



# VALIDATION REPORT

ALEMBIC LIMITED

5 MW WIND POWER PROJECT OF ALEMBIC  
LTD AT BHAVNAGAR, GUJARAT, INDIA

**Report No: 53700707 – 07/98**

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Approved by:  <b>Mr. Rainer Winter</b>	Organisational unit: <b>TÜV NORD JI/CDM Certification Program</b>
Client:  <b>ALEMBIC LIMITED</b>	Client ref.:  <b>MR. R.K.BAHETI ( DIRECTOR &amp; PRESIDENT - FINANCE)</b>
<p>Summary/Opinion:</p> <p>The Alembic Limited has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "5 MW Wind Power Project of Alembic Ltd at Bhavnagar, Gujarat, India", 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), and the relevant decisions by COP/MOP and CDM Executive Board.</p> <p>The purpose of this project activity is to generate electricity using renewable sources (wind) and wheel to Alembic manufacturing plant by through state grid, thereby displacing the grid generated electricity.</p> <p>A risk-based approach has been followed to perform this validation. In the course of the draft validation, 13 Corrective Action Requests (CARs) and 19 Clarification Requests (CRs) were raised and successfully closed.</p> <p>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.</p> <p>In detail the conclusions can be summarised as follows:</p> <ul style="list-style-type: none"> <li>- 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 vide the Letter of Approval (HGA) F.No.4/8/2006-CCC, dated 03/11/2006.</li> <li>- The project additionality is sufficiently justified in the PDD.</li> <li>- The monitoring plan is transparent and adequate.</li> <li>- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 89698 t CO<sub>2e</sub> is most likely to be achieved within the 10 years (fixed) crediting period.</li> </ul> <p>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.</p>	

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Report title:  <b>5 MW WIND POWER PROJECT OF ALEMBIC LTD AT BHAVNAGAR, GUJARAT, INDIA</b>	
Work carried out by:  <b>Manojkumar Borekar Swapnil Thanekar</b>	
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#### Indexing terms

Climate change  
 CDM  
 Validation  
 Kyoto Protocol

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- ☐ Limited distribution
- ☐ Unrestricted distribution

## Abbreviations

<b>Alembic</b>	Alembic Limited
<b>BAU</b>	Business as usual
<b>CA</b>	Corrective Action / Clarification Action
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CEA</b>	Central Electricity Authority
<b>CER</b>	Certified Emission Reduction
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CO<sub>2e</sub></b>	Carbon dioxide equivalent
<b>CP</b>	Certification Program
<b>CR</b>	Clarification Request
<b>DR</b>	Document Review
<b>DNA</b>	Designated National Authority
<b>E&amp;Y</b>	Ernst & Young
<b>EB</b>	CDM Executive Board
<b>EIA</b>	Environmental Impact Assessment
<b>GEB</b>	Gujarat Electricity Board
<b>GEDA</b>	Gujarat Energy Development Agency
<b>GHG</b>	Greenhouse gas(es)
<b>GPCB</b>	Gujarat Pollution Control Board
<b>GUVNL</b>	Gujarat Urja Vikas Nigam Limited
<b>GWh</b>	Gega Watt Hour
<b>HGA</b>	Host Government Approval
<b>I</b>	Interview
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IPP</b>	Independent Power Producer
<b>MW</b>	Megawatt
<b>MWh</b>	Megawatt hour
<b>ODA</b>	Official Development Assistance
<b>PDD</b>	Project Design Document
<b>PLF</b>	Plant Load Factor
<b>QC/QA</b>	Quality control/Quality assurance
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change

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## 1 INTRODUCTION

Alembic Limited, facilitated by Ernst & Young Pvt Ltd (E&Y), has commissioned the JI/CDM Certification Program (CP) of TÜV NORD CERT GmbH to validate the project:

“5 MW Wind Power Project of Alembic Ltd at Bhavnagar ,Gujarat, India”  
with regard to the relevant requirements for CDM project activities.

### 1.1 Objective

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

- the requirements of Article 12 of the Kyoto Protocol<sup>/KP/</sup>;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 17/CP.7<sup>/MA/</sup>; the annex to the decision;
- 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 (CERs).

### 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 (based on AMS-I.D: “Grid connected renewable electricity generation” version 11), which are included in the PDD<sup>/PDD1/</sup> and other relevant supporting documents.

The items covered in the validation are described below:

- **UNFCCC & Host Country Criteria**

- UNFCCC/Kyoto Protocol requirements, in particular,
  - o the requirements of the CDM as set out in decision 17/CP.7 (Marrakech Accords)<sup>/MA/</sup>,
  - o the present annex, and
  - o 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
- **Project Additionality**
- **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 TUV 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 CERT GmbH JI/CDM CP has, based on the recommendations in the Validation and Verification Manual<sup>VVM</sup>, employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs<sup>CPM</sup>. 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 participant. 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 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 Parties

India as a non Annex-I party is involved in the project activity.

