamtora, Suzlon

/6/ Mr. Sharat Kumar Jain, Suzlon

/7/ Mr. Nishit Kumar, Suzlon [Telephonic discussions]

/8/ Mr. Ishakbhai Vagher, Sarpanch, Village Jakhau

/9/ Mr. Vipul Shivji, Village Rapargadh

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APPENDIX A: COMPANY CDM PROJECT VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	Yes	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	Yes	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	Yes	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved, including confirmation by the host party that the project activity assists it in achieving sustainable development	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a, §28	Yes	Letter of approval dated 21/07/2008 by the Ministry of Environment & Forests, Government of India.
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	Yes	Table 2, Section E

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43 and 44	Yes	Table 2, Section B.3
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords	Yes	Declaration by Ms. DLF Limited at Annex 2 of the PDD.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	Yes	Government of India has designated the National Clean Development [CDM] Authority under Ministry of Environment & Forests to act as DNA. Source http://cdm.unfccc.int/DNA
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	Yes	Date of accession – 26/08/2002 Source http://unfccc.int/parties_and_observers/parties/items/2109.ph

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
			p
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	Yes	Table 2, Section G
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Accords, CDM Modalities §37c	Yes	Table 2, Section F
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	Yes	Table 2, Section B.1.1 and D.1.1
13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	Marrakech Accords, CDM Modalities §37f	Yes	Table 2, Section D
14. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	Yes	Source http://cdm.unfccc.int/ Projects/Validation
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45 b, c, e	Yes	Table 2, Section B.2
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, CDM Modalities, §47	Yes	Table 2, Section B.2

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format and fullfilled according to the guidelines for completing CDM-PDD, CDM-NMB, and CDM-NMM	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	Yes	Reference 1 to this validation protocol

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. **Title of the project activity, version number and date of the document**	1	DR	The title of the project activity is "150 MW grid connected Wind Power based electricity generation project in Gujarat, India." PDD is version 1 dated 15/01/2008	OK	OK
A.2. **Description of the project activity**					
A.2.1. Is the purpose of the project activity included?	1	DR	Project Participant has discussed the purpose of the project activity under section A.2 of the PDD as follows – • Generate electricity through sustainable renewable energy means • Establishing wind farm of 150 MW installed capacity • Annual GHG [emission] reductions • Mitigate risks involved in renewable energy technology for first 10 years • Supply renewable power to power deficit western regional grid • Contribute to climate change mitigation • To enhance the propagation of commercialisation of wind power generation • To contribute to sustainable development of the region	OK	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.2.2. Is the view of the project participants on the contribution of the project activity to sustainable development included?	1	DR	Project Participant has explained its views on sustainable development under section A.2 of the PDD as follows – Social Well Being • Project activity provides employment opportunities in the context of building infrastructure, installation & maintenance and managing the wind farm • Improvement in infrastructure in and around the project activity • Improving the grid frequency and availability of electricity to local consumers Economic Well Being • New opportunities for industries and economic activities • Diversification of national energy supply Environmental Well Being • Reduction in specific emissions of pollutants including GHG emissions • No solid waste generation • Resource conservation • No negative impact Technological Well Being • 1.5 MW WEGs	OK	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.3. **Contribution to Sustainable Development** *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	-	DR I	The Indian legislation allows private capacity in electricity generation through renewable wind power. The government of India has a renewable energy policy. The project activity therefore is in line with the relevant legislation and plans in the host country, i.e. India.	OK	OK
A.3.2. Is the project in line with host-country specific CDM requirements?	-	DR I	The host country specific CDM requirements are – • Emission Additionality – this is assessed at sr. no. 1.4 of Table 3 below • Financial Additionality – this is assessed at sr. no. A.5.5 below.	OK	OK
A.3.3. Is the project in line with sustainable development policies of the host country?	-	DR I	The project activity is assessed below with respect to the following Indian DNA criteria on sustainable development – **Social well being:** The CDM project activity should lead to – ▪ alleviation of poverty by generating additional employment ▪ the project activity has provided direct employment to approx. 65 persons as security staff [approx. 4 persons per 3 WTGs] and approx. 12 persons as technical staff [7 maintenance persons per 65 WTGS + 12 persons for CMS operations covering approx. 300	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			WTGs]. The project activity has also provided indirect employement in terms of supporting services like food, accommodation and use of hired vehicles for the staff. ▪ removal of social disparities and contribution to provision of basic amenities to people ▪ The project will provide electricity which the local people can use through the grid. ▪ The operation and maintenance support by Suzlon Energy Limited also provides additional services like periodic medical camps and weekly visit of a doctor to the local community. ▪ leading to improvement in quality of life of people. ▪ As a result of employment and availability of more electrical power, the project activity will help in improving the quality of life of people. **Economic well being:** The CDM project activity should bring in additional investment consistent with the needs of the people. The project activity brings an investment to the tune of INR 8833 Million in the region that is deficit in power. Hence the investment can be considered to be consistent with the needs of the people. **Environmental well being:** This should include a discussion of – ▪ impact of the project activity on resource sustainability and resource degradation, if any, due to proposed		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			activity; ▪ The project activity will reduce fossil fuel consumption in the build margin and hence conserve fossil fuel resources ▪ bio-diversity friendliness; ▪ No effect ▪ impact on human health; ▪ No effect ▪ reduction of levels of pollution in general ▪ On account of the conservation of fossil fuels, the project activity will lead to reduction in emission of pollutants like SPM, CO, CO_2, etc. **Technological well being:** The CDM project activity should lead to transfer of environmentally safe and sound technologies that are comparable to best practices in order to assist in upgradation of the technological base. The transfer of technology can be within the country as well from other developing countries also There is no transfer of technology in the project activity. The PDD does not provide information on how the project activity meets the following conditions – ▪ Removal of social disparities ▪ Transfer of technology However, approval of the project activity by Indian DNA towards voluntary participation is considered as meeting the above criteria.		
A.3.4. Will the project create other environmental	-	DR	*The project activity is expected to lead to environmental and social benefits as discussed above at A.3.3*	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
or social benefits than GHG emission reductions?		I	*social benefits as discussed above at A.3.3.*		
A.4. Project participants					
A.4.1. Are Party(ies) and private and/or public entities involved in the project activity listed?	1	DR	M/s. DLF Limited, a private entity is listed as project participant under section A.3 of the PDD. Here, India is listed a the host country and it is mentioned that India does not wish to be a project participant.	OK	OK
A.4.2. Is the contact information provided in annex 1 of the PDD?	1	DR	The following contact information is provided in Annex 1 of the PDD – Mr. C. P. Poonacha, DLF Limited, Shopping Mall, 3rd floor, Arjun Marg, DLF City, Phase I, Gurgaon, Haryana, 122 002. Tel : +91 124 4376971 Fax : +91 124 4376973 e-Mail : c.p.poonacha@hotmail.com	OK	OK
A.4.3. Is this information indicated using the tabular format?	1	DR	The above information is provided using the tabular format as per reference 1 to this checklist.	OK	OK
A.5. Technical description of the project activity					
A.5.1. Location of the project activity					
A.5.1.1. Host country Party(ies)	1	DR	India	OK	OK
A.5.1.2. Region/State/Province etc.	1	DR	Haryana	CAR 1	OK
A.5.1.3. City/Town/Community etc.	1	DR	Gurgaon	CAR 1	OK
A.5.1.4. Detailed description of the physical location, including information allowing the unique identification of this project	1	DR	The physical location of the project activity is narrated under section A.4.1 of the PDD. The PDD does not include description of the project	CAR 1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
activity.			activity. The location of the project activity is not indicated on the maps included under section A.4.1. The unique location of the project activity is mentioned as 28^{O} 29' N & 77^{O} 05' E. These coordinates however indicate a location close to New Delhi and not in Kachchh where the project activity is located.		
A.5.2. Category of the project activity					
A.5.2.1. Is the category of the project activity specified?	1	DR	Under section A.4.2 of the PDD, the category of the project activity is identified as 'Energy Industries – renewable / non-renewable sources' under sectoral scope 1.	OK	OK
A.5.2.2. Is it justified how the proposed project activity conforms to the project category selected?	-	DR	Under section A.4.2 of the PDD, it is clarified that the project activity is a renewable energy project having a capacity in excess of 15 MW, which is the upper limit for a small scale project activity. The category of the project activity mentioned is therefore justified.	OK	OK
A.5.3. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.5.3.1. Does the project design engineering reflect current good practices?	-	DR I	As per Project Participant, the project activity features the following good engineering practices – ▪ Higher efficiency	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			▪ Minimum stress and load – well balanced weight distribution ▪ No shock loads – advanced hydrodynamic fluid coupling absorbs peak loads and vibrations ▪ Intelligent control ▪ Power factor of 0.99 ▪ Climatic shield – over-voltage and lightening protection system ▪ Micro-pitching control ▪ Grid friendly – harmonics free pure sinusoidal power There is no technology transferred to the host party, India. The PDD initially did not explain how the technology is environmentally safe and sound. Project participant revised section A.2 of the PDD to explain this.		
A.5.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	-	DR I	The project activity uses the technology generally used by the equipment manufacturer M/s. Suzlon Energy Limited [Suzlon] in their earlier installations across India. The project activity uses a 1.5 MW capacity generator, which is a relatively new capacity class. It also employees a flexi-slip control which enables better pitching control of WTG. This feature was available in 0.6 MW capacity units installed by Suzlon earlier. In general, it can be said that the project activity	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			uses the technology that is commonly used and therefore is neither superior nor inferior to commonly used technology.		
A.5.3.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	-	DR I	Windmill technology may improve over the expected project life. However, the project participant has confirmed that it does not intend to retrofit / modify / replace the project activity equipment during the project life.	OK	OK
A.5.3.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	-	DR I	The project activity requires training initially and for operation and maintenance. Project participant has appointed services of the experienced manufacturer [Suzlon Energy Limited] for operation and maintenance. The contract with Suzlon also provides for training of DLF personnel.	OK	OK
A.5.3.5. Does the project make provisions for meeting training and maintenance needs?	-	DR I	The long term Operation & Maintenance contract planned to be signed with Suzlon is expected to provide for initial as well as ongoing training and maintenance for personnel of project participant.	OK	OK
A.5.4. Brief statement of how anthropogenic emissions of GHG by sources are to be reduced by the proposed CDM project activity					
A.5.4.1. Is it stated how anthropogenic GHG emission reductions are to be achieved?	1	DR	The PDD did not initially explain how the anthropogenic GHG emission reductions are to be achieved. Project participant revised section B.5 of the PDD to explain this.	OK	OK
A.5.4.2. Is the estimate of total anticipated	1	DR	At section A.4.4, the PDD provides the total	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
reductions of tons of CO_2 equivalent provided?			anticipated GHG emission reductions as 2,851,270 tCO_{2e} over 10 year crediting period. Project participant later changed the crediting period to 7 years renewable and accordingly the estimate of anticipated reductions.		
A.5.4.3. Is this information indicated using the tabular format?	1	DR	This information is indicated using tabular form as per reference 1 to this checklist.	OK	OK
A.5.5. Public funding of the project activity					
A.5.5.1. Is it indicated whether public funding from Parties included in Annex I is involved in the proposed project activity?	1	DR	Under section A.4.5 of the PDD, Project Participant has confirmed that there is no public funding and that there is no diversion of ODA into the project activity. Project participant has confirmed that about 30% of the capital expenditure was provided by the project participant itself and about 70% came from debt.	OK	OK
A.5.5.2. If public funding is involved, is information on sources of public funding for the project activity provided in Annex 2, including an affirmation that such funding does not result on a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties?	1	DR	Not applicable.	OK	OK

