VALIDATION REPORT

ROLEX RINGS PRIVATE LIMITED

8.75 MW WIND POWER PROJECT IN GUJARAT

Report No: 53135405 – 06/17

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Approved by: Mr. W. Wielpütz	Organisational unit: TÜV NORD JI/CDM Certification Program
Client: Rolex Rings Private Limited	Client ref.: Mr. Manish Madeka (Managing Director)

Summary/Opinion:
The Rolex Rings Private Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "*8.75 MW Wind Power Project in Gujarat*" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), the simplified modalities and procedures for small scale CDM project activities of annex II to decision 21/CP.8 and the relevant decisions by COP/MOP and CDM Executive Board.

The project intends to reduce GHG emissions by reducing use of electricity generated in the western regional grid of India, which predominantly uses fossil fuels, by grid-connected wind turbines with a capacity of 8.75 MW.

A risk based approach has been followed to perform this validation. In the course of the draft validation 9 Corrective Action Requests (CARs) and 12 Clarification Requests (CRs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval has been obtained from National CDM Authority as DNA of India vides the Letter of Approval (LoA) dt 03 Nov'06.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of **153,426** tCO_2eq is most likely to be achieved within the 10 years (fixed) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Report No.: 53135405-06/17	Subject Group: Environment
Report title: *8.75 MW Wind Power Project in Gujarat*	
Work carried out by: Rainer Winter Asim Kumar Jana Pankaj D Patel	
Work verified by: Wolfgang Wielpütz	

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Indexing terms

Climate change
CDM
Validation
Kyoto Protocol

Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Energy Authority
CER	Certified Emission Reduction
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Certification Program
CR	Clarification Request
DNA	Designated National Authority
EB	CDM Executive Board
EIA	Environmental Impact Assessment
GEDA	Gujarat Energy Development Agency
GETCO	Gujarat Electricity Transport Company
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kW	Kilowatt
kWh	Kilowatt hour
m	meter
m/s	meter/second
MW	Megawatt
MWh	Megawatt hour
ODA	Official Development Assistance
PDD	Project Design Document
PWC	Price Waterhouse Coopers
QC/QA	Quality control/Quality assurance
RRPL	Rolex Rings Private Limited
SSC	Small-Scale
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator

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1 INTRODUCTION

Rolex Rings Private Limited (RRPL), facilitated by Emergent Ventures India, has commissioned the JI/CDM Certification Program (CP) of TÜV NORD CERT GmbH to validate the project:

"8.75 MW Wind Power Project in Gujarat"

with regard to the relevant requirements for Small – Scale CDM project activities.

1.1 Objective

The purpose of this validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol; the CDM modalities and procedures as agreed in the Marrakech Accords under decision 17/CP.7; the annex to the decision; the simplified modalities and procedures for small scale CDM project activities contained in annex II to decision 21/CP.8 and subsequent decisions made by COP/MOP & CDM Executive Board,
- other relevant rules, including the host country (India) legislation and sustainability 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 seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CER).

1.2 Scope

The validation scope is given as an independent and objective review of the project design, the project's baseline study and monitoring plan which are included in the PDD and other relevant supporting documents.

The items covered in the validation are described below:

- **UNFCCC & Host Country Criteria**
  - UNFCCC/Kyoto Protocol requirements, in particular, the requirements of the CDM as set out in decision 17/CP.7 (Marrakech Accords), the present annex, the simplified modalities and procedures for small scale CDM project activities of annex II to decision 21/CP.8 and relevant decisions by COP/MOP & CDM Executive Board
  - Host country requirements / criteria

- **CDM Project Description**

- Project design
- Project boundaries
- Predicted CDM project GHG emissions

- **Project Baseline**
  - Baseline methodology
  - Baseline GHG emissions

- **Monitoring Plan**
  - Monitoring methodology
  - Indicators/data to be monitored and reported
  - Responsibilities

- **Background investigation and follow up interviews**

- **Global Stakeholder Consultation**
  - Publishing the PDD on TÜV NORD website
  - Review of comments

- **Draft validation reporting with CARs & CRs, if any**

- **Final validation reporting.**

The information included in the PDD and the supporting documents were reviewed against the requirements and criteria mentioned above. The TÜV NORD JI/CDM CP has, based on the recommendations in the Validation and Verification Manual[/VVM/], employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs. The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions.

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

1.3 GHG Project Description

1.3.1 Project Scope

The considered GHG project can be classified as a small-scale CDM project in the sector given in Table 1-1 (according to List of Sectoral Scopes of UNFCCC).

Table 1-1: Project Scope

No.	Project Scope
1	Energy Industries (renewable - / non-renewable sources)

1.3.2 Project Entities

The following entities are involved in the developing of the project:

Project Developer:	Rolex Rings Private Limited Gondal Road, Village – Kotharia Rajkot, Gujarat
Contact person:	Mr. Manish Madeka +91 9824055374 madekam@rolexrings.com
Project Consultant:	Emergent Ventures India Pvt Ltd II C-141 Ridgewood Estate, DLF Phase IV Gurgaon, Haryana – 122 002 India
Contact Person:	Mr. Ashutosh Pandey +91-124-5102980 ashutosh@emergent-ventures.com

1.3.3 Project location

The project sites are located at Bhogat (between latitude 22° 27' N and longitude 70° 07' E), Lamba (between latitude 22° 27' N and longitude 70° 07' E) and Mandvi (between latitude 22° 51' N and longitude 68° 32' E) in Gujarat, India.

1.3.4 Technical project description

The project activity involves setting up seven wind turbines with an installed capacity of 8.75 MW. The generated electricity will be wheeled to the regional state grid (Western State Electricity Board).

The project encompasses 7 large 1.25 MW Wind Turbine Generators with a hub height of 65 meters in the state of Gujarat. The project activity is executed in a phased manner during March 2003 to March 2005. The project exports an average of 18,200 MWh per year– based on a plant load factor of 23.74%.

The project activity contributes towards meeting the objective of Government of India about 10% of incremental capacity from renewable sources and towards mitigating the supply deficit in Gujarat.

This project is intended to reduce CO_2 emissions to the extent of electricity displaced from the regional grid. The estimated amount of emission reductions over the chosen

10-year "non-renewable crediting period" is **153,426** (acc. to the PDD) from 15th Jan'07 to 14th Jan'17.

Table 1-2: Technical and operational data

Wind Turbine Generator S-64	
Manufacturer	Suzlon Energy Ltd.
Type	S-64, 50 Hz
Installed electrical output	1250 kW for each WTG -Total 7 WTGs
Rotor diameter	64 m
No. of rotor blade	3
Hub Height	65 m
Rated wind speed	14 m/s
Generator type	Asynchronous 4/6 poles
Type of gear box	Integrated 3 stage 1 planetary & 2 helical

2 VALIDATION TEAM

- The Validation Team was led by Mr. **Rainer Winter**. Mr. Winter works at TÜV NORD CERT GmbH as ISO 9001/ 14001 Auditor and environmental verifier for EMAS. He is also an approved emission verifier within the European Emission Trading Scheme. Mr. Winter is an authorized JI/CDM assessor and is in charge of the TÜV NORD JI/CDM Certification Program. For this validation he was assisted by:
- **Asim Kumar Jana**, TÜV Nord -Mumbai, India. Mr. Jana, M. Tech (Env Engg), Dipl in Industrial Safety, is a TÜV-CERT Lead auditor for ISO 9001/14001 and OHSAS 18001 and certified energy auditor by Bureau of Energy Efficiency of India. Currently he is Product In-charge-CDM Services for TÜV Nord India operation. He is an appointed assessor for TÜV NORD JI/CDM Certification Program and participated already several CDM project validation.
- **Pankaj D. Patel**, TÜV Nord -Vadodara, India is a TÜV-CERT Lead Auditor for ISO 9001/14001. He has received extensive training in the CDM validation & verification process. He is an appointed trainee for JI/CDM certification program of TÜV NORD CERT GmbH.

The validation report is verified by:

- Mr. **Wolfgang Wielpütz**. He is ISO 9001 and ISO 14001 auditor, environmental verifier for EMAS and DEHSt- appointed emission verifier in the framework of EU-ETS. He is appointed JI/CDM assessor. Mr Wielpütz is the head of the department: "Integrated management systems, environmental and occupational safety" and the deputy chief of TÜV NORD CERT GmbH.

3 METHODOLOGY

The validation of the project was carried out from May '06 to December '06. It was divided into 2 phases: The pre-validation and the final validation.

The pre-validation process consisted of the following three sub-phases:

- A desk review of the PDD (incl. annexes) and supporting documents with the use of a customised validation protocol/CPM/ according to the Validation and Verification Manual/VVM/;
- Back ground investigation and follow-up interviews with personnel of the project proponent, the consultant, legal authorities and other stakeholders;
- Reporting of validation findings taking into account the public comments received on TÜV NORD website.

The draft validation report includes Corrective Action and Clarification Requests (CAR and CR) identified in the course of this validation.

A **Corrective Action Request** is established if

- mistakes have been made in assumptions or the project documentation which directly will influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions cannot be verified and certified.

A **Clarification Request** is issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

The final validation started after issuance of proposed corrective action (CA) of these CAR and CR by the project proponent. The validator has assessed the proposed CA with a positive result and after the closure of these CAR and CR the project proponent has issued the final version of the PDD. On the basis of this the final validation report and opinion were issued.