### 1.3.3 Project Entities

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

<b>Project Proponent:</b>	Alembic Limited Alembic Road, Vadodara Gujarat PIN- 390003, India
Contact person:	Mr. R.K.Baheti (Director & President- Finance) +91 – 265 – 228 5124, +91 98243 99359 rajkumar_baheti@alembic.co.in
<b>Project Consultant:</b>	Ernst & Young Pvt Ltd Risk and Business Solutions 18 <sup>th</sup> floor, Express Towers Nariman Point, Mumbai PIN- 400 021, India
Contact Person:	Shashi Prakash (Senior Consultant) +91 - 22 - 6665 5661, +91 – 93242 10189 Shashi.Prakash@in.ey.com

### 1.3.4 Project location

The project site is located in Ukharla, Trambak, district of Bhavnagar, state-Gujarat, India and 225 meters from the mean sea level.

**Table 1-2: Project Location**

No.	Project Scope
Host Country	India
Region	Gujarat
Project location address	Ukharla, Trambak, District Bhavnagar, PIN – 364001
Latitude	21° 34' 23.2'' N
Longitude	72° 05' 52.1'' E

### 1.3.5 Technical project description

M/s Alembic Limited is a pharmaceutical company which is ISO-9001 and ISO-14001 certified with manufacturing practices and facilities that conform to WHO – GMP guidelines.

The proposed project activity involves the installation of four (4) number of S.64/1250, 50 Hz WTG's of 1.25 MW capacity each developed by M/S. Suzlon Energy Ltd designed as per the Germanischer Lloyd (GL) design standards<sup>/SOC/</sup>. The total installed capacity of the project activity with the four wind mills S4, S5, S6 and S7 is 5 MW.

The electricity generated in the project activity is shared between the Panelav and Vadodara plants<sup>/SHR/</sup> thus displacing the equivalent amount of electricity from Gujarat Urja Vikas Nigam Limited (GUVNL) which is the part of Western region electricity grid of India.

The electricity generation from renewable sources (wind) is a carbon neutral energy input and is intended to reduce CO<sub>2</sub> emissions to the extent of equivalent electricity displaced in Western region grid of India which is predominantly fossil fuel based. The project activity was expected to deliver 89698 tCO<sub>2</sub>e over the chosen 10-years "non-renewable crediting period" as per PDD<sup>/PDD2/</sup>. Alembic intends to have this crediting period starting after the date of registration of this project activity.

The key parameters of the wind energy generator are given in tables 1-3 and 1-4:

**Table 1-3:** Technical and operational data

Operating Data S.64/1250 (50 Hz)	
Rotor diameter	64 m
Hub height	65 m (variable as per requirement)
Installed elec. output	1250 kW
Cut-in wind speed	3 m/s
Rated wind speed	12 m/s
Cut-out wind speed	25 m/s
Survival wind speed	67 m/s

**Table 1-4:** Rotor Data

Rotor, S.64/1250 (50 Hz)	
Blade	3 bladed horizontal axis
Swept area	3217 m <sup>2</sup>
Rotational speed	13.9 / 20.8 rpm
Regulation	Pitch-regulated



## 2 VALIDATION TEAM

The Validation team was led by:

- **Mr. Manojkumar Borekar:** The Validation Team was led by Mr. Borekar. Mr. Borekar is, M.Tech. (Energy Management), B.E. (Mechanical Engineering), and certified energy auditor by Bureau of Energy Efficiency of India. Currently he is TÜV CERT auditor for ISO 14001 and GHG/ Energy Auditor - CDM Services for TÜV NORD operation. He is an appointed assessor for JI/CDM certification program of TÜV NORD Systems GmbH and participated already several CDM/VER project validations and verifications.

For this validation he was assisted by:

- **Mr. Swapnil P Thanekar:** Mr. Swapnil P Thanekar is CDM Expert from TÜV NORD-Pune. He is M.Tech. (Heat Power), B.E. (Mechanical Engineering) and engaged with TÜV India operation. He has participated in several CDM/VER validations and verifications.

The validation report is verified by:

- **Rainer Winter.** The Validation Team was led by **Mr. Rainer Winter.** Mr. Winter works at TÜV NORD 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 CP.

### 3 METHODOLOGY

The validation of the project was carried from July'07 to October'07. It was divided into two phases: the pre-validation and the validation phase. The pre-validation consisted of the following three phases:

- A desk review of the PDD (incl. annexes) and supporting documents with the use of a customised validation protocol<sup>/CPM/</sup> according to the Validation and Verification Manual<sup>/VVM/</sup>;
- Background 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 TUV NORD website.