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B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. **Baseline Methodology** *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Are the title and the reference of the baseline methodology applicable to the project activity defined?	1 UNFCCC web site	DR	Under section B.1, the PDD mentions that the methodology ACM0002 version 07 [EB36] is applicable to the project activity. The title of the methodology is "Consolidated baseline methodology for grid-connected electricity generation from renewable sources". The section also refers to the – ▪ Tool for the demonstration and assessment of additionality, version 04 ▪ Tool to calculate the emission factor for an electricity system, version 01 All these versions are the latest versions at the time Project Participant requested the project for validation. At the project activity, diesel is consumed for vehicle operations and DG set for control rooms which are common facilities for the entire windfarms. The share of project activity in this will be very small. Hence project participant did not	OK	OK

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			apply tool to calculate project or CO_2 leakage emissions from fossil fuel combustion on account of project activity. This assumption is reasonable and therefore accepted.		
B.1.2. Is the baseline methodology previously approved by the CDM Methodology Panel?	1	DR	The baseline methodology as mentioned above is previously approved by the CDM methodology panel.	OK	OK
B.1.3. Does the proposed project activity meet the applicability conditions of the methodology?	1	DR	Refer table 3 below for assessment of applicability of the methodology.	OK	OK
B.2. **Description of how the methodology is applied in the context of the project activity**					
B.2.1. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1 ACM 0002	DR	The selected baseline methodology is for grid connected renewable energy. Project participant has confirmed that the power from the project activity is exported to the grid and not availed in any manner for captive consumption. The project activity is therefore a grid connected renewable energy project. The methodology is therefore deemed to be the most suitable for the project activity. Refer discussions on applicability of the methodology in Table 3 below.	OK	OK
B.3. **Description of how the anthropogenic GHG emissions by sources are reduced below those that would have occurred in the absence of the proposed project activity**					
B.3.1. Is the proposed project activity additional?	1	DR	The starting date of the project activity is	CAR 2	OK

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			07/09/2007. This is the date corresponding to the date of the contract with Suzlon Energy Limited for supply and commissioning of 100 windmills each of capacity 1.5 MW. All other activities like purchase orders [starting 14/09/2007], supply, commissioning [first WTG commissioned on 30/09/2007], etc. took place after this date. Hence this date is accepted as the start date of the project activity. The time frame from date of contract with Suzlon to the commissioning of the first WTG is just 21 days. Project participant should explain how this was managed. The PDD initially mentioned under section B.7.2 that there are more than 1 investors. Project participant however clarified that this reference was to the owners other than the project participant of the windmills that are outside the project boundary. The contract and purchase order details also confirm that there is only one project owner. Project participant has revised and corrected this description in the PDD. The above stated contract was signed before the request for validation. The Project Participant therefore has to provide proof of serious CDM consideration. Under section B.5, Project Participant has explained that the DLF directors conducted a meeting before placing a formal purchase order for the equipment. The PDD states	CL 1 CL 2 CL 3 CL 4	

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			that CDM benefits were discussed in this meeting. Project participant provided an extract of resolution passed by the finance committee of the board of directors of DLF Limited in its meeting held at DLF Centre on 3rd September 2007. The document records the conclusion of the committee that 'the CDM benefit will improve the internal rate of return [IRR] of the project and is expected to make the project financially viable'. This meeting took place before the contract was signed with Suzlon on 7th September 2007 and the subsequent purchase orders. Hence the validation team concludes that the project participant seriously considered CDM at the time of making the decision to invest in the project activity. It is however noted that the said minutes do not give the specific information on the project details and the reasons for considering the project as financially unviable. However since the date of decision is before the date of contract for this project activity, it can be concluded that the decision is applicable to the project activity. In line with the tool for additionality, Project Participant has identified the following alternatives to the project activity – a. The project activity not undertaken as a CDM project activity.		

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			b. Coal based power plant producing same power as that by project activity. c. Continuation of the current scenario – i.e. power from current and future capacity addition of grid connected power plants The PDD at some place referred to hydropower as an alternative though this is not considered as an option. These alternatives are allowed under the Indian legislation and therefore are valid baseline alternatives. Under step 1a, the PDD eliminates the alternative of power generation with coal as a fuel. The reason cited for this is that power off-takes in India are decided on power plant and T&D availability and not on merit basis. The PDD does not reference any publicly available evidence in support of this claim. PDD uses both the investment analysis and the barrier analysis to prove that the project activity is additional. Investment analysis – In the investment analysis, Project Participant has used benchmark analysis [option III]. Project Participant uses equity IRR as the suitable financial indicator. Under step 2b, Project Participant uses a benchmark of 14% post tax return on equity. This benchmark is taken from GERC tariff order dated		

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			11/08/2006, i.e before the date of the decision for the project activity. As per EB41, GERC tariff order based ROE is not an acceptable benchmark. The equity IRR for the project activity is calculated as 13.16%. Project Participant also indicates another figure for IRR as 13.97%. This is very close to the benchmark. Project participant needs to explain the second IRR of 13.97% and its relevance in the additionality of the project activity. These calculations are based on the following assumptions – ▪ Price per 1.5 MW WTG as INR 87.45 Million ▪ Cost of land at INR 56.309 Million per WTG ▪ PLF of 26% ▪ Losses 7% ▪ O&M cost per 1.5 WTG as INR 1.545 Millions ▪ Escalation on O&M Cost At 5% per annum ▪ Tariff at INR 3.37 / kWh ▪ Miscellaneous & Admin expenses as INR 0.2 Million / MW ▪ Interest on loan at 10.75% ▪ Loan term as 7 years ▪ Moratorium as 1 year ▪ Insurance at 0.18% per WTG ▪ Working capital interest at 12% ▪ Woking capital to service 45 days credit and 30 days of O&M ▪ CER price at Euro 12 each		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			▪ 25% CER revenue sharing with state government The sensitivity analysis conducted by the Project Participant indicates that at 28% PLF, the equity IRR becomes about 17% and crosses the benchmark ROE of 14%. The project therefore cannot be considered as additional. Project Participant has also conducted the barrier analysis. The barriers considered by Project Participant and assessment of each of these by the validation team is given below. The validation team assessed these barriers to see if these would prevent the implementation of the project activity : <u>Prevailing practice –</u> a. Third party sale is not allowed in the state of Gujarat. This applies to all the alternatives of the project activity and hence is not prohibitive in nature. b. Frequent changes in the public policies are reflecting on the WEG installations. c. A non-conducive, stagnant policy lead to zero WEG installations from 1998 – 2002. d. Comparison of policies in the other states. e. Third party sale not allowed. f. Poor financial condition of SEB The barriers discussed under the prevailing		

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			practice are actually regulatory type of barriers. Project Participant has not proved here that the project activity is 'first of its kind' to be considered as additional. 25% of CER revenue by distributor to be shared with GERC. This is not a barrier for the implementation of the project activity. <u>Organisational Barriers –</u> a. Project Participant has no experience in operation of wind farms. This will affect the capacity utilisation. The capacity utilisation of windmills is based on the incident wind and its quality and not on the experience of the owner. Further, the windmill suppliers offer operation and maintenance services. Hence, this barrier is not prohibitive in nature. <u>Other Barriers –</u> a. Windfarms have low capacity utilisation factor [CUF] b. In most of the [earlier] projects, the actual CUF has been found to be much less than estimated CUF. c. Risk associated with 'virgin' site All the above barriers would lead to a variation in the generation of power and therefore in turn for the revenue. The decision to invest therefore will be		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			a commercial one. These barriers are therefore not independent and Project Participant has already incorporated these in the investment analysis. The analysis of barriers discussed in the PDD indicates that the barriers do not prove that these would prevent implementation of the project activity without CDM benefit. <u>Common Practice Analysis –</u> The PDD under common practice analysis does not give a firm data on whether there any 'similar' installations as project activity in the region. It also does not distinguish such 'similar' installations from project activity to prove that project activity is not a common practice.		
B.3.2. Are national policies and circumstances relevant to the baseline of the proposed project activity summarised?	-	I	*PDD discusses several orders, policies, etc. in the analysis of project activity for additionality. All these discussions however are related to project activity. Policies and circumstances relevant to the baseline alternatives are not discussed in the PDD. However the validation team notes that there are no specific policies related to reasonable baseline alternatives viz. power from grid and coal based power generation that will affect the additionality of the project activity.*	OK	OK
B.4. Description of the project boundary for the project activity					
B.4.1. Are the project's spatial (geographical) boundaries clearly defined?	1	DR	*Under section B.3 of the PDD, Project Participant has defined the project's spatial boundary as the project plant and all the power plants connected to the western regional grid.*	OK	OK

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			This is in line with the selected methodology.		
B.4.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1	DR	*The system components are clearly identified as follows – The Wind Energy Generators, main transformers, grid, transmission lines, sub station and the metering equipment for each generator and substation.* *The equipment's unique identification is not provided in the PDD.*	CL 5	OK
B.5. **Details of the baseline and its development**					
B.5.1. Is the date of completion provided?	1	DR	The date of completion of baseline study is mentioned as 31/01/2008.	OK	OK
B.5.2. Is contact information provided?	1	DR	The name of the person completing the baseline study, name and address of his organisation are provided under section B.8 of the PDD. The contact details for this person were not provided initially. Nor was it indicated if the entity is a Project Participant. Project participant revised the PDD to include the necessary information.	OK	OK
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1	DR	The starting date of the project activity is defined as 07/09/2007. This corresponds to the date of contract between DLF and Suzlon for supply and commissioning of wind mills as the first real action. The operational lifetime of the project activity is defined as 20 years. Representative of Suzlon's	OK	OK