3.1 Validation Protocol

In order to ensure consideration of all relevant SSC assessment criteria, a validation protocol was used. The protocol shows, in a transparent manner, criteria and requirements, means of verification and the results from pre-validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements that a CDM project is expected to meet;
- It ensures a transparent validation process where the independent entity will document how a particular requirement has been validated and the result of the determination.

The validation protocol consists of three tables: Table 1 (Mandatory Requirements); Table 2 (Requirement Checklist); and Table 3 (Resolution of Corrective Action and Clarification Request) as described in Figure 1.

The completed validation protocol is enclosed in Annex to this report identifying 9 Corrective Action Requests and 12 Clarification Requests.

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**), or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement 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 organised in seven different 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** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Validation conclusion***
If the conclusions from the draft 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 Table 2 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 summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1: Validation protocol tables

3.2 Review of Documents

The draft PDD[/PDD1/] submitted by RRPL in May 2006 and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

The documents that were considered during the (pre-) validation process are given in chapter 7 of this report. They are listed as follows:

- Documents provided by the project proponent (Table 7-1)
- Background investigation and assessment documents (Table 7-2)
- Websites used (Table 7-3).

In order to ensure the transparency of the decision making process, the reference codes listed in tables 7-1 to 7-3 are used in the validation protocol and – as far applicable – in the report itself.

3.3 Follow-up Interviews

In May -June 2006 the TÜV NORD JI/CDM CP performed interviews with the project proponent and project stakeholders as well as with local authorities to confirm selected information and to resolve issues identified in the document review.

The key interviewee and main topics of the interviews are summarised in Table 3-1.

Table 3-1 Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives	- General aspects of the project - Technical details of the project realisation - Approval procedures and status - Quality and environmental management system - Involved personnel and responsibilities - Financial aspects - Management decision on CDM - Operational data - Wheeling Agreement with SEB
Consultant	- Editorial aspects of PDD - Procedural aspects - Details of emission reduction calculation
Grid operator	- Electricity Grid Structure (Renewable Energy share) - Metering - Wheeling agreement and charges
Wind mill operator	- O&M agreement - Technical Features of WTG - Prices

A detailed list including the functions or designations of the interviewed persons is given in chapter 7 (cp. Table 7-4). This table also includes reference codes to be used in the validation protocol.

3.4 Resolution of Clarification and Corrective Action Requests

In order to remedy any mistakes, problems or any other outstanding issues which needed to be clarified for positive conclusion on the project design, CARs and CRs were raised.

In this validation 9 CARs and 12 CRs were raised.

The CARs / CRs are documented in the annex and addressed in Chapter 4.

3.5 Public Stakeholder Comments

The PDD was made publicly available through TÜV Nord JI/CDM CP web site www.global-warming.de. Comments on the PDD were invited within 30 days, i.e. 19/05/2006 to 17/06/2006.

The received comments were also made publicly available on TÜV NORD's web site. The comments received were reviewed and taken into account in this validation stage. The summary of the comments is presented in Chapter 5.

3.6 Finalising the report

The draft validation report was submitted to the project proponent. After reviewing the revised and resubmitted project documentation[/PDD2/]; resolving the CRs & CARs raised and outstanding concerns TÜV NORD JI/CDM CP issues the final validation report and opinion.

4 VALIDATION FINDINGS

In the following paragraphs the findings from the desk review of the draft PDD, visits, interviews and supporting documents are summarised. This also includes the corresponding corrective action taken by the client and its final assessment.

The results are shown in table 4-1:

Table 4-1: Summary of CAR and CR issued

Validation topic [1)]	No. of CAR	No. of CR
Participation requirements (A3)	0	0
Project design (A1-A2)	1	5
Baseline and additionality (B)	4	4
Crediting Period (C)	1	0
Monitoring plan (D)	1	1
Calculation of GHG emissions (E)	1	2
Environmental impacts (F)	0	0
Comments of local stakeholders (G)	1	0
SUM	**9**	**12**

[1)] The letters in brackets refer to the validation protocol

4.1 Participation Requirements

India as a non Annex-I party meets all relevant participation requirements. In the Letter of Approval/LOA-H/ dt. 2006-11-03, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of RRPL as project participant in the CDM project activity.

An Annex-I party will be identified by the project participant in due time, as per the post registration involvement by Annex-I party provisions (no. 57) made in 18th EB meeting.

4.2 Project design

The objective of this 8.75 MW wind power project is to reduce GHG emissions by replacing electricity of the western regional grid of India which predominantly uses fossil fuels/AR/.

The project encompasses 7 Wind Turbine Generators (WTG) made by Suzlon each with a capacity of 1.25 MW. The 7 WTGs were commissioned in phased manner in three locations: 3 at Bhogat, 1 at Lamba, 3 at Vanku in the state of Gujarat, India. The generated electricity is wheeled through the Gujarat State Electricity Grid /PWA/

which is a part of western regional grid /PDD2/ to RRPL auto component manufacturing unit at Rajkot, Gujarat. The project is currently operational; the last WTG was commissioned on 29/04/06. All WTGs are operated and maintained by Suzlon.

According to sustainable development various social, economic and environmental benefits are achieved. Direct and indirect employment was obtained through implementation and management of the project activity. Besides GHG mitigation the project activity leads to conservation of natural resources.

Moreover, this type of Wind mill power project is not of BAU kind in the region, i.e. in the state of Gujarat, and it is in line with sustainable development policies of the country and national regulation / policy on Environmental Protection, Electricity and Non Conventional Energy./LOA-H/ The project design does reflect current good practices. Nevertheless in the LOA-H it is stated that RRPL has to comply the following conditions:

- RRPL shall not sell the CERs to any agency/ company/ organization which purchases the CERs using ODA Funds
- RRPL shall inform the national CDM Authority regarding all transaction details of CERs including the name and adress of the party to which CERs were sold within 30 days of transfer of the CERs
- RRPL shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- RRPL shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project
- All transaction shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP

Based on the financial information furnished by the project participant, no ODA does contribute to the financing of the project./IM01/

The geographical {Bhogat (between latitude 22° 27’ N and longitude 70° 07’ E), Lamba (between latitude 22° 27’ N and longitude 70° 07’ E) and Mandvi (between latitude 22° 51’ N and longitude 68° 32’ E) in Gujarat, India} and temporal boundaries (10 years crediting period, 20 years operational lifetime) are clearly defined. By means of on-site interview it was verified that it is not a debundled large scale project activity.

In the course of the project validation the following CAR and CR - regarding the project design and the correct completion of the PDD - were raised and successfully closed out.

Corrective Action Request A1:	
CAR	Under the section A.2. of the PDD, the execution period of the project activities is stated as May 2003 to March 2005 in a phased manner. The same does not co relate to the information provided in section C and E.
CA:	The PDD has been modified, in section A.2
Conclusion:	The PDD addresses this in correct and consistent way.

Clarification Request A1:	
CR	The project eligibility needs clarification by providing the proof of rated capacity of WTGs.
CA:	Commissioning certificate containing details of rated capacity of WTGs issued by GEDA has been provided to DOE.
Conclusion:	The certificate /PO/ provided by RRPL is reviewed and found OK ,ie, capacity of each WTG is 1.25 MW.

Clarification Request A2:	
CR	The information related to the transfer of technology and a description of how environmentally safe and sound technology is to be used is not provided in the section A.4.2. of the PDD.
CA:	No transfers of technology from annex-1 countries take place. (PDD modified sec. A.4.2). As the WTGs are made in India by Suzlon.
Conclusion:	OK

Clarification Request A3:	
CR	The transmission grid is stated as a part of the project boundary. Clarification requested, whether the grid is between WTG and the sub-station or is it a transmission grid from sub- station onward.
CA:	The project boundary has been redefined in modified PDD, modified in section B.4.
Conclusion:	OK

Clarification Request A4:	
CR	The chronological description of the phased execution w.r.t. the 3 sites covering 7 WTGs is not provided.
CA:	The commissioning dates of WTGs has been included in modified PDD, modification in section A.4.1.3
Conclusion:	The same is clearly provided in the section A.4.1.3. of the PDD.

Clarification Request A5:	
CR	The name of the person as indicated in the sections B.5 and D.6 of the PDD appears to be project participant as meant in Annex-1. It is necessary to clarify the same in the sections B.5 and D.6 of the PDD.
CA:	The PDD has been modified to include the same information in sections B.5 and D.6
Conclusion:	OK

4.3 Baseline and Additionality

The selected baseline methodology is in line with the approved baseline methodology AMS-I.D Version 9.: ”Grid-connected renewable electricity generation ”. Despite that the following CAR and CR were raised.

Corrective Action Request B1:	
CAR	The argument related to the grid performance addressed under Technological Barrier in the section B.3 of the PDD is irrelevant and also not in line with Attachment A to Appendix B.
CA:	Barrier related to grid performance has been describes as “Other Barriers”, in modified PDD section B.3
Conclusion:	OK

Corrective Action Request B2:	
CAR	The official information and basis used for Levelized cost analysis is required to be clearly provided in the PDD.
CA:	PDD has been modified to include levelized cost concept in a detailed manner along with reference material. The whole process has been clearly stated in PDD.
Conclusion:	The B.3 of the PDD describes the comprehensive information with official reference.