The 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 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 I to this report identifying 13 Corrective Action Requests and 19 Clarification Requests.

<b>Validation Protocol Table 1: Mandatory Requirements</b>			
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>	<b>Cross reference</b>
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>Corrective Action Request (CAR)</b> of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.</i>	<i>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.</i>

<b>Validation Protocol Table 2: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>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.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>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.</i>	<i>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.</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>Clarification</b> is used when the validation team has identified a need for further clarification.</i>

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

**Figure 1:** Validation protocol tables

## 3.2 Review of Documents

The draft PDD<sup>/PDD1/</sup> submitted by the Alembic Limited in July 2007 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 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

On 09<sup>th</sup>-11<sup>th</sup> August 2007, the TÜV NORD JI/CDM CP performed the on-site interview with the project proponent, project developer, plant operating personnel 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	- Chronological description of Project with documents of key steps
Mr. R.K.Baheti Director and President (Finance) Alembic Limited	- Technical details of the project realisation- project feasibility, designing, engineering, operational life time
Mr. S.S.Singh Deputy General Manager Alembic Limited	- Legal situation
Mr. Santosh M. Jejurkar AGM. (Business Finance) Alembic Limited	- Host Government Approval
	- Likely involvement of Annex-I Party
	- Approval procedures and status
	- Quality and environmental management system
	- Monitoring and measurement equipment
	- Financial aspects- Government Incentives for Wind based projects
	- Crediting period and its starting date
	- Project activity starting date.
	- Power Purchase Agreement

Interviewed Persons / Entities	Interview topics
	<ul style="list-style-type: none"> <li>- Sustainable development issues</li> <li>- Analysis of local stake holder consultation process</li> <li>- Training and competency of the staff members w.r.t project management</li> <li>- Roles &amp; responsibilities of the staff members w.r.t project management, monitoring and reporting</li> <li>- Technical specification data: capacity of turbines, power evacuation and transmission, expected PLF, energy generation</li> <li>- QC testing and calibration procedures and facility</li> <li>- Baseline study, leakage and additionality</li> <li>- Sources of finance for project activity, barrier of project activity, terms and condition with service company</li> </ul>
Mr. Shashi Prakash Senior Consultant – (E & Y)	<ul style="list-style-type: none"> <li>- Editorial aspects of PDD</li> <li>- Methodology selection aspects</li> <li>- Base line study, project emissions, leakage and additionality</li> <li>- Details of emission reduction calculation</li> </ul>

A detailed list including the functions or designations of the interviewed persons is given in chapter 7 (see. 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 report 13 CARs and 19 CRs are raised.

The CARs / CRs are documented in Annex addressed in section 4.

### 3.5 Public Stake Holder Comments

The PDD was made publicly available through TÜV NORD JI/CDM CP web site [www.global-warming.de](http://www.global-warming.de). Comments on the PDD were invited within 30 days, i.e. 03/07/2007 to 01/08/2007.

The received comments were also made publicly available on the same site with a hyperlink with UNFCCC. The comments received from two stakeholders were reviewed and taken into account during the course of validation. The summary of the comments is presented in section 5.

### **3.6 Finalising the report**

The draft validation report containing a set of CARs & CRs was submitted to the project proponent. The project design document was revised addressing the CARs & CRs issued by TÜV NORD JI/CDM CP. After reviewing the revised and resubmitted project documentation<sup>/PDD2/</sup>; resolving the CRs & CARs raised, TÜV NORD JI/CDM CP issues this final validation report and opinion.

In the course of this validation the most recent version of the CDM-SSC-PDD template, i.e. version 03; the valid version (Version 11) of the applied methodology, i.e. AMS-I.D are used and form the basis of the validation opinion.

## 4 VALIDATION FINDINGS

In the following paragraphs the findings from the desk review of the draft PDD<sup>/PDD1/</sup>, 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 <sup>1)</sup>	No. of CAR	No. of CR
General description of project activity (A) - Project boundaries - Participation requirements - Technology to be employed - Contribution to sustainable development	6	2
Project baseline (B) - Baseline Methodology - Baseline scenario determination - Additionality determination - Calculation of GHG emission reductions Project emissions Baseline emissions Leakage - Emission reductions - Monitoring Methodology - Monitoring of Project emissions Baseline emissions Leakage Sustainable development indicators / environmental impacts - Project management planning	5	16
Duration of the Project / Crediting Period (C)	1	1
Environmental impacts (D)	-	-
Stakeholder Comments (E)	1	-
<b>SUM</b>	<b>13</b>	<b>19</b>

<sup>1)</sup> The letters in brackets refer to the validation protocol

For an in depth evaluation of all validation items it should be referred to the validation protocol (Annex). Annex also includes all CARs and CRs (Table 3).