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			operantion and maintenance team at CMS located at Suthri [Mr. Sarat Kumar Jain, Manager – O&M] confirmed that the expected lifetime of the WTG is 20 years.		
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	1	DR	Project Participant has opted for a fixed crediting time of 10 years. Since this is less than the operational lifetime, it is reasonable. The start date of the crediting period is mentioned in the PDD. Project Participant also has confirmed in the PDD that the crediting period will not start before the registration of the project activity.	OK	OK
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.*					
D.1. **Monitoring Methodology** *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	1	DR	The CDM meth panel previously approved the selected monitoring methodology ACM0002 version 7.	OK	OK
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1	DR	Yes. Refer B.1 & B.2 above.	OK	OK
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	-	DR	The monitoring plan [methodology] of the PDD generally follows the provisions of the selected	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			methodology.		
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	-	DR	The discussion and selection of the monitoring methodology is not transparent. Refer D.4.3 below.	OK	OK
D.2. **Monitoring of Project Emissions** *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	-	DR	The methodology mentions that for most of the renewable energy projects, the project emissions are zero. As per project participant, potential project emissions in the context of power sector projects are emissions arising due to activities such as power plant construction, fuel handling and land inundation. However, according to ACM0002, those emission sources do not need to be taken into account. The project emission during the construction and operation (at the site office DG set, vehicle use, etc.) of the project activity are negligible, hence considered as zero. Further, the electricity consumed by CMS is apportioned to all the windmills and is not accounted in the electricity exported to the grid. This is reasonable assumption and therefore accepted.	OK	OK
D.2.2. Are the choices of project GHG indicators	-	DR	Not applicable.	OK	OK

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reasonable?					
D.2.3. Will it be possible to monitor / measure the specified project GHG indicators?	-	DR	Not applicable.	OK	OK
D.2.4. Will the indicators give opportunity for real measurements of achieved emission reductions?	-	DR	Not applicable.	OK	OK
D.2.5. Will the indicators enable comparison of project data and performance over time?	-	DR	Not applicable.	OK	OK
D.3. **Monitoring of Leakage** *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	-	DR	Not applicable as leakage is considered as zero.	OK	OK
D.3.2. Have relevant indicators for GHG leakage been included?	-	DR	Project Participant has not accounted for leakage on account of power plant construction, which are relevant parameters for windmill. Project Participant has not claimed or provided for claiming credits on account of reductions in these emissions. This is in line with the methodology.	OK	OK
D.3.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	-	DR	Not applicable.	OK	OK
D.3.4. Will it be possible to monitor the specified GHG leakage indicators?	-	DR	Not applicable.	OK	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.4. **Monitoring of Baseline Emissions** *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	-	DR	In line with the methodology and hence the tool for emission factor from an electricity system, the monitoring plan provides for the collection and archiving of following data for baseline emissions – ▪ EG_y = electricity supplied by the project activity to the grid ▪ $EF_{grid,CM,y}$ = combined margin CO_2 emission factor for grid connected power generation ▪ In line with the tool for calculating the grid emission factor, $EF_{grid,CM,y}$ is derived from $EF_{BM,y}$ & $EF_{OM,y}$. ▪ As per PDD, $EF_{OM,y}$ & $EF_{BM,y}$ values are taken from the official data published by the Central Electricity Authroity [CEA] for the years 2004-05, 2005-06 & 2006-07. This data follows ACM002 version 07, ie. The tool for the emission factor for electricity system. The data in table 15 of the PDD for simple operating margin $EF_{OM,y}$ does not match with the official data. Nor is the average value correctly calculated for these 3 years. The official data for $EF_{BM,y}$ that is available for the latest year 2006 – 07 is not adjusted for imports. Project Participant uses the same value. Project Participant has opted for weightages of 75%	CAR 3	OK

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			and 25% for the OM & BM as recommended by the tool. ▪ The EF_{CM} was accordingly considered as 897.4 tCO_{2e} /GWh and updated subsequently. ▪ Under section B.6.2, PDD says that EF_{CM} will be calculated on yearly basis. Project participant clarified that this was an error and corrected eventually.		
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	-	DR	The choice of baseline indicators and baseline emissions is reasonable since – ▪ these are based on the respective tools recommended by methodoligy. ▪ the baseline indicators are mainly the electricity supplied by the prct to the grid ▪ the baseline emission is fixed ex-ante for the entire crediting period	OK	OK
D.4.3. Will it be possible to monitor the specified baseline indicators?	-	DR	The baseline emission factor is fixed ex-ante and not required to be measured every year. As per PDD, the power supplied by the project activity is planned to be measured using Joint Meter Readings by the electricity authority, GUVNL. These are taken from the main and check meters installed at the sub-station. These meters are under the control of GUVNL. Project Participant has proposed to cross check these values with monthly invoices and or receipts of payments. During the site visit, it was noted that the actual metering system at site is not completely and correctly described in the PDD. The role of	CAR 4	OK

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			individual meters at WTG, metering at substation and calculation of line losses for arriving at the net exported power is also not explained in the PDD.		
D.5. **Project Management Planning** *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.5.1. Is the authority and responsibility of project management clearly described?	1	DR	As per section B.7.2 of the PDD, the authority and responsibility of project management including registration, monitoring, measurement and reporting lies with DLF, the Project Participant. The project team formed by Project Participant consists of Executive director, Dy. General Manager, Chief Manager, Manager O&M.	OK	OK
D.5.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	1	DR	The O&M team of Suzlon at site will do the actual measurement of the parameters mentioned in the monitoring plan. The relevant structure and responsibilities are not defined in the PDD.	CAR 5	OK
D.5.3. Are procedures identified for training of monitoring personnel?	-	I	Suzlon personnel who are experienced and competent to perform measurements do the direct actual measurement at the site. Hence there is no need for training at site. Project participant has provided for training of personnel involved in project management separately.	OK	OK
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended	-	I	There is no potential emergency situation that will lead to unintended GHG emissions.	OK	OK

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emissions?					
D.5.5. Are procedures identified for calibration of monitoring equipment?	-	I	The main meter and the check meter on the line exporting power to the grid are under the custody of Gujarat Electricity Transmission Company, GETCO. The calibration of these meters therefore is not the responsibility of project participant. The PDD does not provide adequate information on calibration of other meters used in the monitoring plan.	CL 6	OK
D.5.6. Are procedures identified for maintenance of monitoring equipment and installations?	-	I	Suzlon maintains the monitoring equipment and installations owned by project participant. They have established and maintained procedures for such maintenance activities.	OK	OK
D.5.7. Are procedures identified for monitoring, measurements and reporting?	-	I	Suzlon whose operations are certified for ISO 9001 performs the monitoring, measurement and primary reporting. They have established and maintained procedures for such activities. Suzlon in turn report the project activity performance to identified DLF personnel.	OK	OK
D.5.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	-	I	Suzlon whose operations are certified for ISO 9001 maintain the records of direct measurement of project parameters. DLF team managing the project activity typically get monthly reports on the performance of the project activity. They have also defined the procedures for records control.	OK	OK
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	-	I	The data adjustments needs and uncertainty arise for the following reasons – 1. The data of joint meter readings and monthly	CAR 6	OK

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			certificate issued by GEDA are needed to arrive at the quantity of net exports to the grid. 2. Any problem with any of these meters will lead to uncertainty in the measured values. 3. If the error in meter calibration is noticed after the data is verified and certified, the method of dealing with this scenario will need to be different from the one if the error is detected before the verification of the respective period. 4. The cross checking procedure of data does not make use of check meters available. Project participant and/or Suzlon have not established procedures for data adjustments and uncertainties.		
D.5.10. Are procedures identified for review of reported results/data?	-	I	Suzlon and project participant have adequate procedures for review of reports and results.	OK	OK
D.5.11. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	-	I	Project participant plans to perform internal audits of GHG project compliance with operational requirements.	OK	OK
D.5.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	-	I	Suzlon and project participant have procedures in place for review of project performance before data is submitted for verification.	OK	OK
D.5.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	-	I	The corrective actions will relate mainly to nonconformities in operations at site. These are adequately addressed in procedures of Suzlon whose operations are certified for ISO	OK	OK

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			9001.		
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. **Predicted Project GHG Emissions** *The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions, including leakage, captured in the project design?	-	DR	The project activity design does not include project emissions and emissions on account of leakage. Refer D.2.1 and D.3.2 above.	OK	OK
E.1.2. Are the GHG calculations documented in a complete and transparent manner?	-	DR	Not applicable since project emissions are considered to be zero in line with the methodology.	OK	OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	-	DR	Not applicable since project emissions are considered to be zero in line with the methodology.	OK	OK
E.1.4. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	-	DR	Not applicable.	OK	OK
E.1.5. Have all relevant greenhouse gases and source categories listed in Kyoto Protocol Annex A been evaluated?	-	DR	Not applicable.	OK	OK
E.1.6. Are uncertanties of external data sources for emissions reduction estimated?	-	DR	Not applicable.	OK	OK

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E.2. **Leakage** *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	-	DR	Not applicable.	OK	OK
E.2.2. Have these leakage effects been properly accounted for in calculations?	-	DR	Not applicable.	OK	OK
E.2.3. Does the methodology for calculating leakage comply with existing good practice?	-	DR	Not applicable.	OK	OK
E.2.4. Are the calculations documented in a complete and transparent manner?	-	DR	Not applicable.	OK	OK
E.2.5. Have conservative assumptions been used when calculating leakage?	-	DR	Not applicable.	OK	OK
E.2.6. Are uncertainties in the leakage estimates properly addressed?	-	DR	Not applicable.	OK	OK
E.3. **Baseline Emissions** *The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline	-	DR	For the purpose of baseline emissions, Project Participant has included all the power plants connected to the western regional grid, which is the	OK	OK