Corrective Action Request B3:	
CAR	The value of auxiliary consumption for gas based power generation in Western Grid for the year 2004-05 as taken in Annex 4 of the PDD does not match with WREB Report 04-05.
CA:	The correct value of auxiliary consumption has been incorporated in calculation.
Conclusion:	OK

Corrective Action Request B4:	
CAR	The value of Gas Fuel CV as taken in Annex 4 of the PDD does not correspond to IPCC default value.
CA:	The correct value has been incorporated in calculation.
Conclusion:	Fuel has been taken for calculation of GEF and found OK in the spread sheet. However, the same has been removed from Annex-4 of the PDD. Hence CAR is closed.

Clarification Request B1:	
CR	Under Section B.3 of PDD "Grid based power supply" is stated as Alt-1 under different fuel options – needs clarification.
CA:	The PDD has been modified in section B.3
Conclusion:	OK

Clarification Request B2:	
CR	The comparison of project IRR with cost of capital does not co-relate to arguments required under Regulatory Risks of the section B.3 of the PDD. (cp. Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities).
CA:	The comparison of Project IRR has been included in Investment barrier and PDD has been modified for regulatory barriers.
Conclusion:	The clarification provided is OK.

Clarification Request B3:	
CR	Usage of coal as a feasible fuel options for Captive Power Plant in the region needs to be elaborated in the PDD.
CA:	The same has been referenced from a published document, clearly mentioned in PDD. An additional document has been submitted to DOE showing Coal power plants in state of Gujarat, same has been included in PDD.
Conclusion:	This is convincing to the validation team.

Clarification Request B4:	
CR	The IRR calculation sheet shows the 10.61 % without CDM benefit. However, the section B.3 of the PDD mention the IRR without CDM benefit is 10.2 %. The PDD should include the right IRR figures.
CA:	The PDD has been modified to include correct IRR figures based on calculation done by independent CA firm.
Conclusion:	Correct and consistent figure of IRR is mentioned in the PDD.

The baseline under the adopted methodology AMS-I.D. is calculated as the net energy supplied (in kWh) to State Electricity grid of Gujarat (GETCO) by the renewable energy generation units, in this case the 7X1.25MW WTGs, multiplied by an emission coefficient of the western regional grid. The project participant used the weighted average emissions of the current generation mix to estimate the emission coefficient. The emission coefficient has been derived as 0.843 kg/kWh (ref: Annex 4 of the PDD and the spread sheet provided to DOE) using western regional grid data of 2004-2005 which is the latest available official data[/cea/,/ wreb/]. As per AMS ID para 9 (b) the section D.3 of the PDD also addresses the ex-post monitoring of the grid emission coefficient. The validation team has checked the underlying input values as well as the spreadsheet programming and the other current officially published guideline as follows:

CO_2 Baseline Database of Indian Power Sector User Guide, Draft version 1.0, 4th October 2006 published by ministry of power, Central Electricity Authority /cea/. /CBD/(The value of Table 4 and Table S-1 provides the current generation mix average of 0.92 kg/kWh of year 2004-05 of same grid region).

As a result of this check the validation team is convinced of the results of the emission coefficient calculation and the chosen value. The resultant figure of 0.843 kg/kWh is deemed to be adequate, transparent as well as conservative.

Considering net wheeled generation of 18200 MWh from the project activity for all ten years of crediting period the baseline, i.e., annual emission reduction is estimated to 15,342.6 t $CO_{2eqv.}$

Altogether the project activity reduces emissions of **153,426 tCO_2eq** over the ten years crediting period.

Relevant national & sectoral policies have been considered such as decisions of the GEDA and the energy policy of the Government of India. The project is also in line with Non Conventional Energy Policies.

The additionality was demonstrated acc. to § 28 of the simplified modalities and procedures for small-scale CDM project activities in connection with attachment A of appendix B as a barrier analysis. /SMP/

The individual arguments presented in the PDD to justify the additionality were summarised in table 4-2. This table also includes the assessment of the validation team.

Table 4-2: Additionality assessment

Type of barrier[1)]	Argument	Assessment
(a)	Comparison of levelized cost of power generation using different fuel options: clear comparison of coal or fuel oil power generation cost (Rs/ kWh) concludes that wind energy is not economically attractive option.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive barrier ☒ Argument justified / significant barrier
(a)	IRR value of @ 10.6 % with out carbon benefits of this project activity is independently assessed /CAC/. This low value IRR value compared to other fossil fuel investment option is primarily due to low PLF due to low wind density in the state of Gujarat.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive barrier ☒ Argument justified / significant barrier
(c)	Irregular & non-conducive nature of government policy at and prior to the time of this project incitation, i.e., year 2002-2003 and before is a barrier for the RRPL to invest.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive barrier ☒ Argument justified / significant barrier
(d)	Inadequate experience of performance of the first time installation of megawatt	☐ Argument not justified

Type of barrier[1)]	Argument	Assessment
	class WTG in the region.	☐ Argument not convincing ☒ Argument justified but not a decisive barrier ☐ Argument justified / significant barrier
(c)	Common Practice analysis shows wind power installation as a CPP during 2002 in the state of Gujarat is not a prevailing practice.	☐ Argument not justified ☐ Argument not convincing ☒ Argument justified but not a decisive barrier ☐ Argument justified / significant barrier
(d)	With the CER revenue this windmill project will be viable and other wind mill projects as CDM projects are being realised in the state of Gujarat.	☐ Argument not justified ☐ Argument not convincing ☐ Argument justified but not a decisive barrier ☒ Argument justified / significant barrier
Assessment of the validation team		☒ Project is additional ☐ Project is not additional

1) Classification acc. to Attachment A to Appendix B of the simplified modalities and procedures a) investment barrier; b) technological barrier; c) barrier due to prevailing practice; d) other barriers

The inadequate experience barrier is not significant since O&M contracts with WTG suppliers ensures the expected performance. The common practice analysis is not also significant since PDD does not clearly justify with comparative data of wind mill installation vs CPP.

The investment barrier w.r.t comparative assessment of levelised cost and IRR across the alternative emitting power generation options is convincing and significant. Moreover, impact of CER revenue as an other barrier is also significant.

The barriers due to prevailing practice with respect to government policy are well justified and assessed as significant barrier.

Thus the validation team arrived at the opinion that the project activity can be assessed to be additional and is not a BAU case.

4.4 Crediting Period

The intended crediting period of the project is Jan'07 to Jan'17 (non-renewable).

In chapter C.1.2 of the validation protocol the necessity was raised, with reference to section C.2.2.1 in the draft PDD, to make clear, whether it is intended or not to start the crediting period from 01/04/2003 as discussed during interview. Therefore a corresponding CAR is issued.

Corrective Action Request C1:	
CAR	Crediting period start date stated as 01/04/2003. As per para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project. Also the submission date of draft PDD to DOE does not justify the claim of credit from retrospective effect. (cp. EB 23 decision number 90(a). Hence the PDD needs appropriate modification in the section.
CA:	In modified PDD, crediting period starts from the date of registration. PDD modified section C.2.2.1
Conclusion:	The corrections made are OK.

4.5 Monitoring Plan

The project applies the baseline methodology AMS-I.D.: “Grid-connected renewable electricity generation”. This methodology stipulates that monitoring shall consist of metering the electricity generated by the renewable technology. Details of monitoring of electricity generated, including the ex-post monitoring of grid emission factor is presented in section D.3. of the PDD.

The procedure for calibration & maintenance of monitoring equipment are clearly mentioned as per QA/QC procedure of PDD. Nevertheless following CAR and CR were raised.

Corrective Action Request D1:	
CAR	The ex-post monitoring of grid emission factor is not addressed in the section D.3 of the PDD (Cp AMS ID ver9).
CA:	The D.3 of the PDD is modified appropriately.
Conclusion:	The PDD addresses the same in the correct way.

Clarification Request D1:	
CR	Entry in data variable column of table in section D.3 of the PDD is not clear about which meter (SEB or individual WTG meter) will be taken as a basis for calculating emission reductions. Also it is not clear whether SEB meter are common for the wind farm or dedicated for RRPL.
CA:	The PDD has been modified to clarify the monitoring variable. Modified in table D.3
Conclusion:	OK

4.6 Calculation of GHG Emissions

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO_2) emissions due to replacing electricity from the regional grid which predominately receives electricity out of fossil fuel[/AR/] .

The calculations of the baseline emissions are documented in section E. and in Annex 4 of PDD. For assessment please refer to section 4.3 of this report.

The project activity leads to zero emissions and leakage is not to be considered, since it is a small scale renewable energy project.

Acc. to the Final PDD the project is expected to reduce emissions of **153,426 tCO_{2e}** over a 10 years crediting period. The following CAR & CR were raised:

Corrective Action Request E1:	
CAR	The PLF (29.7%) considered for estimating power generation (table E2 of PDD for the year 2006-07) is not consistent with the achieved PLF for 04-05 and with the statement under A.4.3. of the PDD i.e. 2.3 GWh per WTG per year (PLF 21%).
CA:	The PDD has been modified for guaranteed 2600000 units per WTG by Suzlon and same PLF (@ 23.74 %) has been used to calculate expected CER.
Conclusion:	The corrections w.r.t. estimated generation in the PDD are consistent.