### 4.1 Participation Requirements

India as a non Annex-I party meets all relevant participation requirements. In the Letter of Approval<sup>/HGA/</sup> dated 03/11/2006, the Indian DNA, National CDM Authority



under Ministry of Environment & Forests confirmed the voluntary participation of Alembic 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.

This type of project activity is in line with sustainable development policies of the country and national regulation / policy on Environmental Protection, Electricity and Non Conventional Energy.<sup>/HGA/</sup>. Nevertheless in the Host Government Approval it is stated that project proponent has to comply with the following conditions:

- Alembic shall not sell the CERs to any agency/ company/ organization which purchases the CERs using ODA Funds
- Alembic shall inform the national CDM Authority regarding all transaction details of CERs including the name and address of the party to which CERs were sold within 30 days of transfer of the CERs
- Alembic shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- Alembic 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

## 4.2 Project design

The objective of this project activity is to use the kinetic energy of wind to generate electricity by installation of wind electric generators which use of state of art technology developed by Suzlon according to the Germanischer Lloyd (GL) design standards. The high velocity wind possesses considerable kinetic energy; when it passes over the blades of the wind turbines, it is converted into mechanical energy and rotates the wind blades. When the wind blades rotate, the connected generator also rotates, thereby producing electricity with the help of generator. The technology is a clean technology since there are no GHG emissions associated with the electricity generation. The project activity comprises of four (4) wind electric generators aggregating to 5 MW installed capacity. During the ten years of crediting period the project activity is likely to export 9900 MWh/year of net generated electricity to the Gujarat Electricity Board (GEB) which is interconnected to Western regional grid of India and hence Alembic plant located at Vadodara and Panelav.

Suzlon Energy Ltd, is an offshoot of Suzlon group, and considered to be one of the leading manufacturers of site specific Wind turbine generators with strong R & D backup having R & D Centers in Germany, Netherlands and Asia. They have supplied the model Suzlon S.64 for this project. Installation and operation of the windmills does not pose any environmental hazards. The host Government also

agrees to this fact that technology of harnessing wind power through windmills is environmentally safe and sound and hence does not ask for Environmental Impact<sup>1</sup> Assessment for this type of project.

The project activity would be incorporating technology for such kind of turbines which is well established and available in India and the project activity does not involve any transfer of technology. The technology being used is environmentally safe and sound.

According to sustainable development various social, economic and environmental benefits are achieved. The project activity would result in green house gas emission reductions, while also enhancing the employment of the local people during the construction and operation phases of this wind based power plant.

Based on the financial information furnished by the project participants, no ODA contribute to the financing of the project.

The geographical (the project is located at Ukharla, Trambak, Bhavnagar District, Gujarat in West of India) and temporal boundaries (10 years crediting period, 20 years operational lifetime) are clearly defined.

Nevertheless, CAR A1 and CAR A3 had to be raised in the course of the validation and were successfully closed (ref Annex: Validation Protocol - Table 3).

### 4.3 Baseline and Additionality

The project activity is grid connected renewable energy generation through wind turbines. The purpose of the project activity is to generate electricity through renewable resources (wind) and displace equivalent amount of electricity in the regional grid which is predominantly fossil fuel based. The selected baseline methodology is approved methodology for small scale "Grid connected renewable electricity generation" (AMS-I.D: Version 11: EB 31).

The selected baseline methodology, i.e., AMS-I.D is correctly applied to this type of grid connected renewable generation by wind. Paragraph 9 of the approved methodology applies to this project activity, which states that:

For all other systems, the baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg CO<sub>2</sub>e/kWh) calculated in a transparent and conservative manner as:

- a. A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology ACM0002. Any of the four procedures to calculate the operating margin can be chosen, but the restrictions to use the Simple OM and the Average OM calculations must be considered

<sup>1</sup> <http://envfor.nic.in/legis/eia/so1533.pdf>

OR

- b. The weighted average emissions (in kg CO<sub>2</sub>e/kWh) of the current generation mix. The data of the year in which project generation occurs must be used.

For the project activity, baseline emission reductions have been estimated using consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology ACM0002 (in tCO<sub>2</sub>e/GWh) of the current generation mix, using the most recent statistics available at the time of PDD submission (Paragraph 9, sub point (a)).