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emissions?			electricity system for the project activity. Since this grid imports power, Project Participant has included the electricity imports in the baseline. These provisions are clearly defined. Project Participant has included CO_2 emissions only from the build margin. The project participant clarified that this was an error and corrected the PDD suitably. As per approved methodology, other GHG emissions are not applicable.		
E.3.2. Are the GHG calculations documented in a complete and transparent manner?	-	DR	The basis for the PLF considered for GHG calculations is not explained in the PDD. The rest of the GHG calculations are documented in a complete and transparent manner.	CL 7	OK
E.3.3. Have conservative assumptions been used when calculating baseline emissions?	-	DR	The only assumption in calculating the baseline emissions is the PLF. Refer E.3.2 above.	OK	OK
E.3.4. Are uncertainties in the GHG emission estimates properly addressed in the documentation?	-	DR	The uncertainties in GHG estimates relate to monitoring of the net electricity exported to the grid. Refer D.5.9 & E.3.2 above.	OK	OK
E.3.5. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	-	DR	The project baseline is determined using the tool for emission factor for electricity system as required by the approved methodology. The project emissions are considered as zero using the same tool.	OK	OK

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E.4. **Emission Reductions** Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	-	DR	Subject to additionality, if the project activity is implemented as described in the PDD, it will result in lesser GHG emissions than the baseline scenario.	OK	OK
F. Environmental and Social Impacts *Documentation on the analysis of the environmental and social impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental and social impacts of the project activity been sufficiently described?	PDD	I	*PDD under section D.1 provides analysis of the environmental impacts of the project activity.* *<u>Land use –</u>* ▪ *Barren and unfertile land used – hence no impact on land use* ▪ *No displacement of people* ▪ *No migratory birds / endangered species* *The local stakeholders interviewed by the validation team during the site visit generally confirmed the above points. The overall land condition physically seen also generally tallies with the description above.* *<u>Soil use –</u>* ▪ *Disposal of solid and liquid discharges planned to be disposed in responsible manner* *Representative of Suzlon [Mr. Sharat Kumar Jain] confirmed that Suzlon has established and maintained procedures for*	CAR 7	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			disposal of all waste in a responsible manner. *<u>Air pollution –</u>* ▪ *No adverse impact during windmill operation* ▪ *Vehicle exhausts during construction will managed through proper maintenance* ▪ *Project Participant plans to sprinkle water to control dust generation* *<u>Noise Pollution -</u>* ▪ *PPE provided to workers* ▪ *No significant ambient noise levels during construction* ▪ *Noise levels in operation phase not significant* *Since all the windmills were installed by the time the validation team visited the site, the controls related to construction phase could not be verified.* *Project Participant has not analysed impacts due to generation of oily and solid waste from maintenance activities.* *From the above it can be concluded that there are no significant impacts during the construction phase. The impacts during operation phase are also limited and not significant.*		
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	-	I	*As correctly stated by the Project Participant in the PDD, as per the EIA notification dated 14/09/2006 in India, windfarm project is not listed in the schedule for which environmental clearance is required. Hence EIA or local stakeholder [public hearing] is not required for the project activity.* *Project participant corrected the reference to the old notification.*	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.3. Will the project create any adverse environmental or social effects?	-	I	As correctly stated in the PDD, the project activity is not expected to create any adverse environmental or social impacts.	OK	OK
F.1.4. Are transboundary environmental and social impacts considered in the analysis?	-	I	No. Transboundary environmental or social impacts were initially not included in the PDD. Project participant added these discussions in PDD. The validation team agrees that there are no transboundary impacts of environmental or social nature from the project activity.	OK	OK
F.1.5. Have identified environmental and social impacts been addressed in the project design?	-	I	The mitigation measures for the identified environmental and social impacts are defined in the PDD, viz. PPE for noise control, water spraying for dust control, proper disposal of solid and liquid waste generated during construction phase, etc. Refer G.1.4 below.	OK	OK
F.1.6. Does the project comply with environmental legislation in the host country?	-	I	Refer table 4.	OK	OK
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	-	DR	Project Participant has consulted the representatives of the local population and the agency leasing the land to the project activity. These consultations were done through meetings with the local stakeholders at 6 different locations	OK	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			on 10/01/2008 & 11/01/2008. The local community representatives were invited for the meeting by verbal invitation a couple of days in advance. Since the people from the villages close to the windmill locations attended these meetings, validation team agrees that relevant stakeholders were consulted, as these are the entities getting directly affected by the project activity in all its phases. It is noted that the consultation was done on a sampling basis. The sample is considered adequate by the validation team since it was done at 6 locations and invited people from a number of surrounding villages.		
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	-	DR	The PDD does not describe the method of inviting comments from the local community.	CL 8	OK
G.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	-	I	The stakeholder consultation process is not required by Indian legislation for windfarm projects.	OK	OK
G.1.4. Is a summary of the stakeholder comments received provided?	-	DR	As per the PDD, there were no adverse reactions or comments or clarifications from any of the stakeholders. PDD states that the stakeholders lauded the project activity, agree that the project activity leads to	CAR 8	OK

* MoV = Means of Verification, DR= Document Review, I= Interview

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			sustainability and sought more projects of same type. During the site visit, validation team interviewed persons at 2 locations on 17/04/2008. Mr. Vipul Shivji Lodaya, Manager of the Goshala at village Raporgadhwari confirmed that the meeting was conducted. He also confirmed that people were generally in favour of the project activity and had no reservations against it. Mr. Ishakbhai Vagher of Jakhou village also confirmed that the meeting was conducted and attended by about 30 - 40 persons from his village. Mr. Vagher is the head of the Group Panchayat [local village governing council for a group of villages]. Mr. Vagher informed that he did not raise any concerns during the meeting. However, he showed 2 letters [dated 18/12/2007 & 28/1/22007] written to Suzlon listing the problems faced by Jakhou villagers on account of the construction activities by Suzlon. The prominent problems among those listed in Mr. Vagher's letters to Suzlon included – ▪ Damage to installation of electricity poles resulting into tripping of power on number of occasions. ▪ Affecting surface water bodies		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			▪ Blocking access to water bodies and cattle grazing areas. ▪ Commencing work before obtaining all necessary permissions ▪ Overloaded vehicles potentially damaging local bridges ▪ Providing employment to the local people. ▪ No response from Suzlon on the issues reported Mr. Vagher had shown these letters to representative of Suzlon [Mr. Dwijal Mamtora] after the meeting. Apparently, Mr. Mamtora did not report these issues to DLF representatives.		
G.1.5. Has due account been taken of any stakeholder comments received?	-	DR	As per the PDD, no negative comments were received during any of the 6 stakeholder meetings. The Project Participant notes positive comments.	OK	OK