Clarification Request E1:	
CR	The project electricity figure for year 2005-06 in E.2 of the PDD is only up to Nov 05. Clarification is requested for up to date figure.
CA:	The E.2 of the PDD is corrected considering 18200 MWh wheeling to grid from Dec'06.
Conclusion:	The correction is OK.

Clarification Request E2:	
CR	The unit of the "electricity generation wheeled to users" in the top table of section E.3 of the PDD is incorrect. Also the units for figures in the Annex-4, page 28 is missing.
CA:	The PDD has been modified accordingly to incorporate the units of generation.
Conclusion:	OK

4.7 Environmental Impacts

Social & environmental impacts of the project have been sufficiently addressed. No adverse environmental impacts as well as transboundary impacts have been envisaged from this project activity.

4.8 Comments by Local Stakeholders

Stakeholders have been directly asked to comment on the project through an open meeting among local stakeholders at three sites, project proponent and project developer (Emergent Ventures) held at site on in May '06.

A summary of the comments received and a note on how due account was taken of the concerns raised in the above public consultation are included in PDD. No adverse comment received.

The following CAR was raised:

Corrective Action Request E1:	
CAR	The process of carrying out local stockholder consultation is not described in transparent manner in the section G.1 of the PDD. And also the details in line with stake holder comment are required to be provided in the section G.1 of the PDD (Cp. /LSC/).
CA:	The PDD has been modified to include stakeholder consultation in section G.1
Conclusion:	OK

5 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the validation of CDM projects, TÜV NORD JI/CDM CP published the draft PDD on its website www.global-warming.de on 19 May 2006 and invited comments within 30 days, until 17 June 2006 by parties, stakeholders and UNFCCC accredited non-governmental organisations. Comments from one individual stakeholder were received in this period. This was made available to public on the same website as well. The comments (in unedited form) from an Indian Party – Mr Saanjeev Chadha and the consideration/response of TÜV NORD JI/CDM CP are presented in the table below:

Table 5-1

Comment by: Mr Saanjeev Chadha, India

Inserted on: 15/06/2006

Subject: Additionality of the Project and Stakeholders Comments

Comment:	Consideration / response of TÜV NORD JI/CDM CP
The complete additionality of the project seems to be fabricated without any firm base as even the additionality guidelines have been overlooked	The validation team has taken an account of the comments made under this topic and these are addressed as below:

Comment:	Consideration / response of TÜV NORD JI/CDM CP
A)Comparison of the levelized cost of power generation using different fuel options: As per the UNFCCC additionality tool – refer page 2 foot note, reproduced verbatim for reference "For example, a coal-fired power station or hydropower may not be an alternative for an independent power producer investing in wind energy or for a sugar factory owner investing in a co-generation, but may be an alternative for a public utility. Alternatives are, therefore, related to technology and circumstances as well as to the investor" Thus coal cannot be used as an alternative while addressing additionality of the subject project.	The project activity is a small scale project activity and is eligible to use Attachment A (Information on additionality) Version 06: 30 September 2005. Hence conditions laid out for large scale project additionality tool might not be relevant for the project activity. Moreover, as the project has been conceptualized as power generation for captive use (to the manufacturing site of project proponent) through wheeling – not as an independent power producer. Hence use of Levelized cost comparison for various energy sources including coal is appropriate for the project activity. CR B3 is raised on the coal as a feasible fuel options for Captive Power Plants in the region.
Additionally, the details of financial analysis pertaining to fuel oil and wind energy have not been detailed out and merely the end prices have been mentioned. The levelized cost for wind is purely fabricated and can be explained through following reasons:	This aspect is already covered under pre-validation process and resulted in CAR B2 (cp. Annex).

Comment:	Consideration / response of TÜV NORD JI/CDM CP
The Gujarat Electricity Board is supplying electricity to Industrial Customers at INR 4.50 /kWh and a industry utilizing the grid connected supply has to be prepared for the grid failures. After investment in wind technology, the generation of electricity and consumption of electricity is carried out at 2 different locations and therefore the pumping end and consumption ends are different, thus the susceptibility to grid failure remains as it was in the previous grid consumption case, thus there seems to be no rationale as to how a mere addition of 8.75 MW of electricity in the regional grid (western grid) would reduce the grid failures. Additionally the generation price (as quoted by the project proponent / their consultants INR 4.73 /kWh) is higher than the grid supply price. Therefore the argument is just an attempt to fool the operational entity.	Grid failure for power consumption and power generation are two different topics and hence can not be used as common problem for user as well as generating party. Wind farms are usually located in coastal regions of Gujarat, far away (? KM) from the manufacturing site of the project proponent. Many of these places do not have robust grid evacuation system /WP/. Also the point of power withdrawal, are industrial locations where a grid related failure at any point will be addressed with higher priority as compared to grid failure at wind farms. Also while comparing various other options for power generation wind power is more susceptible to grid failure. In case of FO based or coal based power generation grid failure would not be a major barrier as these plants would be based in-house with no grid used for power transmission. Only wind power is subject to vagaries of grid failure. The comment related to effect of the project activity on the grid seems to be out of context as no where in the PDD it is mentioned that 8.75 MW additions will reduce grid losses. CDM registration will provide an additional source of revenue to the project activity thus reducing impact of loss incurred due to grid failure.

Comment:	Consideration / response of TÜV NORD JI/CDM CP
The project proponent / their consultants have not carried out the financials using the depreciation benefits available for the captive investment in wind power projects (80% accelerated depreciation in the very first year). Thus after considering the accelerated depreciation benefit of 80% and considering the variable cost component of Interest on Term Loan, Operation & Maintenance Expenditures and Insurance, the levelized cost of generation will remain between INR 2.50 / kWh to INR 2.90 / kWh which is considerably below the fuel oil alternate projected in the PDD. Thus investment in wind was the most profitable option available to the investor.	All benefits available for wind energy are considered in the financial analysis /IRR/. The same has been vetted by an independent Chartered Accountancy firm /CAC/ and verified by the validation team. The same is found OK. The levelised cost aspect is already covered under pre-validation process and resulted in CAR B2 (cp. Annex).
Additionally, it is clear from the PDD that the investment was carried in a phased manner from May 2003 to March 2005, thus I have sincere doubts if the electricity demand / consumption of the company has grown in this pattern, instead it can be clearly inferred that the accelerated depreciation benefit was the motive to mitigate the tax deferral requirements of the company on an annual basis.	The project proponent has increasing demand of Electrical power and has applied for a new connection with state authorities. The electricity consumption details of Rolex Rings shows a gradual rise over the past 4 years and hence eliminates the doubt about accelerated depreciation benefit. The supporting documents/PCT/ submitted to validation team for verification. There was a proportionate consumption rise for RRPL from 2003 to 2006. The same aspect is partially covered under CR A4. Hence the comment is irrelevant. Also wind power projects entail higher capital cost/MW capacity as compared to other options/IM03/ and have lower PLF thus leading to much higher capital cost/unit power generation. Thus arranging finance for 8.75 MW was difficult to arrange at any given point in time /IM03/ (~4 times the investment required for a coal plant for producing same amount of power due to high capital cost & low PLF). Another rationale behind investment done in phased manner is that project promoter do not have any experience in wind power generation and also finding good wind farm sites in any one year is very difficult.

Comment:	Consideration / response of TÜV NORD JI/CDM CP
B) Regulatory Risks The IRR shown with CDM benefits is 10.2%, which is totally fake and fabricated. There are ample documentary evidences available stating the IRR from wind installations for captive purpose to be higher than 15%. The two projects of Bajaj Auto currently under review (implemented in the state of Maharashtra) have stated similar kinds of IRRs in their PDD (as used in this PDD) whereas the annual report of Bajaj Auto for the year 2001-02 has clearly stated that the project has an IRR of 28% with 3 years a payback.	It section B.3 of the PDD states that the IRR of 10.2 % is without CDM benefits. Hence the comment is contradictory to the statement in the PDD. However, in the contest of the evidence provided by the RRPL CR B4 has been raised. Validation team can not take an account of IRR achieved by the projects rejected by CDM EB and the relevant information of these two projects is not available in public domain. However, based on analysis of various (registered so far) wind power CDM projects in India, following projects have achieved a much lower return compared to IRR (without CDM benefit) mentioned in the comment. 1. Generation of Electricity from 2.5 MW capacity windmills by Gujarat JHM Hotels Pvt Ltd at Soda Mada Rajasthan (10.57 %). 2. Bundled Wind power project in Jaisalmer (Rajasthan in India) managed by Enercon (India) Ltd. (9.2%-14.6% based on low & high PLF) 3. Bundled wind power project in Chitradurga (Karnataka in India) managed by Enercon (India) Ltd. (9.5%-14.8% based on low & high PLF) 4. “Nagda Hills Wind Energy Project (India)” (9.2%) 5. 12.3 MW wind energy project in Tamilnadu, India (12.9%)

Comment:	Consideration / response of TÜV NORD JI/CDM CP
The project proponent / their consultants have mentioned the supporting regulatory framework in the state of Gujarat and with almost fixed small variable component of the investment, the project does not has any regulatory barriers.	The project has regulatory risks as explained in the second paragraph of Regulatory Risks of the section B.3 of the PDD. The same was confirmed by "Wind power: experiences and future directions" A work shop conducted by TERI /WP/ (Page 19 of document clearly states that state policies and support from SEBs were not in favor of Wind Power Project Activity). Hence the comment can not be considered.
The DOE should seek financials from the EPC contactor as well as from other market players operating in the state for captive investment to verify the IRR, DSCR and other financial indicators of such investments.	Validation Team was shown all cost components/assumption as power EPC contractor work order during onsite interview. Also the financial analysis has been reviewed and found correct by an independent financial consultancy firm/CAC/.