The emission coefficient has been calculated based on the baseline information of the Western region grid provided in Annex 3 of the PDD. The validation team has checked the underlying input values as well as the spreadsheet programming. As a result of this check the validation team is convinced of the results of the emission coefficient calculation and the chosen value. According to the CO<sub>2</sub> Baseline Database<sup>2</sup> (Version – 2.0, June 2007) published by CEA the combined margin grid emission factor for Western regional grid is 906 tCO<sub>2</sub>/GWh (in accordance with ACM0002 weight factors of  $w_{OM} = 0.75$ ;  $w_{BM} = 0.25$  are used). The resultant figure of 906 tCO<sub>2</sub>/GWh is deemed to be adequate, transparent as well as conservative.

The baseline calculation as furnished in the PDD under section B.6.3 was also reviewed by the validation team and found adequate.

Relevant national and 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.

### **Additionality**

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.<sup>/SMP/</sup>

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

<sup>2</sup> <http://www.cea.nic.in/planning/c%20and%20e/Government%20of%20India%20website.htm>

**Table 4-2: Additionality assessment**

Type of barrier <sup>1)</sup>	Argument	Assessment
(a)	<p>As per the Captive Power Plants: Case Study of Gujarat, India, In 2002, due to the interrupt and deficient supply of GEB electricity, approximate 20 % of electricity has been produced by CPP, as compared to total electricity generated in Gujarat state.</p> <p>Alembic decided to have partial self dependence for electricity. The decision of selection of wind energy was unlikely with respect to the various other options available to the project proponent. As per barrier analysis given under section B.5 of PDD the various alternatives available to the project proponent were</p> <ul style="list-style-type: none"> <li>a. Continuation of current practice</li> <li>b. Thermal power plant based on lignite / coal as fuel.</li> <li>c. Captive power plant based on Natural Gas</li> <li>d. Energy generation using renewable source of wind power.</li> </ul> <p>Above all alternatives are tested under investment, technological and prevailing practice barriers.</p> <p>Alembic had option to either continue the current practice of generation mix of electricity (Grid electricity, Natural gas based cogeneration turbines, Diesel generating (DG) set) or set up a captive unit based on coal/lignite or natural gas.</p> <p>As per the analysis made under table 8 “barrier analysis” in PDD, out of the various available options, wind was not the most attractive option for power generation. Coal/lignite based thermal power plant is always preferred, because of good PLF and abundant availability of coal/lignite, but there is always associated initial investments. Captive power plants based on natural gas was another option for the Alembic as they were already using the natural gas based turbine generators. But in order to increase the capacity, capital investment will be there. The wind based power plants are most capital intensive with respect to cost of generation due to low plant load factors when compared with Lignite, Coal and Natural gas based power plants<sup>/ADD/</sup>. Though wind energy is a clean energy, it is a costlier option, especially in India where availability of coal is in abundance. In addition to that, according to the World Energy Council report ‘India’s Energy Scenario, in 2020’ wind remains a costly option to generate power than other conventional fossil fuel based sources.</p>	<p>Validation team has analysed all most plausible alternatives to the proposed CDM project activity. The alternative “continue to use current generation mix of electricity” could be justified as a realistic and credible alternative in absence of the project activity. All other alternatives mentioned in PDD, cannot be considered as realistic alternatives as other alternatives demands extra capital investment. So only “continue to use current generation mix of electricity” remains as a plausible and credible alternative for the project activity hence selected as most likely scenario among other possible scenario. Hence for the financial assessment, power cost associate with continuation of current generation mix is considered. Analysis concludes that alternative (a), (b), (c) are financially viable alternatives as compared to the project activity, however that would led to higher emissions.</p>

(a)

Serious consideration of CDM revenue has been reflected from Copy of resolution passed by the Board of directors of the company in its meeting held at Vadodara dated 24/07/2003. Further more the source of finance (70% from loan and 30% from internal accruals) can be trace with the help of document “Estimated sources of finance V.H.Gandhi and CO. (Chartered Accountants), dated 20/04/2006”

The project IRR is calculated based on cash inflow and outflow without the consideration of source of financing (as per tool for demonstration and assessment of additionality page 5, footer 6). All necessary assumptions used in IRR calculation are declared in PDD and spread sheet-1 “IRR and CER calculations” submitted along with documentary evidences. The validation team assessed IRR for wind power project and found it's below the weighted average cost of capital. The average value of annualized Return on Capital (for the years 2000 – 01; 2001 – 02 and 2002 – 03) is 15.92 per cent. The main variable which can adversely affect Project IRR is saleable units (Plant load factor) and availability of grid. Although with CDM Benefits the Project IRR moves up to 16.39 per cent which is just above the benchmark and is respectable.

In order to arrive at the conclusion regarding the robustness of the financial attractiveness to reasonable variations in the critical assumptions, sensitivity analysis is opted. Realistic range of assumptions on PLF variations is considered. The PLF in the IRR calculations are taken as base (100 per cent) and the variation in the IRR with increasing and decreasing of PLF by  $\pm 1-5$  % are calculated.