Table 3 Consolidated Baseline and Monitoring Methodology ACM0002 version 07

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1.1. Applicability					
1.1.1. Does the project activity generate electricity from a renewable source?	2	DR I	Yes, the project activity generates electricity from renewable wind energy.	OK	OK
1.1.2. Is the power connected to the grid ?	2	DR I	Yes, the power is connected and supplied to the grid. Refer B.2.1 of Table 2 above.	OK	OK
1.1.3. Does the project activity relate to electricity capacity additions from renewable sources ?	2	DR I	The project activity consists of new windmills installed at a site that was not utilised earlier. Hence, the project activity involves electricity capacity addition.	OK	OK
1.1.4. Is fuel switch done in the process?	2	DR I	There is no fuel switch done at the site of project activity.	OK	OK
1.1.5. Can the geographic and system boundaries for the relevant electricity grid be clearly identified ?	2	DR Internet	The project activity is connected to the western regional grid, the geographic and system boundries of which are clearly defined.	OK	OK
1.1.6. Is the information on the characteristics of the grid available ?	2	DR Internet	The information on the characteristics of the grid is publicly available.	OK	OK
1.1.7. If the electricity generation is from landfill gas capture, is the methodology combined with the approved “Consolidated baseline methodology for landfill gas project activities” [ACM 0001] ?	2	DR	The electricity generation is not from landfill gas capture.	OK	OK
1.1.8. Does the project activity involve retrofitting / modification of the existing grid connected power plant?	2	DR	No, the project activity is not retorfitting / modification of an existng power plant.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1.1.9. Is the project activity a biomass fired power plant?	2	DR	No, the project activity is not a biomass fired power plant.	OK	OK
1.1.10. Is the project activity a hydropower plant?	2	DR	No, the project activity is not a hydropower plant.	OK	OK
1.1.11. Is the latest approved version of the tool to calculate emission factor for an electricity system used?	2	DR	Yes, the project participant has used the version 01, the latest approved version of the said tool.	OK	OK
1.1.11.1 If yes, does the project activity substitute electricity from grid?	3	DR	The project activity supplies electrciity to the western regional grid. It therefore displaces the power that would otherwise be generated by fossil fuel power plants connected to the grid in the operating and build margin.	OK	OK
1.1.12. Is the latest approved version of the tool for the demonstration and assessment of additionality used?	2	DR	Yes, the project participant has used the version 04, the latest approved version of the said tool.	OK	OK
Is the latest approved version of the tool to calculate project or leakage CO_2 emissions from fossil fuel combustion used?	2	DR	There are no project or lakage emissions considered from th project activity. The said tool therefore is not used.	OK	OK
1. 2. Project boundary					
1.2.1. Did the project participant account for the CO_2 emissions from electricity generation in fossil fuel fired power that is displaced due to project activity ?	3	DR	Yes, the Project Participant accounts for the CO_2 emissions from electricity generation in fossil fuel fired power plants that is displaced due to project activity.	OK	OK
1.2.2. Does the spatial extent of the project boundary include the project plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to ?	2	DR	Yes, the spatial extent of the project boundary includes the project plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.	OK	OK
1.2.3. Is the regional project electricity system identified by the spatial extent of the power plants that can be dispatched without significant	2	DR	Yes, the western regional electricity system is identified by the spatial extent of the power plants that can be dispatched without significant	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
plants that can be dispatched without significant transmission constraints ?			transmission constraints.		
1.2.4. Are the assumptions made in determining the project electricity system defined ?	2	DR	Under section B.4, Project Participant has given information on the regional grids in India and the states that supply power to each of these grids.	OK	OK
1.2.5. Are recent or likely future additions to transmission capacity likely to significantly increase imported electricity ?	3	DR I	The recent or likely future capacity additions to the transmission capacity are not likely to significantly increase the imported electricity.	OK	OK
1.2.6. If answer to question 1.2.5 is no, is the spatial extent for the purpose of Build Margin limited to the project electricity system ?	2	DR	Yes, the spatial extent for the purpose of Build Margin is limited to the project electricity system, i.e the western regional grid.	OK	OK
1.2.7. If answer to question 1.2.5 is yes, is the transmission capacity considered as a build margin source ?	2	DR	Not applicable.	OK	OK
1.2.8. For the case of 1.2.7, is the emission factor determined as one of the four options for the OM imports ?	2	DR	Not applicable.	OK	OK
1.2.9. For determining the operating margin, is one of the four options chosen to determine the CO_2 emission factors for net electricity imports within the same host country ?	2	DR	Project Participant has chosen 'simple operating margin' option to determine the operating margin.	OK	OK
1.2.10. If the import of electricity is from another country, is the CO_2 emission factors for net electricity imports considered as 0 t CO_2 per MWh	2	DR	The western regional grid does not import electricity from another country.	OK	OK
1.2.11. Are the electricity exports subtracted	3	DR	No, the electricity exports are not subtracted from	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
from the electricity generation data used for the calculation and monitoring the baseline emission rate ?			the electricity generation data used for the calculation and monitoring of the baseline emission rate.		
1.3. Identification of alternative baseline scenarios					
1.3.1. Do the baseline scenario alternatives include all options that provide or produce electricity connected to the grid ?	2	DR	Project Participant has identified the following baseline options – 1. Project activity not undertaken as a CDM project 2. Coal based power plant that would produce equivalent amount of electricity units 3. Generation of equivalent amount of electricity in the grid These alternatives do not include other options of renewable energy that would give equivalent amount of electricity. Gas based power generation is also not considered as an alternative.	CL 9	OK
1.3.2. Is the most likely baseline scenario 'electricity production from other sources feeding into the grid ?	2	DR	As per the methodology, the baseline should be selected using one of the 2 options. Project Participant had initially not explained which of these options is used in selecting the most likely baseline scenario. Project participant corrected the PDD to explain which of the alternatives is used. Project participant has excluded the option of coal based power generation saying that in India, the power off-take is not decided on merit. Project participant also clarified that this was an error and corrected the description suitably.	OK	OK
1.3.3. Did the project participant provide evidence and supporting documents to exclude baseline	2	I	Not applicable since all the alternatives considered are legal options.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
options that do not comply with legal and regulatory requirements; or depend on key resources such as fuels, materials or technology that are not available at the project site?					
1.3.4. Is the baseline scenario the following : electricity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources ?	2	DR I	Yes, the selected baseline is 'the equivalent amount of energy would have been produced by the project grid electricity system through its currently running power plants and by new capacity additions'.	OK	OK
1.3.5. If the project activity modifies or retrofits an existing electricity generation facility, is the relevant guidance taken into account ?	2	DR I	Not applicable.	OK	OK
1.4. Additionality					
1.4.1. Was the additionality of the project activity demonstrated and assessed using the latest version of the "Tool for demonstration and assessment of additionality"?	2	DR	Yes, Project Participant has used latest version [04] of the tool for the demonstration and assessment of the additionality. Refer sr. no. B.3.1 above.	OK	OK
1.5 Project Emissions					
1.5.1. Are the project emissions considered as zero [0] ?	2	DR	Since the project activity involves a renewable energy source, the project emissions are considered as zero.	OK	OK
1.6. Baseline Emissions					
1.6.1. Are the baseline emissions determined according to the formula $BE_y = (EG_y - EG_{baseline}) X EF_{grid,CM,y}$?	2	DR	Yes, the baseline emissions are determined using the same algorithm. Since the project activity is not a retrofit / modification project, the baseline electricity generation is zero. Hence the corrected algorithm for baseline emissions is – $BE_y = (EG_y X EF_{grid,CM,y})$	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1.6.2. Were the Emissions Factor for displaced electricity calculated as in the reference 3 to this checklist?	2, 3	DR	The emission factors for operating margin and build margin for displaced electricity are directly taken from the official emission factors provided by the Central Electricity Authority [CEA] on date 15/12/2007. The CEA data is based on ACM0007 version, i.e. the said tool. Simple operating margin is used for calculating the operating margin emission factor for the most recent 3 years for which the data is available, viz. 2004-05, 2005-06 and 2006-07. The build margin is calculated using the same tool. For this windmill projects, weightages of 75% and 25% respectively are used for OM & BM to calculate the combined margin. The imports are factored in the calculations. Refer D.4.1 of table 2 above.	OK	OK
1.7. Leakage					
1.7.1. Are the leakage considered as zero [0] ?	2	DR	Yes, the leakages are considered as zero.	OK	OK
1.7.2. Have any credits been claimed for the project on account of reducing the leakage emissions below the level of the baseline scenario ?	2	DR I	Project Participant has not claimed any credits for the project activity on account of reducing leakage emissions below the level of baseline scenario.	OK	OK
1.8. Emission Reduction					
1.8.1. Did the emissions reductions were determined according to the formula $ER_y = BE_y – PE_y - LE_y$?	2	DR	Yes, the emission reductions are determined using the said formula. Since BE_y and PE_y are considered as zero, the final formula sued is – $ER_y = BE_y$	OK	OK
1.8.2. Were all values chosen in a conservative manner and was the choice justified?	2	DR I	Refer E.3.2 & E.3.3 of Table 2 above.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2. Monitoring Methodology					
2.1. Applicability					
2.1.1. Does the project activity generate electricity from a renewable source?	2	DR I	Yes, the project activity generates electricity from wind power, a renewable source.	OK	OK
2.1.2. Is the power connected to the grid ?	2	DR I	Yes, the power is connected to the grid.	OK	OK
2.1.3. Does the project activity relate to electricity capacity additions from renewable sources ?	2	DR I	Yes, the project activity relates to electricity capacity additions from renewable source.	OK	OK
2.1.4. Is fuel switch done in the process?	2	DR I	There is no fuel switch done at the site of project activity.	OK	OK
2.1.5. Can the geographic and system boundaries for the relevant electricity grid be clearly identified ?	3	DR	Yes, the geographic and system boundaries for the western region electricity grid are clearly defined.	OK	OK
2.1.6. Is the information on the characteristics of the grid available ?	3	DR	Yes, the information on the characteristics of the grid is available.	OK	OK
2.1.7. If the electricity generation is from landfill gas capture, is the methodology combined with the approved “Consolidated baseline methodology for landfill gas project activities” [ACM 0001] ?			No, the electricity generation is not from landfill gas capture.	OK	OK
2.2. Monitoring Methodology					
2.2.1. Does the monitoring plan require monitoring of electricity supplied to the grid from the proposed project activity?	2	DR	Yes, the monitoring plan requires monitoring of electricity supplied to the grid from the project activity.	OK	OK
2.2.2. Does the methodology requires monitoring of Data needed to recalculate the operating margin emission factor, if needed, based on the choice of the method to determine the operating margin (OM), consistent with ACM0002 and the tool?	3	DR	Project Participant has opted for ex-ante calculation of the emission factor. The methodology does not require recalculation of the operating margin emission factor.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.2.4. Does the monitoring plan require monitoring of Data needed to recalculate the build margin emission factor, if needed, consistent with ACM0002 ?	3	DR	Not applicable.	OK	OK
2.2.5. Does the monitoring plan require monitoring of data needed to calculate fugitive carbon dioxide and methane emissions and carbon dioxide emissions from combustion of fossil fuels required to operate the geothermal power plant ?	3	DR	Not applicable.	OK	OK
2.3. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.3.1. Did all measurements use calibrated measurement equipment that is regularly checked for its functioning?	2	I	Refer D.5.5 of Table 2 above. During the visit to CMS at Suthri, it was noted that the check meter reading on Line 1 was significantly different from main meter. The personnel at CMS informed that they have already informed GETCO about the discrepancy.	OK	OK
2.3.2. Are the data double checked against commercial data ?	2	DR I	Project Participant has provided for cross checking the data with invoices or sales receipts. The project activity has number of meters other than main meter and check meter from which Suzlon makes various reports. The data is double checked using sales receipt as per the methodology..	OK	OK

Table 4 Legal requirementes

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	-	DR I	As per Indian legislation, the wind farm projects do not need any environmental license for establishing and operation.	OK	OK
1.2. Are the conditions of the environmental license being met?	-	DR	Not applicable.	OK	OK
1.3 Are the conditions of the Designated National Authority being met?	-	I	There are no project level conditions by the DNA.	OK	OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CAR 1 The PDD does not include description of the project activity. The location of the project activity is not indicated on the maps included under section A.4.1. The unique location of the project activity is mentioned as 28^{O} 29' N & 77^{O} 05' E. These coordinates however indicate a location close to New Delhi and not in Kachchh where the project activity is located.	A.4.1.4, Table 2	Project description has been added in section A2 of the PDD. The locational details has been corrected in the PDD. A location map and latitude and longitude of each WTG has been provided in appendix 1 in the PDD	Project participant has revised the PDD to include – 1. The description of the project activity is now satisfactory. 2. Location in the map in section A.4.1.4 and Appendix 1 3. corrected coordinates of the project activity at Appendix 1. The corrective action request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CL 1 The time frame from date of contract with Suzlon to the commissioning of the first WTG is just 21 days. Project participant should explain how this was managed.	B.3.1, Table 2	Suzlon received permission to develop the wind farm from GEDA for the given location on 16/06/2007. The project developer started the site development from this date. The Nacelle and blades were dispatched to the site on 9th and 11 Sept. respectively for the first machine. The commissioning of the WTG is mainly assembly and erection process which takes about two/three days. The documentary evidences for the above are available for validation. The WTG components like Nacelle and blades are ready in stock with the Suzlon manufacturing units and dispatched as per the orders placed by the clients.	Response does not clarify how it was possible to deliver the first windmill within 2 days of the contract. The GEDA permission is before CDM resolution dated 03/09/2007. The chronology of events also indicates that activities took place before the CDM decision. The serious consideration of CDM before project activity decision is therefore not proven. Refer further response and resolution below. .
		Suzlon manufacturing facilities for WTGs is mainly an assembly shop for nacelle, blade and hub. At the manufacturing facilities there is always stock available for the supply of the required number of WTGs based on their anticipated orders. Suzlon has over 2700 MW annual WTGs supply capacity and the fifth largest WTG manufacturer in the world. The	Project participant provided 2 letters from the wind mill supplier M/s. Suzlon Energy Limited. The letters are dated 12/08/2008 and 28/08/2008. In these letters, Suzlon have confirmed that they have an established system to dispatch the machines within 2 days of the contract and to commission it within 21 days of the contract.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		company has established supply chain management systems in their organisation. Hence after receiving the contract order for supply of 150 MW from DLF on date 7th September 2007, the first dispatch of WTG took place on 9th September, for which the dispatch memo is available for validation. As mentioned earlier the final commissioning at site takes about two/three days for a WTG hence the commissioning of first WTG took only 21 days. Which is a realistic figure. The GEDA clearance dated 16/06/07 is given to the developer (Suzlon Energy Limited) for implementing the wind mills in the Katchchh region to various investors. After receiving the clearance form the GEDA only any developer start the site development. After the site development is completed the actual commissioning of WTGs takes place. Hence GEDA permission for the site development to Suzlon for implementing wind farms of different	Further, as explained by project participant in the response, actions by windmill supplier / developer are not a part of the project activity. The supplier took the GEDA permission. The first real action from project participant therefore is the contract dated 07/09/2007, which is after the meeting of the finance committee in which the CDM was seriously considered. The clarification request is therefore closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		investors can not be considered as the start date of the project activity to the project proponent. As mentioned the start date of the project activity to the project proponent is placing the purchase contract order to the Suzlon Energy Limited i.e. 7th Sept 2007. And a serious consideration of CDM revenue was incorporated in a board resolution dated 3rd Sept. 2007.	