Comment:	Consideration / response of TÜV NORD JI/CDM CP
C) Technology Barriers The EPC contractor is supplying the 1.25 MW wind turbines in India from 2000-01, thus the technology has proven its compatibility in Indian conditions, moreover the project proponent is not even the first person to take the investment risk with 1.25 MW turbines, thus there is no technological risk. The dependence on grid has to be there in case of wind projects, but to my knowledge, the time of day meters are not used for wind projects; therefore a project proponent is allowed electricity from the grid equal to the amount of electricity pumped by the turbines. The state government of Gujarat charges a fixed wheeling charge of 4% of electricity. Thus there is no such limitation of electricity consumption.	The project was one of the first projects to go for megawatt range wind mill in Gujarat. The 1.25MW WTG was introduced in Gujarat in year 2003 and RRPL was amongst the first ones to install 1.25 MW machines in Gujarat/IM03/. Also technology risk is not only associated with technology of wind mill, there are other associated factors such as grid evacuation system etc which affects the project. Again, PDD doesn't talk about point related to time of day meter as mentioned in the comment. The PDD talks about problems associated with grid evacuation system and limitation of wind power as base load ie you can't set up wind power at the source of power consumption, it has to be installed at a proper wind site. Due to these reasons power user doesn't have control on generation of power, which is a limiting factor for developers who want to use it in-house or supply to third parties. Another barrier related to wind mills is low capacity utilization due to improper wind site selection. A wind mill (even if it is state of art technology) might not generate power to its full potential if wind site is not proper. This is major risk which is unique to wind power only. Due to climate/weather change wind velocity might not be optimum enough to generate expected power.

Comment:	Consideration / response of TÜV NORD JI/CDM CP
D) Common Practice The total installation carried out by the project proponent is 8.75 MW from May 2003 to March 2005. Gujarat has observed 28.9 MW of wind installations in 2003-04 and 51.5 MW in 2004-05 (Source MNES) clearly indicates the financial viability and diversion of investment through attractive policy support from the state government. Thus the argument of not a common practice will not hold good.	As per understanding, all the projects installed in Gujarat during the same time period and in the same region have considered CDM benefits. 1- Alembic Limited. 2- Echjay Industries Limited. 3- Gandhi Special Limited. 4- Samay Electronics Pvt. Limited. 5- Shalon Industries Pvt. Limited. Hence the claim made in the PDD is OK.

Comment:	Consideration / response of TÜV NORD JI/CDM CP
Stakeholders Comments The stakeholders in a wind project are not merely the local people residing in the vicinity of the project site but also the authorities and agencies responsible for project implementation, operation and other clearances including the implementation and operational licensing bodies. The PDD has clearly skipped the following: Who all were involved in the project right from the stage of inception, implementation to the operation of the project and were they apprised of the candidate CDM project. When were the local community contacted for the project, who all were present and were the minutes of meetings recorded What were the comments of the local community and was their any government official present in the meeting to oversee the whole process of consultation Were the people present for the stakeholder meeting / consultation process represent the true community around the area. What exact process was used to consult the people including the language used to brief about the project activity. There has been absolutely no detail about the village surrounding the site, the population, general activities in the villages etc. All this is an integral part of the whole process.	The aspect of this local stakeholder consultation has been considered during Pre-Validation process and resulted in CAR G1. As per the evidence provided/LSC/ the he following stake holder have been considered for the activity 1. Panchayat. 2. Local community 3. GEDA 4. GEB i.e. later changed to GETCO These stake holders are the ones involved in project right from stage of inception, implementation through generation. Local communities were contacted through Sarpanch of each village and minutes of meetings were written in presence of members of gram panchayat and village Sarpanch. Local community praised the project for its non-polluting nature and showed concerns about safety issues which were properly addressed and answered to. The true community around wind farm site is represented by nearby villagers, and people present on wind farm sites. The O&M people on the farm sites were interviewed during validation process.

6 VALIDATION OPINION

The Rolex Rings Private Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "*8.75 MW Wind Power Project in Gujarat*" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), the simplified modalities and procedures for small scale CDM project activities of annex II to decision 21/CP.8 and the relevant decisions by COP/MOP and CDM Executive Board.

The project intends to reduce GHG emissions by reducing use of electricity generated in the western regional grid of India, which predominantly uses fossil fuels, by grid-connected wind turbines with a capacity of 8.75 MW.

A risk based approach has been followed to perform this validation. In the course of the draft validation 9 Corrective Action Requests (CARs) and 12 Clarification Requests (CRs) were raised and successfully closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria.

In detail the conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (India) and all relevant UNFCCC requirements for CDM. Project activity approval has been obtained from National CDM Authority as DNA of India vides the Letter of Approval (LoA) dt 03 Nov'06.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of **153,426** tCO_2eq is most likely to be achieved within the 10 years (fixed) crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Essen, 2006-12-07

Rainer Winter

TÜV NORD JI/CDM Certification Program

7 REFERENCES

Table 7-1: Documents provided by the project proponent

Reference	Document
/LOA-H/	Letter of Approval of Indian Government dt 03 November 2006.
/MD/	Management decision for CDM consideration dated 07 October 2002
/MOC/	Modalities of communicating with the CDM EB & the UNFCCC Secretariat, issued on 15 Nov'06.
/PDD/	1. Draft Project Design Document entitled "8.75 MW Wind Power Project In Gujarat", version 15/12/2005 hosted for stakeholder commenting during 19/05/2006 to 17/06/2006. 2. Final Project Design Document entitled "8.75 MW Wind Power Project In Gujarat", version 07/12/2006 (corrected based on DVR)
/CDM-SSC-Bundle/	Clean Development Mechanism Form for submission of bundled Small Scale Project Activities
/PWA/	Power Wheeling agreement 1. Wheeling agreement- COM/CPP/WF/243 dated 02.09.03 for 1.25 X 2 WTG – Bhogat. D.O.C 27.03.2003. 2. Wheeling agreement- COM/CPP/WF/NEW:1:1319 dated 24.10.2003 for 1.25 X 1 WTG – Bhogat. D.O.C 29.07.2003. 3. Wheeling agreement- 28.07.2005 dated 24.10.2003 for 1.25 X 1 WTG – Lamba. D.O.C 24.05.2005. 4. Draft wheeling agreement dated 22.05.2006 for 1.25 MW X 3 WTG at Vanku.
/XCS/	Baseline and Emission Reduction Calculations (Excel Sheets)
/EC/	Electricity certificate by GEDA. 1. Certificate for the share of electricity for month of May 2006-GEDA/PBR/PVT-WF/2005/132 dated 05.06.2006- Bhogat Site-(Installed capacity – 3.75 MW). 2. Certificate for the share of electricity for month of May 2005-GEDA/PBR/PVT-WF/2005/162 dated 04.06.2006-Lamba Site (Installed capacity -1.25 MW). 3. Certificate for the share of electricity for month of April 2006-GEDA/PBR/PVT-WF/06-07/028 dated 04.05.2006-Vanku Site (Installed capacity -3.75 MW)
/CR/	Commissioning Report: 1. Commissioning report GEDA/PWF/SEL/BHO-COM/2003-04/ 5176 & 5177dated 19.07.2003 for 1.25 MW X 2 WTG at Bhogat Along with Annex 1 (Electricity generation report signed by Asst. Director

Reference	Document
	GEDA)- WTG B1 & B2. 2. Commissioning report GEDA/PWF/SEL/BHO-COM/2003-04/ 10675 dated 30.08.2003 for 1.25 MW X 1 WTG at Bhogat Along with Annex 1 (Electricity generation report signed by Director GEDA), Annex II- Micrositing Drawing, Annex III- Details of WTG, Annex IV- Certificate for electrical installation. (WTG B4). 3. CRs- Commissioning report GEDA/PWF/SGWPL-RRPL/VANKU/372dated 28.04.06 for 1.25 MW X 1 WTG at Vanku. D.O.C – 27.03.06 with micrositing drawing. (WTG – NO – SEL/1250/05-06/0141). 4. Commissioning report GEDA/PWF/SGWPL-RRPL/VANKU/252 dated 08.04.06 for 1.25 MW X 2 WTG at Vanku. D.O.C – 27.03.06 with micrositing drawing.(WTG – NO – SEL/1250/05-06/0142 & 143). 5. Commissioning report GEDA/PWF/RRPL-COM/2005-06/1118 dated 01.06.2005 for 1.25 MW X 1WTG at Lamba D.O.C – 24.05.2005 with micrositing drawing.(WTG – NO – SU/1250/05-06/0068).
/PO/	Purchase order stating the capacity of each WTG of 1250 KW, LOI to Suzlon and order acceptance and acceptance of LOI from Ms. Suzlon.
/LSC/	Proof of local stake holder consultation in May 2006.
/SD/	Proof of starting date of the project activity as per C.1.1. of the PDD
/CPP/	List of Captive Power Plants in Gujarat.
/CAC/	Chatterd Accountant certificate of the Project IRR with out CDM benefits.
/IRR/	IRR calculation sheet with and with out CDM benefits.
/PCT/	Power consumption trend and power bills for 2003 to 2006 of RRPL.