Plant load factor (+) up / (-) down by (%)	Project IRR (%)
+5	15.70
+4	15.52
+3	15.34
+2	15.16
+1	14.98
0	14.80
-1	14.61
-2	14.43
-3	14.25
-4	14.07
-5	13.89

It is clear from above table that the project activity is not crossing the benchmark even after increasing the PLF by 5% and justifies that the proposed project activity is not the baseline scenario.

Validation team has checked the identified financial indicator (IRR). As per sub step 2a of additionality tool, the most suitable financial indicator (IRR)<sup>/xcs/</sup> for the proposed CDM project activity is calculated with the help of necessary supportive. IRR has been computed by considering the power cost associated with current generation mix (alternative a), because alternative (a), continuation of current practice remains as a plausible and credible alternative for the project activity as per step a. In order to verify the relevant benchmark value, validation team has referred all necessary supportive with spreadsheet. Further the assessment team has confirmed that, this benchmark has been consistently used in the past. The investment analysis is demonstrated in a transparent manner with help of spreadsheet. The calculation algorithm checked by validation team and found appropriate. All relevant critical techno-economic parameters and assumptions are included in the PDD. Further assumptions and input data for the investment analysis are consistent across the project activity and its alternatives. Clear comparison of the financial indicator for the proposed CDM activity has been properly demonstrated in the PDD. It's found that, project activity without CDM benefits unable to reach at yield i.e. annualized Return on Capital (for the years 2000 – 01; 2001 – 02 and 2002 – 03) (15.92 per cent). Sensitivity analysis is performed to ascertain the financial attractiveness is robust to reasonable variations in the critical assumptions. A realistic and reasonable range of critical assumptions are tested on investment analysis.



		<p>According to sensitivity analysis, IRR without CDM benefit is always below the benchmark for a reasonable variation in plant load factor of WTG.</p> <p>However, as per the above assessment, validation team concluded that, considered benchmark is not a project type specific. As per step 2b (c), a company internal benchmark (weighted average capital cost of the company) is applicable if there is only one potential project developer (e.g. when the project activity upgrades an existing process). Hence additionality argument in context of investment analysis is not a decisive barrier.</p> <p> <input type="checkbox"/> Argument not justified  <input type="checkbox"/> Argument not convincing  <input checked="" type="checkbox"/> Argument justified but not a decisive barrier  <input type="checkbox"/> Argument justified / significant barrier                 </p>
(c)	<p>The state policies for Gujarat were not subjected to create positive impacts to augment utilization of wind as source of power generation. The shifting nature<sup>/ADD/</sup> of policies is evident from its history. The state policies in Gujarat reveal that they are unfavourable for investments in wind based power generation<sup>/ADD/</sup>. During the period of January 1993-September 2001 the factors like low tariff<sup>/ADD/</sup> (INR 1.75/ kWh); 6 months banking period (compared to 12 months banking period to other states) and non availability of third party sale option. The effect of same is reflected by the statistics<sup>/ADD/</sup> reflecting absolutely no wind installations during the span of 1998-1999 till 2002-2003(during conceptualization of project activity). Further, the revised tariff structure during Oct-2001 to June 2002<sup>/ADD/</sup> brought increase in the tariff rate from previous INR 1.75/ kWh to INR 2.25<sup>/ADD/</sup> /kWh. The wheeling charges were doubled from 2% to 4%<sup>/ADD/</sup>. This policy also undergone change within 9 months and was replaced by new policy which is in effect from June 2002<sup>/ADD/</sup> till date. The tariff structure is INR 2.60/ kWh and banking period of six (6) months. Clearly the policies do not encourage installations in the wind base power generations.</p>	<p>Validation team has checked all applicable necessary regulatory documentary evidences. During the assessment, it is found that due to the regulatory barriers, there was no wind mill installation from 1998-1999 till 2002-2003 in Gujarat state. Hence, it is concluded that existing applicable regulatory policies (during conceptualization of project activity) requirements would led to implementation of technologies with higher emissions than carbon neutral technology like WTG.</p> <p> <input type="checkbox"/> Argument not justified  <input type="checkbox"/> Argument not convincing  <input type="checkbox"/> Argument justified but not a decisive barrier  <input checked="" type="checkbox"/> Argument justified / significant barrier                 </p>