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CL 2 Under step 1a, the PDD eliminates the alternative of power generation with coal as a fuel. The reason cited for this is that power off-takes in India are decided on power plant and T&D availability and not on merit basis. The PDD does not reference any publicly available evidence in support of this claim.	B.3.1, Table 2	As per the tool for additionality "a coal-fired power station or hydropower may not be an alternative for an independent power producer investing in wind energy" Hence the alternatives are accordingly modified in the PDD. Refer section B5 substep 1a of the PDD As the alternative for coal based power generation has been removed the argument on merit order dispatch has also been withdrawn.	Project participant's response is in line with the methodological tool. The clarification request is closed.
CL 3 As per EB41, GERC tariff order based ROE is not an acceptable benchmark.	B.3.1, Table 2	PP selected to use the Prime Lending Rate (PLR) as the revised benchmark published by the Reserve Bank of India (RBI). The PLR is the benchmark interest rate at which commercial banks in India lend to their most credit worthy customers. Typically, projects in India would be borrowing debt at a rate equal to or higher than the PLR. Hence, for any project to be financially attractive, the IRR of the project must be higher than the rate of borrowing on debt (i.e. higher than the PLR). The use of the PLR	Project participant has identified a different benchmark. The benchmark considered now by the project participant is only the prime-lending rate of commercial banks and is a conservative benchmark. Project participant should explain and justify the reasons for difference in the IRR of the webhosted PDD and that in the latest PDD. Refer further response and resolution below

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		is consistent with the Tool for the demonstration and assessment of additionality	resolution below.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		The IRR shown in the webhosted PDD was shown as 13.2% (without CDM) at 26.5% PLF. However the revised IRR at 26.5% (without CDM) is 8.78%. The main reason for the deviation are as follows: a. The webhosted analysis of IRR was equity IRR however the revised IRR calculations are the project IRR as per the new guidelines for investment analysis of EB. b. The revised investment analysis has also considered the residual value of the project at the end of the lifetime has also taken in to account. b. The capex assumed in the earlier investment analysis was 874.5 Crore, However the revised capex is 883.3 Crore which includes the taxes on the previous value. d. The IRR calculations in the webhosted PDD was with the accelerated depreciation benefits, however the project activity will not be able to absorb the accelerated tax benefits, as the project activity will not be making significant profits in the first	The revised IRR calculations are checked and found to be in order. The details of validation of the assumptions are explained in the main report. The clarification request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		few year. Hence in the revised Project IRR sheet the flat depreciation of 5.28% has been considered. The above factors lead to the deviation in the IRR sheet previously submitted to the DOE.	

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CL 4 Project participant needs to explain the second IRR of 13.97% and its relevance in the additionality of the project activity.	B.3.1, Table 2	PP need to address only the Project IRR in the PDD. As PP consider the project IRR as the benchmark the equity IRR has been removed from the IRR sheet.	Only project IRR is now used in the spreadsheet. According to the guidance on investment analysis, project IRR is to be compared with PLR. The clarification request is closed.
CAR 2 The sensitivity analysis conducted by the Project Participant indicates that at 28% PLF, the equity IRR becomes about 17% and crosses the benchmark ROE of 14%. The analysis of barriers discussed in the PDD indicates that the barriers do not prove that these would prevent implementation of the project activity without CDM benefit. The PDD under common practice analysis does not give a firm data on whether there any 'similar' installations as project activity in the region. It also does not distinguish such 'similar' installations from project activity to prove that project activity is not a common practice. The project therefore cannot be considered as additional	B.3.1, Table 2	A revised IRR calculation is submitted for validation. The Highest PLF achieved in any wind farm so far in Gujarat is only 25.68% (GERC tariff order dated 11/08/2006). It is unlikely to achieve 28% PLF in the project activity. It is the sensitivity analysis to show variation of PLF with respect to project IRR. PP expect a higher PLF of 26.5 As the WTGs are the latest quality machines of Suzlon. The total wind power installation during year 2001-2006 (CDM duration) were of the order of 165 MW (Refer table 11 of PDD). Of this about 151.65 MW capacities installation has been through the CDM revenue consideration[4]. There are no similar scale project activities (15 MW and above) under	The GERC tariff order dated 11/08/2006 on page 4, states that the maximum achieved PLF in 4 sites [including the location of the project activity] is 25.68%. The GERC order considers 23% as the CUF [capacity utilisation factor]. Project participant has incorporated these values in the IRR calculation. The IRR calculations are observed to be in order. In the opinion of the validation team, none of the barriers discussed are proven to be prohibitive in nature. These are therefore not considered to contribute to the additionality of the project activity. Project participant has corrected the

[4] Refer Appendix 2.
[5] Refer common practice analysis section B5 of the PDD

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
as additional.		activities (15 MW and above) under operation in the state of Gujarat at the time of start of the proposed project activity by DLF. An analysis of wind projects of similar scale (15 MW and above) commissioned in state of Gujarat at the time of investment in the project activity i.e. as on 7th September 2007, (prior to the start date of DLF's wind project) has been carried out. The details of the projects similar to the proposed project activity is as follows: • Gujarat NRE Coke, 26.25 MW • Gujarat Guardian Limited, 31.6 MW • Patnaik Minerals Private Limited, 30.2 MW • Indian Petrochemicals Co. Ltd, 15.315 MW • SREI, 24.8 MW • Hindustan Zink Limited, 88.8 MW Following types of projects are excluded from the definition of a similar scale project and the justification for the exclusions is as follows: • Captive power projects	discussion on the common practice analysis. Project participant listed all the large scale wind mill projects in Gujarat, eliminated those seeking CDM status and then differentiated the project activity from the rest. In the end, project participant proved that there is no project of similar nature and scale within Gujarat region that is comparable to the project activity. Hence the project activity is not a common practice in the region. The corrective action request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		• Small scale wind power project activities bundled together from a large scale CDM project • CDM Project activities • Project activities implemented post the start date of the project activity After exclusion of the above project activities, It can be observed that there are no similar scale project activities under operation in the state of Gujarat at the time of start of the proposed project activity by DLF. [5.] PDD has been updated as per the tool of additionality v 5.2 in the common practice analysis.	

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CL 5 The equipment's unique identification is not provided in the PDD.	B.4.2, Table 2	Equipment unique identification number has been added in the PDD[6].	Project participant has provided S. R. No. and the location number of each of the WTGs in Appendix 1 of the PDD. The clarification request is closed.
CAR 3 The data in table 15 of the PDD for simple operating margin $EF_{OM,y}$ does not match with the official data. Nor is the average value correctly calculated for these 3 years.	D.4.1, Table 2	The latest data of operating margin has been added in the table 15 of the PDD.	Project participant has used the latest version of the CEA data on baseline emission factor. The corrective action request is closed.
CAR 4 During the site visit, it was noted that the actual metering system at site is not completely and correctly described in the PDD. The role of individual meters at WTG, metering at substation and calculation of line losses at the net exported power is also not explained in the PDD.		Metering system has been updated in the PDD with a line diagram[7].	Project participant has revised the description of the metering system in consultation with the O&M agency. The description is now matching the observations at site. Project participant has also provided for apportioning the data when the records used do not give the exact value required. The corrective action request is closed.
CAR 5 The O&M team of Suzlon at site will do the actual measurement of the parameters mentioned in the monitoring plan. The	D.5.2, Table 2	The relevant structure and responsibility has been defined in the PDD[8].	The description matches with that observed during validation. The corrective action request is closed.

[6] See appendix 1 of the PDD
[7] Refer section B 7.2 of the PDD

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
mentioned in the monitoring plan. The relevant structure and responsibilities are not defined in the PDD.			
CL 6 The PDD does not provide adequate information on calibration of other meters used in the monitoring plan.	D.5.5, Table 2	Information on the calibration of meters has been added in the PDD. The GETCO meter at the substation will be calibrated once in a year. The calibration of the meters installed in an individual WEG will take place on yearly basis in accordance with Suzlon's operation & maintenance manual[9]	Project participant has provided calibration information in the PDD including section B.7.1 and B.7.2. The clarification request is closed.
CAR 6 Project participant and/or Suzlon have not established procedures for data adjustments and uncertainties.	D.5.9, Table 2	Procedures for data adjustments are explained in the PDD. Whenever there is a major difference between the readings of the Main meter (GETCO meter and the 33kV feeder at Suzlon Sub station meter at wind farm end, the following steps shall be taken. i. Checking of CT and PT connections ii. Testing of accuracy of meters at site and at GETCO meter	Project participant has appropriately defined the procedures for data adjustments and uncertainties in section B.7.2 of the PDD. The corrective action request is closed.