Table 7-2: Background investigation and assessment documents

Reference	Document
/AMS-I.D./	AMS-I.D.: “Renewable electricity generation for a grid” (Version 8 dt. 2006-03-03, Version 9 dt 2006-07-28)
/AR/	Western Regional Electricity Board; Annual Report 2004-2005
/CPM/	TÜV Nord JI / CDM CP Manual (incl. CP procedures and forms)
/CBD/	CO_2 Baseline Database for Indian Power Sector -User Guide, Ver 1.0 dated 4th Oct’06 published by CEA.

Reference	Document
/GCSCP/	UNFCCC: Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for submissions on methodologies for small-scale CDM project activities (F-CDM-SSC-Subm)
/IPPC-RM/	Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual.
/IPPC-GP/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000.
/KP/	Kyoto Protocol (1997)
/MA/	Decision 17/CP.7 (Marrakesh – Accords)
/SMP/	Simplified modalities and procedures for small–scale clean development mechanism project activities (Annex II to Decision 21/CP.18)
/VVM/	IETA, PCF Validation and Verification Manual (V.4)
/WP/	Wind Power: Experiences and future directions (A work shop conducted by TERI), Page 8, Page 19
/SZ/	All these wind turbines were installed by Suzlon in state of Gujarat at wind farms of Bhogat and Sanodar in Sep'03.

Table 7-3: Websites used

Reference	Link	Organisation
/dna-i/	www.envfor.nic.in/cdm/index.htm	The National Clean Development Mechanism (CDM) Authority of India
/sz/	http://www.suzlon.com/	Suzlon Energy Limited
/unfccc/	http://cdm.unfccc.int	UNFCCC
/wreb/	http://wreb.gov.in/	Western Regional Electricity Board
/cea/	www.cea.nic.in	Central Electricity Authority
/imp/	www.powermin.nic.in	Indian Ministry of Power
/mnes/	www.mnes.nic.in	Ministry of non-conventional energy sources

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/IM01/	T	☒ Mr. ☐ Ms.	Mr. Sharad Jain	Suzlon Windfarm Services Ltd.,- In Charge O & M
/IM02/	T	☒ Mr. ☐ Ms.	Mr . Rajesh Mandya	Operators –Sub station-Bhogat
/IM03/	V	☒ Mr. ☐ Ms.	Mr. Manish Mandeka	Rolex Rings Pvt. Limited.-M.D
/IM04/	V, T	☒ Mr. ☐ Ms.	Mr. Haspreet Singh	Emergent Ventures India Pvt. Ltd.

[1)] Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

Validation Protocol

ANNEX: VALIDATION PROTOCOL

Table 1: Mandatory Requirements for Small Scale 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	OK (unilateral project activity)	Table 2, Annex 1 Party will be identified in due time
2. The project shall assist non-Annex I Parties in achieving sustainable development and the project has obtained confirmation by the host country that the project assists in achieving sustainable development	Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	OK	Table 2, Section A.3 GHA dt 03/11/06 from MoEF, Govt of India.
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC?	Kyoto Protocol Art. 12.2.	OK	Table 2, Section E.4.1
4. The project has the written approval of voluntary participation from the designated national authorities of each party involved	Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a	OK	Table 2, Section E.1 to E.4
5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	~~CAR B1-B2, CR B1-B4~~	Table 2, Section B.2.1 and E 4.1
6. Reduction in GHG emissions must be additional to any that would occur in absence of the project activity, i.e. a CDM project	Kyoto Protocol Art. 12.5.c,	OK	

Requirement	Reference	Conclusion	Cross Reference / Comment
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	Simplified Modalities and Procedures for Small Scale CDM Project Activities §26		
7. Potential public funding for the project from Parties in Annex I is not a diversion of official development assistance	Marrakech Accords (Decision 17/CP.7)	OK	No public funding is involved
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakesh Accords (CDM modalities§ 29)	OK	Indian DNA: Ministry of Environment and Forests
9. The host country is a Party to the Kyoto Protocol	Marrakesh Accords (CDM modalities§ 30)	OK	Yes, India, the host country, has ratified the Kyoto Protocol on 26 August 2002.
10. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 I of the Marrakesh Accords and shall not be a debundled component of a larger project activity	Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c	~~CR A1, A2~~	Table 2, Section A.1
11. The project design document shall conform with the Small Scale CDM Project Design Document format	Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A	OK	The Simplified Project Design Document for Small-Scale Project Activities; Version 2 from 8 July 2005 is used for submitting.
12. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK	Table 2, Section A.1.3 and B.1 The project activity confirms to category I.D. “Renewable Electricity Generation for a Grid”

Requirement	Reference	Conclusion	Cross Reference / Comment
13. Comments by local stakeholders are invited, and a summary of these provided	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b	~~CAR G1~~	Table 2, Section G
14. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	OK	Table 2, Section F According to the legislation of India an Environmental Impact Assessment of the project activity is not required.
15. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available	Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d	OK	The PDD was made available for public commenting on the UNFCCC website with a linkage to TÜV NORD website www.global-warming.de from 19/05/2006 to 17/06/2006. One comment has been received.