(d)	<p>The wind based power plants are not the base load plants. After a long period of virtually no installations in Gujarat<sup>ADD/</sup>, Alembic went for a huge MW class installation. The major difficulties apparent were; the installation of turbines was based on the data available from authentic source of the project site in the Wind Energy Resources Survey in India, Vol. V which covered the data for the period from September 1996 to August 1997. Further, no other credible evidences of authentic information were available with the project proponent. The project proponent was first to stake wind mills on the site<sup>UCERT/</sup> where no other organization had taken the risk to install a wind mill.</p>	<p>As per the assessment, project proponent realizes the risk related to installation of project activity due to limited technical information (wind data). Validation team convinces that availability, such important technical information (site specific) is necessary, while taking a decision to invest the capital to install WTGs.</p> <p> <input type="checkbox"/> Argument not justified  <input type="checkbox"/> Argument not convincing  <input checked="" type="checkbox"/> Argument justified but not a decisive barrier  <input type="checkbox"/> Argument justified / significant barrier         </p>
(d)	<p>The project promoter is ISO – 9001 and ISO – 14001 certified pharmaceutical company with manufacturing practices and facilities that conform to WHO – GMP guidelines. Enterprising into the field of wind power generation was an entirely new activity for them, without prior experience and knowledge in this field. Hence, entering into this totally new and un-related field itself was a risky proposition for the project promoters. Further barrier faced by project proponent like transportation, installation of WTG over the mountainous terrains at site location.</p> <p>In order to enter into this business, the project promoter had to upgrade the knowledge and skill not only at the Management level but also for the subordinates who would look after this project.</p>	<p> <input type="checkbox"/> Argument not justified  <input checked="" type="checkbox"/> Argument not convincing  <input type="checkbox"/> Argument justified but not a decisive barrier  <input type="checkbox"/> Argument justified / significant barrier         </p>
<b>Assessment of the validation team</b>		<p> <input checked="" type="checkbox"/> Project is additional  <input type="checkbox"/> Project is not additional         </p>

<sup>1)</sup> 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 additionality of the project has been demonstrated as per the algorithm stipulated in the attachment A of Appendix B (Simplified Modalities and Procedure for small scale CDM). The additionality of project activity is demonstrated as below:

The additionality of the project has been demonstrated with the help of barrier due to prevailing practice (prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions). The various arguments provided under the barrier due to prevailing practice (regulatory barrier) which explain the random and unfavorable state government policies were found to be justified and considered decisive. The argument under other barriers as project proponent was first to stake wind mills on the site<sup>UCERT/</sup> and shoulder the risk to install a wind mill is considered as justified but not decisive barrier.

The need of CDM funds for the project activity, which will help to improve the project competitiveness, financial sustainability and help in the reduction of anthropogenic greenhouse gas emissions. Taking this into account, it is TUV's opinion that the

PDD sufficiently demonstrates that the project activity faces barriers and the barriers do not prevent the baseline scenario.

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

Nevertheless, CAR A2-A3, CAR A5-A6, CAR B1-B3, CAR B5, CR A1, CR B1-B16 had to be raised and were successfully closed (ref Annex: Validation Protocol – Table 3).

#### **4.4 Crediting Period**

The intended crediting period of the project is fixed 10 years (January 2008 to December 2017). The starting date of the crediting period is 01/01/2008 or date of registration of PDD whichever will be later in accordance with § 12 of CDM Modalities and procedures.

In the context of starting date of the project activity and the crediting period CAR C1, CR C1 were raised and successfully closed (ref Annex: Validation Protocol – Table 3).

#### **4.5 Monitoring Plan**

The project applies the monitoring methodology AMS I D: Grid connected renewable electricity generation: Version 11 and the latest version of Appendix B to the simplified M & P for Small Scale CDM project activities.

The project category is renewable electricity generation (wind) for a grid system having installed capacity less than 15 MW and hence as per appendix B- 'indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories', Version- 10 of the simplified modalities and procedures for small scale CDM project activities (FCCC/KP/2005/8/ADD.1), the proposed CDM project falls under category I.D – Grid connected renewable electricity generation.

Monitoring methodology designed for the real measurements of export of electricity to western region grid of India through WTG as well as import of electricity from grid.

The monitoring plan for the project activity has made provision to monitor net electricity exported to western region grid of India.

State electricity board is certifying agency for joint meter reading. Joint meter reading is certificate for electricity generated by wind farms for the month being taken by State electricity board in presence of Suzlon representative, involves the reading of cumulative export and import of electricity by all wind farms for project activity.

The procedure for calibration & maintenance of monitoring equipment are clearly mentioned as per QA/QC procedure of PDD.



Nevertheless, CAR A4-A5 had to be raised and was successfully closed (ref Annex: Validation Protocol – Table 3).

## 4.6 Calculation of GHG Emissions

Methodologies for calculating emission reductions are documented. The project intends to reduce carbon dioxide (CO<sub>2</sub>) emissions by generating electricity from wind turbines, which would be exported to the Western grid and hence Alembic plants.