[8] Refer section B 7.2 of the PDD
[9] Refer section B 7.2 metering issues d iii.
[10] Refer section B 7.2 metering issues b I, ii

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		If the difference exists even after such checking or testing, then the defective meter shall be replaced with a correct meter.[10]	

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CL 7 The basis for the PLF considered for GHG calculations is not explained in the PDD.	E.1.2, Table 2	The PLF is considered as per the tariff order of GERC dated 11/08/2006	The PLF value considered is taken same as that recommended by the GERC tariff order dated 11/08/2006 which is the version available at the time of decision for the project activity. This is explained in section B.5 of the PDD. The clarification request is closed.
CAR 7 Project Participant has not analysed impacts due to generation of oily and solid waste from maintenance activities.	F.1.1, Table 2	Impact of oily and solid waste from maintenance activity has been addressed in the PDD[11].	Under section D.1, PDD has appropriately accounted for the impacts from oily and solid waste. The corrective action request is closed.
CL 8 The PDD does not describe the method of inviting comments from the local community.	G.1.2, Table 2	PDD updated accordingly[12].	Under section E.1, project participant has now elaborated the method of inviting comments from the local community. The description is in line with the guidance document for PDD completion. The clarification request is closed.
CAR 8 The prominent problems among those listed	G.1.4, Table 2	PP took the concerns highlighted by Mr.	Project participant asked the windmill supplier to address the concerns raised

[11] Refer section D1 of the PDD
[12] Refer Section E.1 of PDD.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
in Mr. Vagher's letters to Suzlon included – ▪ Damage to installation of electricity poles resulting into tripping of power on number of occasions. ▪ Affecting surface water bodies ▪ Blocking access to water bodies and cattle grazing areas. ▪ Commencing work before obtaining all necessary permissions ▪ Overloaded vehicles potentially damaging local bridges ▪ Providing employment to the local people. ▪ No response from Suzlon on the issues reported Mr. Vagher had shown these letters to representative of Suzlon [Mr. Dwijal Mamtora] after the meeting. Apparently, Mr. Mamtora did not report these issues to DLF representatives.		Vagher to Suzlon authorities. There reply to the concerns are as follows; Suzlon transportation of WTGs has not caused any disruption of the electricity. In case any wire has fallen down, Suzlon has repaired it on its own cost immediately. WTG installation does not cause any blockage of water bodies, there is no permanent wall to the site, some water blockage reported due to access roads has been corrected by the Suzlon as reported in the concern. Photographs are available for the validation. Suzlon reported that they do not carry any overloaded vehicles during the [project activity. The movement of WTG components is done after assessment road and bridges conditions. There is no damage to the local bridge caused by the project developer. Suzlon has policy to provide employment to the local people in terms of trained and untrained manpower. PP has submitted two letters of undertaking from Suzlon about the above to the DOE.	by the local stakeholder. On the initial feedback of completion of the actions, the validation team interacted with Mr. Vagher over phone to check the status and satisfaction level. Based on the feedback, project participant intensified actions. Finally, project participant provided summary of the actions taken supported with letters from several village councils in favour of the project activity. Mr. Vagher, head of the village council also has issued a letter dated 23/05/2008 confirming the acceptance of the project activity. The corrective action request is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
		Suzlon officers have personally met Mr. Vagher to take up necessary action on the concerns raised by him. Further an appreciation letter by Mr. Bagher has been provided by Mr. Vagher for the wind power generation in the Jakhau Village. The project activity received a wide appreciation from the local representatives. The letters received in this regard are submitted to validators for the reference. A CD containing the CSR activity by Suzlon is also submitted by the PP as a proof for the developmental activities taken up by the project developer in the Katchchh region.	

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3	Summary of project owner response	Validation team conclusion
CL 9 These alternatives do not include other options of renewable energy that would give equivalent amount of electricity. Gas based power generation is also not considered as an alternative.	1.3.1, Table 3	The other renewable energy alternatives such as photovoltaics, tidal/wave, hydro, geothermal and renewable biomass etc., are strongly dependent on climate and natural resources. There are not exploitable renewable resources and biomass energy source at the project site since the project is located in dry land site. Therefore, other renewables can not be considered as an alternative for the project activity. There is no Natural gas nearby gas line at the project site. Further the gas power may not be a realistic alternative to the project activity as an alternative option as per the tool of additionality. .	The justification by project participant is correct and self explanatory and accepted. Project participant has included this justification in the PDD under section B.5 of the PDD. The clarification request is closed.

1- Guidelines for completing CDM-PDD, CDM-NMB AND CDM-NMM – version 07
2- Approved consolidated methodology ACM0002 – version 07
3- Tool to calculate the emission factor for an electricity system – version 1.1
4- Tool for the demonstration and assessment of additionality – version 05.2

APPEINDIX B: EXPLANATION OF HOW DUE ACCOUNT OF COMMENTS IS TAKEN

COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the UNFCCC CDM website (http://cdm.unfccc.int) on 14/02/2008 and invited comments within 14/03/2008 by Parties, stakeholders and non-governmental organizations. The table below describes how due account of the comments received for the CDM project "150 MW grid connected Wind Power based electricity generation project in Gujarat, India." by M/s DLF Limited was taken by Bureau Veritas Certification :

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
1.	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	1. It is APPALLING to note that the project has been submitted as CDM-SSC-PDD (refer to the webhosted PDD). I believe that I do not need to explain when SSC is used and when it is not. Such irresponsibility on the part of the validator as well as the PP is unacceptable.	PP apologies for the mistake. Corrections has been incorporated in the PDD.	The revised PDD used the correct format and its latest version. Project participant has appropriately addressed the comment.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			<?xml:namespace prefix = o ns = "urn:schemas-microsoft-com:office:office" />		
2.	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	2. As per the logic stated by the PP, they could have chosen a fossil fuel based power plant which has lesser cost of generation, then why not a hydro power project, whose per Kwh cost of electricity generation is even lower than a coal based power plant and is also a clean source of energy. Clearly the PP's have tried to manipulate the selection of alternatives to suit their requirements. Discussion of a similar scale hydro electric power project as a project alternative must be included.	As per the tool for additionality v4 "a coal-fired power station or hydropower may not be an alternative for an independent power producer investing in wind energy" Hence the alternatives are accordingly modified in the PDD[13]	Project participant has reviewed the alternatives according to the additionality tool. According to that tool, project participant has revised the PDD to exclude coal based power generation as an alternative. As indicated in the comment, project participant has also analysed the alternative renewable sources in the revised PDD. However, since the respective resources are not available in sufficient quantity for the scale of the project activity or are expensive, these do not become the baseline. This analysis is correctly represented by project participant in the revised PDD. Project participant has appropriately addressed the comment.

[13] Refer section 1a of the PDD

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
3	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	3. Further I would like to draw attention to alternative 3. I believe that the PP is thoroughly confused about the meaning of the word “current situation”. Current situation means the state of things at the PRESENT TIME. Any one with knowledge of elementary English would know that. Further the additionality tool also clearly states “continuation of the current situation (no project activity or other alternatives undertaken)”. Hence it is but obvious that this refers to a situation where in the PP or any other similar project developers in the country do not carry out any of the other alternatives. Hence, firstly the interpretation of the alternative as given in the PDD is wrong. Currently in the western regional grid as in the rest of <?xml:namespace prefix = st1 ns = "urn:schemas-microsoft-com:office:smarttags" />India, there is a demand supply gap in power. The state if Gujarat faces many energy shortages. This is the current situation and not “No project activity and equivalent amount of energy would have been produced by the project grid electricity system through its currently running power	Continuation of current situation do not mean the present time. It represent the capacity addition in the absence of the project activity. In the absence of the project activity the equivalent amount of energy would have been produced by the project grid electricity system through its currently running power plants and by new capacity additions (which are mostly thermal) is the most plausible alternative as baseline option for the project. Thus, suitable grid mix has been selected as baseline option for the project activity.	The validation team agrees with the interpretation provided by the project participant about the meaning of ‘continuation of current situation’. Project participant has appropriately addressed the comment.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			plants and by new capacity addition to the grid" as stated by the PP. The current situation of energy shortages is clearly not going to continue taking into account the plans of more capacity additions in the state. It is stupid to assume that no one in the country would carry out either of the alternatives; there is nothing so novel about the project or any of its alternatives that would prevent anyone from coming up with such a project. Hence, continuation of the current situation where no project activity or other alternatives undertaken is NOT AN APPLICABLE alternative to the project activity.		
4	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	4. I quote some of the text of the Project's additionality section "For determining the tariffs for wind power projects, Gujarat Electricity Regulatory Commission (GERC) has considered a 14 % post tax return on equity for projects in private sector (Source: GERC order, dated 11th August 2006). There are some essential differences between the project (whether implemented with or without CDM revenues) and the Alternatives identified in Sub-step 1(b) (utility scale	The alternative analysis has been updated in the PDD.	Project participant has revised the PDD as discussed above for comment number 2. Project participant has appropriately addressed the comment.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			fossil fuel and hydro projects). These should be taken into account while setting the appropriate level of equity IRR." Why has the PP discussed the differences between the project activity and a utility scale fossil fuel project is a great mystery. The first line says that tariff for WIND PROJECTS is determined on basis of 14% ROE, and the next line discussed differences between a fossil fuel project and a wind project. It seems that the above lines have been taken from other PDDs where the same has been discussed but in a completely different context. Further the PP repeatedly refers to an alternative (b), now the PDD only mentions alternatives 1, 2 and 3, where has this alternative b come from? I request the PP to at least do some intelligent "cut-pastes".		
5	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	5. The PP also states that "the tariffs are back-loaded". Kindly provide proof of the same.	The tariff in case of the wind power projects are decided based on a given IRR at a given capex and PLF. Hence the tariffs are back calculated.	It is well known that the state tariff order derive tariff based on guidance by CERC. Accordingly, it is true that the tariff is determined with a return stated by CERC for a certain CAPEX and certain PLR value assumed by the state ERC on the data available

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
					for the past period. Project participant has appropriately addressed the comment.
6	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	6. Sensitivity analysis – according to the additionality tool, a sensitivity analysis should show whether the conclusion regarding the financial attractiveness is ROBUST TO REASONABLE VARIATIONS IN THE CRITICAL ASSUMPTIONS. The investment analysis should provide a valid argument in favour of additionality only if it CONSISTENTLY SUPPORTS (FOR A REALISTIC RANGE OF ASSUMPTIONS) the conclusion that the project activity is unlikely to be financially attractive. The sensitivity analysis carried out by the project clearly shows that at the PLF 28% the IRR without CDM is 14.27%. It is clear that 28% PLF which is just 1.5% higher than the base PLF is a reasonable variation in the PLF and that is why the PP has taken this assumption for	The maximum PLF achieved so far in Kutch region is 25.68%.[14] PP assume a PLF of 26.5% which is higher than the value of PLF achieved in the Kutch region. A sensitivity analysis with 26.5% base PLF and +/- 10% has been conducted. This is as per the guidelines of tool of additionality. The results of the sensitivity analysis conducted confirm that the project IRR for the project activity without CDM revenues is lower than that which would make the project economically attractive for the investors. All the critical assumptions are mentioned in the updated PDD.	Project participant has updated the IRR calculations in general and particularly sensitivity analysis to bring them in line with the tool and guidance on investment analysis. In line with these, project participant has conducted the sensitivity for +/- 10% of PLF. PLF is the only parameter, which is in excess of 20% of either the capital cost of the project activity or the annual sales. The updated IRR even with sensitivity is consistently below the benchmark. Project participant has therefore appropriately addressed the comment.