Table 2: Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. Project Description The project design is assessed.					
A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity.					
A.1.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 l of decision 17/CP.7 on the modalities and procedures for the CDM?	/PDD/ (A.4.2.) /IM03/ /SMP/	DR, I	Yes, the installed capacity is 8.75 MW and thus lower than the threshold of small-scale project activities of 15 MW. The project eligibility needs clarification by providing the proof of rated capacity of WTGs. The information related to the transfer of technology and a description of how environmentally safe and sound technology is to be used is not provided in the section A.4.2. of the PDD.	OK ~~CR A1~~ ~~CR A2~~	 OK OK
A.1.2. The small scale project activity is not a debundled component of a larger project activity?	/PDD/ (A.4.5.) /IM01/ /IM03/	DR, I	It has been verified that the criteria of appendix C of the simplified modalities and procedures were satisfied. It is not a debundled project activity.	OK	
A.1.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	/PDD/ (A.4.2.) /AMS-I.D./	DR	Yes, the proposed project activity confirms to project category I.D., renewable electricity generation for a grid	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project.					
A.2.1. Are the project's spatial (geographical) boundaries clearly defined?	/PDD/ (A.4.1.) /IM01/	DR, I	The project boundary consists of the wind farms located at Bhogat, Lamba, Mandvi in the state Gujarat.	OK	
A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined?	/PDD/ (B.4.)	DR	The transmission grid is stated as a part of the project boundary. Clarification requested, whether the grid is between WTG and the sub-station or is it a transmission grid from sub-station onward.	~~CR A3~~	OK
A.2.3. Does the project design engineering reflect current good practices?	/PDD/ (A.2.) /sz/ Validators experience	DR	Yes, the power generation technology employs environmentally safe & sound technology.	OK	
A.2.4. Will the project result in technology transfer to the host country?	/PDD/ (A 4.2.)	DR	Refer comment under A 1.1.	~~CR A2~~	OK
A.2.5. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions	/PDD/ (A.4.2. D.5)	DR	There's no initial training and maintenance required any more as the operation and maintenance is performed by Suzlon Windfarm Services Ltd. For 3 years. Nevertheless the	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
for meeting training and maintenance needs?	/IM03/		operation and maintenance of WTG requires high level of competence and thus provides sustainable employment opportunities.		
A.2.6. Has the PDD form been duly filled?	/PDD/	DR	Under the section A.2. of the PDD, the execution period of the project activities is stated as May 2003 to March 2005 in a phased manner. The same does not co relate to the information provided in sections C and E. The chronological description of the phased execution w.r.t. the 3 sites covering 7 WTGs is not provided. The name of the person as indicated in the sections B.5 and D.6 of the PDD appears to be project participant as meant in Annex-1. It is necessary to clarify the same in the sections B.5 and D.6 of the PDD.	~~CAR A1~~ ~~CR A4~~ ~~CR A5~~	OK OK OK
A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed					
A.3.1. Will the project create other environmental or social benefits than GHG emission reductions?	/PDD/ (A.2.)	DR	Yes, the project has social and environmental benefits besides GHG emission reductions. It helps antagonize power shortage in the state of Gujarat and conserve natural resources.	OK	
A.3.2. Will the project create any adverse environmental or social effects?	/PDD/ (A.2.)	DR	No, there are only negligible adverse environmental effects.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.3.3. Is the project in line with sustainable development policies of the host country?	/PDD/ /LOA-H/	DR	Yes.	OK	
A.3.4. Is the project in line with relevant legislation and plans in the host country?	/PDD/ (A.2.) /LOA-H/ /mnes/	DR	Yes, the Government of India announced an objective of increasing the share of renewables to 10 % of additional capacity in the next years (by 2012).	OK	
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. Is the selected baseline methodology in line with the baseline methodologies provided for the relevant project category?	/PDD/ (B.2.)	DR	Yes, the chosen baseline methodology refers to category I.D. “Grid connected renewable electricity generation’” acc. to Appendix B of Annex II “Simplified modalities and procedures for small-scale CDM project activities”.	OK	
B.1.2. Is the baseline methodology applicable to the project being considered?	/PDD/ (B.2.) /AMS I.D./	DR	Yes. Applicable as per 9(b) of AMS I.D. Here the year 04-05 grid emission factor of Western Region Grid (Connected to grid system of the	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			project activity) has been considered for calculating the weighted average emissions (in kg CO_{2equ}/kWh.) of the current generation mix.		
B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario.					
B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers?	/PDD/ (B.3.) /SMP/	DR	According to attachment A of Appendix B the different barriers are demonstrated. Three alternatives are compared through the analysis of investment barriers. Under Section B.3. of PDD "Grid based power supply " is stated as Alt-1 under different fuel options – needs clarification. The comparison of project IRR with cost of capital does not co-relate to arguments required under Regulatory Risks of the section B.3 of the PDD. (cp. Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities) The argument related to the grid performance addressed under Technological Barrier in the section B.3 of the PDD is irrelevant and also not in line with Attachment A to Appendix B. Usage of coal as a feasible fuel options for	OK ~~CR B1~~ ~~CR B2~~ ~~CAR B1~~	 OK OK OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Captive Power Plant in the region needs to be elaborated in the PDD.	~~CR B3~~	OK
			The IRR calculation sheet shows the 10.61 % without CDM benefit. However, the section B.3 of the PDD mention the IRR without CDM benefit is 10.2 %. The PDD should include the right IRR figures.	~~CR B4~~	OK
			The official information and basis used for Levelized cost analysis is required to be clearly provided in the PDD.	~~CAR B2~~	OK
B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative?	/PDD/ (B.5. & Annex 4) /XCS/ /IM04/ /IPPC-GP/	DR, I	The source of the values in Annex 4 of the PDD was verified.		
			The value of auxiliary consumption for gas based power generation in Western Grid for the year 2004-05 as taken in Annex 4 of the PDD does not match with WREB Report 04-05.	~~CAR B3~~	OK
			The value of Gas Fuel CV as taken in Annex 4 of the PDD does not correspond to IPCC default value.	~~CAR B4~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.2.3. Are relevant national and/or sectoral policies and circumstances taken into account?		DR	Yes.	OK	
B.2.4. Is the baseline selection compatible with the available data?	/PDD/ (B.5. & Annex 4 /AR/	DR	Refer to section B.2.2.	~~CAR B3 & B4~~	OK
B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity?	/AR/ /IM03/	DR	Yes. Due to the power plants feeding the electricity grid of Gujarat (part of Western Regional Grid of India), the selected baseline is plausible. This was also verified during an interview.	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?	/PDD/ (C.1.) /IM03/	DR, I	Yes, the starting date of the project activity is 27/03/2003 and the expected operational lifetime is 20 years.	OK	
C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)?	/PDD/ (C.2.)	DR	Yes, the chosen crediting period is the fixed crediting period of 10 years. Crediting period start date stated as 01/04/2003. As per para 12 modalities and procedures of CDM the crediting period cannot	OK ~~CAR C1~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			start before registration date of the project. Also the submission date of draft PDD to DOE does not justify the claim of credit from retrospective effect. (cp. EB 23 decision number 90(a). Hence the PDD needs appropriate modification in the section.		
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 monitoring methodology.					
D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category?	/PDD/ (D.1.) /AMS-I.D./	DR	Yes, selected monitoring methodology is in line with the simplified monitoring methodology for small-scale projects of category I.D.	OK	
D.1.2. Is the monitoring methodology applicable to the project being considered?	/PDD/ (D.2.) /AMS-I.D./	DR	Yes, according to number 13 of I.D. the monitoring shall consist of metering the generated electricity.	OK	
D.1.3. Is the application of the monitoring methodology transparent?	/PDD/ (D.3.)	DR	Entry in data variable column of table in section D.3 of the PDD is not clear about which meter (SEB or individual WTG meter) will be taken as a basis for calculating emission reductions. Also it is not clear whether SEB meter are	~~CR D1~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			common for the wind farm or dedicated for RRPL.		
D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions?	/PDD/ (D.3.)	DR	Refer to D.1.3.	~~CR D1~~	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. Are the choices of project emission indicators reasonable?	/PDD/ (Section D)	DR	Since the project is based on renewable energy, there will be no project emissions.	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. If applicable, are the choices of leakage indicators reasonable?	/PDD/ (Section D) /AMS-I.D./	DR	According to number 12, I.D., leakage is not to be considered.	OK	
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. Is the choice of baseline indicators, in particular for baseline emissions,	/PDD/ (B.5. &		Based on the year 2004 – 2005 the grid emission factor was calculated with fuel data		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
reasonable?	Annex 7) /AMS-I.D./		and electricity generation in Western regional Grid. This is in correspondence with AMS I.D. The ex-post monitoring of grid emission factor is not addressed in the section D.3 of the PDD (Cp AMS ID ver9).	~~CAR D1~~	OK
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?	/PDD/ (Section D) /IM03/	DR, I	Yes, project will be implemented by RRPL. Responsibility of project management is briefly described in PDD.	OK	
D.5.2. Is the authority and responsibility for registration monitoring measurement and reporting clearly described?	/IM01/ /IM03/	I	Yes, the "Suzlon Windfarm Services" is responsible for monitoring & reporting.	OK	
D.5.3. Are procedures identified for training of monitoring personnel?	/IM01/	I	During interview it was confirmed that initial training of personnel was performed.	OK	
D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/PDD/	DR	Generating electricity through wind turbines leads to zero emissions. So such emergencies are not expected.	OK	
D.5.5. Are procedures identified for calibration of monitoring equipment?	/IM01/	I	Procedure for calibration of monitoring equipment was verified during interview.	OK	
D.5.6. Are procedures identified for maintenance	/IM01/	I	Procedure for maintenance of monitoring	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
of monitoring equipment and installations?			equipment was verified during interview.		
D.5.7. Are procedures identified for monitoring, measurements and reporting?	/IM03/	I	Yes.	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)	/IM01/	I	Yes.	OK	
D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/IM01/	I	Yes.	OK	
D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable?	/IM01/ /sz/	I	Yes.	OK	
D.5.11. Are procedures identified for project performance reviews?	/IM01/	I	Yes.	OK	
D.5.12. Are procedures identified for corrective actions?	/IM01/	I	Yes.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E. Calculation of GHG emission 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. 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 project emissions captured in the project design?	/PDD/ (E.1.)	DR	Since the project is renewable energy based, there will be no project emissions.	OK	
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 leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed?	/PDD/ (E.1.) /AMS-I.D./	DR	Leakage calculations are not applicable according to AMS I.D.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations.					
E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions?	/PDD/ (Annex 4) /wreb/ /IPCC-GP/	DR	Yes, the baseline emission boundary is the electricity grid of Indian Western Region (2004 – 2005). All relevant sources of GHG are covered.	OK	
E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design?	/PDD/	DR	Yes, all aspects are captured.	OK	
E.3.3. Have all relevant greenhouse gases and sources been evaluated?	/PDD/ (Annex 4)	DR	Yes, annex 4 gives a sufficient overview of GHG sources.	OK	
E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice?	/PDD/ (Section B) /AMS-I.D./	DR	Yes, the baseline was calculated in correspondence of AMS I.D.	OK	
E.3.5. Are the calculations documented in a complete and transparent manner?	/PDD/ (E2) (Annex 4)	DR	Refer to B.2.2. The PLF (29.7%) considered for estimating power generation (table E2 of PDD for the year 2006-07) is not consistent with the achieved PLF for 04-05 and with the statement under A.4.3. of the PDD i.e. 2.3 GWh per WTG per	~~CAR B2 & B3~~ ~~CAR E1~~	OK OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			year (PLF 21%). The project electricity figure for year 2005-06 in E.2 of the PDD is only up to Nov 05. Clarification is requested for up to date figure. The unit of the "electricity generation wheeled to users" in the top table of section E.3 of the PDD is incorrect. Also the units for figures in the Annex- 4, page 28 is missing.	~~CR E1~~ ~~CR E2~~	OK OK
E.3.6. Have conservative assumptions been used?	/PDD/ (Section B & Annex 4)	DR	Yes.	OK	
E.3.7. Are uncertainties in the baseline emissions estimates properly addressed?	/PDD/ (Section B & Annex 4)	DR	Yes.	OK	
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 case?	/PDD/ (E.1. & E.2.)	DR	Yes, since the wind farm project is a zero emission project.	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
F. Environmental Impacts It is assessed whether environmental impacts of the project are sufficiently addressed.					
F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity?	/IM01/ /IM04/	DR, I I	During an interview it was verified that an EIA is not required by the Government of India.	OK	
F.1.2. Does the project comply with environmental legislation in the host country?	/LOA-H/ /IM01/ /IM04/ Validators experience	DR	Yes. The approval of DNA was received to the project.	OK	
F.1.3. Will the project create any adverse environmental effects?	/PDD/ (F.1.)	DR	No, the project is environmental safe.	OK	
F.1.4. Have environmental impacts been identified and addressed in the PDD?	/PDD/ (F.1.)	DR	There are no significant environmental impacts arising out of this type of projects.	OK	
G. Comments by Local Stakeholder Validation of the local stakeholder consultation process.					
G.1.1. Have relevant stakeholders been consulted?	/PDD/ (G.1.) /LSC/	DR	The process of carrying out local stockholder consultation is not described in transparent manner in the section G.1 of the PDD. And also the details in line with stake holder comment are required to be provided in the section G.1 of the PDD (Cp. /LSC/).	~~CAR G1~~	OK
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/PDD/ (G.1.)	DR	Refer to G.1.1.	~~CAR G1~~	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
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?	Validators experience	DR I	There is no stakeholder consultation process required by Indian government.	OK	
G.1.4. Is a summary of the comments received provided?	/PDD/ (G.2.)	DR	Yes, a summary of the comments was addressed in the PDD.	OK	
G.1.5. Has due account been taken of any comments received?	/PDD/ (G.3.)	DR	Since there is no adverse comment on the project activity, it hasn't been taken account of.	OK	

Table 3: Resolution of Corrective Action and Clarification Requests

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR A1 Under the section A.2. of the PDD, the execution period of the project activities is stated as May 2003 to March 2005 in a phased manner. The same does not co relate to the information provided in section C and E.	A.2.6.	The PDD has been modified, in section A.2	The PDD addresses this in correct and consistent way.
CAR B1 The argument related to the grid performance addressed under Technological Barrier in the section B.3 of the PDD is irrelevant and also not in line with Attachment A to Appendix B.	B.2.1.	Barrier related to grid performance has been describes as "Other Barriers", in modified PDD section B.3	OK
CAR B2 The official information and basis used for Levelized cost analysis is required to be clearly provided in the PDD.	B.2.1	PDD has been modified to include levelized cost concept in a detailed manner along with reference material. The whole process has been clearly stated in PDD.	The B.3 of the PDD describes the comprehensive information with official reference.
CAR B3 The value of auxiliary consumption for gas based power generation in Western Grid for the year 2004-05 as taken in Annex 4 of the PDD does not match with WREB Report 04-05.	B.2.2.	The correct value of auxiliary consumption has been incorporated in calculation.	OK
CAR B4	B.2.2.	The correct value has been	The correct IPCC CV for Gas

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
The value of Gas Fuel CV as taken in Annex 4 of the PDD does not correspond to IPCC default value.		incorporated in calculation.	Fuel has been taken for calculation of GEF and found OK in the spread sheet. However, the same has been removed from Annex-4 of the PDD. Hence CAR is closed.
CAR C1 Crediting period start date stated as 01/04/2003. As per para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project. Also the submission date of draft PDD to DOE does not justify the claim of credit from retrospective effect. (cp. EB 23 decision number 90(a). Hence the PDD needs appropriate modification in the section.	C.1.2.	In modified PDD, crediting period starts from the date of registration. PDD modified section C.2.2.1	The corrections made are OK.
CAR D1 The ex-post monitoring of grid emission factor is not addressed in the section D.3 of the PDD (Cp AMS ID ver9).	D.4.1.	The D.3 of the PDD is modified appropriately.	The PDD addresses the same in the correct way.
CAR E1 The PLF (29.7%) considered for estimating power generation (table E2 of PDD for the year 2006-07) is not consistent with the achieved PLF for 04-05 and with the statement under A.4.3. of the PDD i.e. 2.3 GWh per WTG per year (PLF 21%).	E.3.5.	The PDD has been modified for guaranteed 2600000 units per WTG by Suzlon and same PLF (@ 23.74 %) has been used to calculate expected CER.	The corrections w.r.t. estimated generation in the PDD are consistent.
CAR G1 The process of carrying out local stockholder	G.1.1.	The PDD has been modified to include stakeholder consultation in	OK

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
consultation is not described in transparent manner in the section G.1 of the PDD. And also the details in line with stake holder comment are required to be provided in the section G.1 of the PDD (Cp. /LSC/).		section G.1	
CR A1 The project eligibility needs clarification by providing the proof of rated capacity of WTGs.	A.1.1.	Commissioning certificate containing details of rated capacity of WTGs issued by GEDA has been provided to DOE.	The certificate /PO/ provided by RRPL is reviewed and found OK ,ie, capacity of each WTG is 1.25 MW.
CR A2 The information related to the transfer of technology and a description of how environmentally safe and sound technology is to be used is not provided in the section A.4.2. of the PDD.	A.1.1.	No transfers of technology from annex-1 countries take place. (PDD modified sec. A.4.2). As the WTGs are made in India by Suzlon.	OK
CR A3 The transmission grid is stated as a part of the project boundary. Clarification requested, whether the grid is between WTG and the sub-station or is it a transmission grid from sub- station onward.	A.2.2..	The project boundary has been redefined in modified PDD, modified in section B.4	OK

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
CR A4 The chronological description of the phased execution w.r.t. the 3 sites covering 7 WTGs is not provided.	A.2.6.	The commissioning dates of WTGs has been included in modified PDD, modification in section A.4.1.3	The same is clearly provided in the section A.4.1.3. of the PDD.
CR A5 The name of the person as indicated in the sections B.5 and D.6 of the PDD appears to be project participant as meant in Annex-1. It is necessary to clarify the same in the sections B.5 and D.6 of the PDD.	A.2.6.	The PDD has been modified to include the same information in sections B.5 and D.6	OK
CR B1 Under Section B.3 of PDD “Grid based power supply“ is stated as Alt-1 under different fuel options – needs clarification.	B.2.1.	The PDD has been modified in section B.3	OK
CR B2 The comparison of project IRR with cost of capital does not co-relate to arguments required under Regulatory Risks of the section B.3 of the PDD. (cp. Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities)	B.2.1.	The comparison of Project IRR has been included in Investment barrier and PDD has been modified for regulatory barriers.	OK
CR B3 Usage of coal as a feasible fuel options for Captive Power Plant in the region needs to be elaborated in the PDD.	B.2.1	The same has been referenced from a published document, clearly mentioned in PDD. An additional document has been submitted to DOE showing Coal power plants in	OK

Draft report clarification requests and corrective action requests by validation team	Ref. To checklist question in table 2	Summary of project owner response	Validation team conclusion
		state of Gujarat, same has been included in PDD.	
CR B4 The IRR calculation sheet shows the 10.61 % without CDM benefit. However, the section B.3 of the PDD mention the IRR without CDM benefit is 10.2 %. The PDD should include the right IRR figures.	B.2.1	The PDD has been modified to include correct IRR figures based on calculation done by independent CA firm.	Correct and consistent figure of IRR is mentioned in the PDD.
CR D1 Entry in data variable column of table in section D.3 of the PDD is not clear about which meter (SEB or individual WTG meter) will be taken as a basis for calculating emission reductions. Also it is not clear whether SEB meter are common for the wind farm or dedicated for RRPL.	D.1.3.	The PDD has been modified to clarify the monitoring variable. Modified in table D.3	OK
CR E1 The project electricity figure for year 2005-06 in E.2 of the PDD is only up to Nov 05. Clarification is requested for up to date figure.	E.3.5.	The E.2 of the PDD is corrected considering 18200 MWh wheeling to grid from Dec'06.	The correction is OK.
CR E2 The unit of the "electricity generation wheeled to users" in the top table of section E.3 of the PDD is incorrect. Also the units for figures in the Annex- 4, page 28 is missing.	E.3.5.	The PDD has been modified accordingly to incorporate the units of generation.	OK

RWTÜV

CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Rainer Winter

born on February 1963, 21st

satisfies the requirements as specified in the RWTÜV JI/CDM EB Directives and is hereby appointed as

RWTÜV JI/CDM Assessor

The present appointment will terminate on February 2007, 27th

Certification registration No. 04 02 154-03

Essen, March 2004, 1st

Head of RWTÜV JI/CDM Certification Body
of RWTÜV Systems GmbH

RWTÜV

CERTIFICATE OF APPOINTMENT

Mr. Asim Kumar Jana

born on November 20, 1966

satisfies the requirements as specified in the RWTÜV JI/CDM CP Directives and is hereby appointed as

RWTÜV JI/CDM Assessor

The present appointment will terminate on February 10, 2008

Certification registration No. 0404134-014

Essen, February 11, 2005

Head of RWTÜV JI/CDM Certification Program
of RWTÜV Systems GmbH

TÜV NORD

CERTIFICATE OF APPOINTMENT

Mr. Patel Pankaj

born on 1961-07-20

satisfies the requirements as specified in the TÜV NORD JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Expert

The present appointment will terminate on 2008-11-01

Certification registration No. 06 05 02 - 31

Essen, 2005-11-02

Head of TÜV NORD JI/CDM Certification Program
of TÜV NORD CERT GmbH

RWTÜV

CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Wolfgang Wielpütz

born on December 1964, 13rd

satisfies the requirements as specified in the RWTÜV JI/CDM EB Directives and is hereby appointed as

RWTÜV JI/CDM Assessor

The present appointment will terminate on February 2004, 27th

Certification registration No. 98639-01

Essen, March 2004, 1st

Head of RWTÜV JI/CDM Certification Body
of RWTÜV Systems GmbH