[14] GERC Tariff order.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			carrying out the sensitivity analysis. However, the sensitivity analysis shows that the investment analysis DOES NOT consistently support that project activity is unlikely to be financially attractive (at the IRR crosses 14% benchmark at 28% PLF). Hence the financial analysis is NOT ROBUST to reasonable variations in critical assumptions and hence as per the additionality tool the project activity on the basis of the financial analysis is NOT ADDITIONAL. Further I request the validator to note that in sub step 2 a the PP says that the IRR without CDM at the base case of 26.5% PLF is 13.2%, whereas in the sensitivity analysis at 27% the IRR without CDM miraculously has changed to 12.64% (lower than IRR at 12.65% PLF), even with this the IRR crosses 14% at 28% PLF reiterating that the project activity is NOT ADDITIONAL.		
7	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	7. Barrier analysis - Barriers due to prevailing practice – The PP has beautifully explained all the changes in policies in Gujarat. It shows clearly that the policy of Gujarat has changed for the better and is in no way stagnant. The power purchase tariff has	Tariff plays an important role in implementation of a wind power project. The data shown in the PDD clearly indicates that due to lower tariff in the earlier years the WTG installations have been minimal although the state has a good wind	Project participant has not demonstrated that the project activity is 'first of its kind' under the prevailing practice barrier. The validation team did not consider this barrier as prohibitive

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			INCREASED from 1.75/kWh to 2.25, 2.6 and eventually 3.37/kWh. I fail to understand how such a positive change can be a barrier for the project. I'm sure that the board of directors of DLF while discussing the projects would have considered that if there were an increase in tariff for the wind project due to a new policy (as is clear in the past policies), then it would have been a clear BARRIER to the project. This is clearly laughable. Further as pointed out by the PP in table 11 even during the time when the power purchase tariff was 1.75 and 2.25 /kWh, there were installations of wind farms (refer table 11). When there were installations with a lower tariff rate I don't understand what barrier a higher tariff rate would have for such projects. This is NOT a barrier but is an incentive to the project.	potential. Even in the new policy the tariff has been fixed at INR. 3.37/kWh which is still less than wind power tariff in states like Rajasthan, Madhya Pradesh, Mahasrashtra and Karnataka. Hence PP considers it as a barrier in the implementation of project activity.	and therefore contributing to additionality of the project activity. Project participant has however proven the project activity to be additional through investment analysis route.
8	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	8. The PP argues that the tariff is lower than in other states and hence it is a barrier. The tariff for each state is calculated on the basis of a cost plus ROE basis. This varies from state to state as the parameters for the determination of tariff are different in	It is true that PLF ROE and tariff are interlinked issues. Still the ROE and PLF are not uniform in each state for deciding the tariff of the wind farm. PP has therefore submitted investment analysis report to the validator to prove the	Project participant has not proven the tariff based barrier to be prohibitive in nature. The validation team did not consider this barrier as prohibitive and therefore contributing to

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			different states, the PLF being the most significant parameter. For e.g. the tariff in Tamil Nadu may be lower than that in Gujarat, but since the PLF is higher in TN the same capacity installations would produce more units of electricity. The tariff can never be looked at as stand alone for comparison. DOE to note this fact.	financial additionality with all the reasonable assumptions.	additionality of the project activity. Project participant has however proven the project activity to be additional through investment analysis route.
9	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	9. The PP has given an insight into the poor financial state of the GUVNL and has stated that their inability to pay the tariff in the future may pose a barrier to the project. I would request that the PP kindly show any proof of default by the GUVNL, any track record of outstanding payments by the, etc. Also, this would have been a barrier for any other alternative to the project such as the fossil fuel fired power plant or a hydro plant, hence this cannot be termed as a barrier to the project activity.	Poor financial condition of buyer (GUVNL) has been considered as a barrier for the project proponent as the cash flow in the project is dependent on the payments from electricity utility against the sale of electricity. Although this will be a barrier to the other type of power producers, however PP still considers it as a risk to the project activity. .	This explanation is not considered appropriate. As stated in the guidance document for PDD completion, Project participant was advised to drop the argument from PDD. However, project participant prefers to retain the argument in the PDD. The validation team did not consider this barrier as prohibitive and therefore is not considered to be contributing to additionality of the project activity.
10	Mr. Naveen Sharma Email :	14/03/ 2008	10. Organisational barriers – The O and M contract for the wind project is with Suzlon who are a very renowned company in the field and DLF is not	The O&M for wind projects is generally done through the project developer (Suzlon in this case). However lack of understanding on	As above.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
	snaveen511 @yahoo.com		carrying out the O and M, hence this is not a barrier to the project activity. It is important to note that most private investors investing in wind energy have no competence in the wind power generation business and this is why the wind mill supplier provides O and M services for the project. This is not a barrier to the project activity.	the issues related to non-availability of machine, maintenance schedule, grid issues etc. shows an inherent managerial constraint to the PP.	
11	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	11. The PP must kindly read the additionality tool properly while stating barriers. How CER sharing is a barrier is beyond any reasonable understanding. Just for the understanding of the PP the additionality tool states that "barriers that may prevent one or more alternative scenarios to occur" to be stated. Kindly correlate this with the statement made in the PDD.	There is a risk to PP that that the quantity of CDM revenue shared between the project proponent and DISCOM may increase in the future in view of CER sharing arrangement in other states e.g. Karnataka where there is a proposal of sharing of CERs revenue between the project proponent and the state electricity utility/DISCOM. Hence the CDM revenue sharing has been considered as a risk to the PP.	As above.
12	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	12. Other Barriers – The PP has simple described the inherent risks involved with any wind power generation project and hence this is not a specific barrier. Moreover the PP mentions that Kutch is a virgin site. There are quite a few projects (even in the CDM pipeline)	The project site is a new area recently explored by Suzlon for wind farm development. Hence PP considers it as a virgin site.	The assessment of the barrier analysis and overall additionality is described in the validation report.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			that are in the Mandvi, Motisindhodhi, Abdasa, Suthri, Arikhana, kadoli and Shikarpur in Kutch, so this argument does not hold true.		
13	Mr. Naveen Sharma Email : snaveen511 @yahoo.com	14/03/ 2008	To conclude, the DLF project activity is NOT additional due to the following: - A non conducive stagnant power policy in the state. Lower wind power tariff in comparison to other states. The policy in Gujarat has changed for the better and the tariff has increased substantially in the past years. There were installations even when the tariff was much much lower than today and hence this is not a barrier / risk to the project. - Third party sale of electricity not allowed leaving the project proponent to either use the generated output for captive consumption or selling it to the state electricity utility. The project is a 150 MW wind farm, would DLF have been able to find a third party buyer for such a large installation? Why would anyone who has a need of such a large amount of electricity buy infirm power from a wind installation, my guess is no one will. If not a single third party buyer, would DLF have wanted to	The issues highlighted have already been addressed in the above queries excepting the third party sale of electricity. The third party sale would have generated higher revenue to the PP as compared to the sale to EB. Sale to EB is not a prevailing practice in the Gujarat state as highlighted in the PDD. PP would have identified single or multiple customers for third party sale.	The assessment of the barrier analysis and overall additionality is described in the validation report.

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			take up the hassle of selling the electricity to numerous small buyers and monitor each of them separately? Again I guess not. Also, since the financial stability of GUVNL is such a concern for DLF, then clearly the financial position of the electricity buyers would also be a concern. So in essence DLF would have found numerous, financially stable third parties, who would be willing to buy infirm power, and been willing to take up the cumbersome process of managing and monitoring each rather than the easiest and safest way of selling it to the EB. The idea itself sounds too far fetched and the execution I would imagine as unthinkable. Hence this is not a barrier for the project - Single part tariff for wind power installations. It is the case with all wind farms, if this were a barrier then all wind farms selling to the EB should be additional but they are not. This is not a barrier. - Risk in realisation of revenue from the cash stripped electricity board. There is no evidence till date of default of the SEB, it would be important to note here that the SEB of though its financial		

Sr. No.	Details of the commenter	Date of the comment	Comment [unedited]	Response by the project participants	Explanation on how account is taken by the DOE
			situation has always been bad. This is not a barrier to the project. - Risk/uncertainty in the quantity of sharing of CDM revenues between the state electricity utility and the project proponents. How come this has become a barrier to the project? the PP can always assume the most conservative number of revenue sharing between 2 parties and if the PP is able to mobalize higher share it would be cherry on the cake !		

APPENDIX C
VALIDATOR COMPETENCE

Mr. Sandeep Lele	Bureau Veritas Certification India Private Limited	GHG Lead Validator Mr. Sandeep Lele hold Bachelors degree in Civil Engineering and Masters degree in Environmental Engineering. He has more than 15 years of exp in the Environmental Engineering field. He has worked in system certification over last 8 yrs. Mr. Sandeep Lele was trained as a Lead verifier for Clean Development Mechanism and Joint Implementation in March 2003. Since then he has lead and guided the team of CDM verifiers in the CDM assignments in India for numerous validation and verification projects. His qualification, industrial experience and experience in CDM facilitate him to assess renewable energy projects in general and wind projects in particular to sufficient degree.
Mr. R. Reghu Kumar	Bureau Veritas Certification India Private Limited	GHG Lead Validator Post graduate in Environmental Engineering, Management and certified Project Management Professional from PMI, Pennsylvania, USA, with over 20 years of work experience, which include teaching, Environmental Management & Monitoring as part of the environmental regulatory authority and Management system auditing with exposure to variety industrial processes. He has been involved in validation / verification of CDM projects.
Mr. Sushil Budhia	Sushil Budhia & Associates, Mumbai	Chartered Accountant Extensive experience in conducting statutory and tax audits. He has experience in internal audits and taxation matters.

Mr. H.B Muralidhar	Bureau Veritas Certification India Private Limited	Internal Reviewer Graduate in Electrical Engineering with 25 years of experience power generation and distribution related fields as well as in management system auditing. He is the Lead auditor for Environmental Management System, Quality Management system and Occupational Health and Safety Management System. He has undergone intensive training on Clean Development Mechanism. He is the technical expert & conducted Validation / Verification for more than 50 CDM Projects

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