Emissions by sources of GHGs due to the project activity within the project boundary are zero since wind power is a GHG emission free source of energy. The applicable project category from Appendix B i.e. Category I D does not indicate a specific formula to calculate the GHG emission reductions by sources. As per the simplified procedures for SSC project activities, no leakage calculation is required. GHG emission reduction by project activity is product of grid emission coefficient and electricity units generated by project activity.

The calculations of the baseline emission and emission reduction are documented in section B.6.3. and in Annexure 3 of PDD. For assessment please refer to section 4.3 of this report.

Nevertheless, CAR A4, B4 had to be raised and were successfully closed (ref Annex: Validation Protocol – Table 3).

Acc. to the final PDD the project is expected to reduce emissions of **89698 tCO<sub>2e</sub>** over a 10 years crediting period.

## **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**

PPL informed the various stakeholders such as local communities, farmers, and villagers about the project details in vernacular language through letters and have been directly asked to comment on the project through an open meeting among local stakeholders, project proponent (Alembic); local authorities on 03/12/2005<sup>/LSC/</sup>. Below evidences has been reviewed by validation team during site visit.

- Letter from Suzlon on dated 13/09/2003
- Local stakeholder interview on dated 03/12/2005 (VCD submitted)
- Letter from GEDA on dated 13/12/2006

A summary of the comments received and a note on how these concerns are addressed are included in the PDD.

Nevertheless, CAR E1 had to be raised and was successfully closed (ref Annex: Validation Protocol – Table 3).

## 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](http://www.global-warming.de) on 03 July 2007 and invited comments within 30 days, until 01 August 2007 by parties, stakeholders and UNFCCC accredited non-governmental organisations. Below comments have been received. Validation team has analysis of global stack holder comments. From assessment, it is concluded that, the response of project proponent found deemed OK. Project proponent has submitted the appropriate evidences, to substantiate the response wherever required.

**Table 5-1: Accounting of Hosting Comment -1**

<b>Commented by: Mr. Naveen Sharma</b> <b>Inserted on date: 31/07/2007</b> <b>Email: snaveen511@yahoo.com</b>		
Sr. No.	Stakeholder comments	Response of project proponent
1	The additionality argument uses data on the cost of installation and cost of unit generation from coal / lignite based power plants in Gujarat to conclude that this would have been the best possible option for Alembic limited. However, the authenticity of this conclusion is questionable as the project proponents have not provided any verifiable references for this crucial data.	The supportive document is submitted to the DOE and same is included as reference in revised PDD.
2	It is not clear how the return on capital for the last three years is computed; the PDD does not contain any information on the data that has been used to calculate the return on capital. Further the return on capital appears to have been calculated as the weighted average of the return on equity and return on debt and therefore can change if the debt equity ratio changes, Ideally, the return on capital should be calculated considering the debt equity ratio for the specific project under consideration.	The detailed sheet is included and the calculation is post tax in both the cases. The value of WACC is used as the tree year's average of the plants and the same is used for the decision making. The project proponent has been consistently adopting the WACC of the Company as benchmark for all projects and hence adoption of WACC of the Company as benchmark is acceptable.
3	As stated in the PDD, the project IRR is 14.42%, given that the project has a debt component, the equity IRR would be significantly higher. This appears to be case of window dressing to camouflage the real financial returns	Since there can be more than one potential project developer (as in the present case) as per the Additionality Tool of UNFCCC, appropriate financial indicator to be used is project IRR and not equity IRR.

	from the project	
4	Detailed assumptions for IRR calculation have not been disclosed in the PDD.	The same has been discussed in PDD.
5	It is not clear, why the cost of generation data for one year only has been considered, whereas for arriving at the investment benchmark the project proponent has conveniently used data for last three years. Moreover, cost of generation for HSD and NG would increase as the fuel prices would increase for year to year. We fail to understand how can an investment decision, which involves (as presumed by the project proponent) savings in fuel cost, can be taken without factoring for price escalation. Several regulatory commissions, in their orders, have accepted this and have provided for a fuel cost escalation.	<p>The weighted average cost of power for last three year average is used in the revised calculation. .</p> <p>According to additionality tool the benchmark should have been consistently used in the decision making. Therefore three years average is considered for the benchmark</p> <p>The Alembic plant is working from last 100 years and seen sudden fluctuation in the costs of energy. From last ten years, there was variation in the energy cost in both ways upwards and downward as well (Please see weighted average cost of electricity for last three years). Although escalation in the energy cost which may be positive or negative but conservatively 2.5% escalation is considered in the project activity.</p>
6	A comparison of the cost of various sources of electricity, as provided in the PDD, reflects that HT tariff is clearly the most expensive. It is therefore presumable that the electricity generated by the wind farm would displace HT tariff, further this can be corroborated by comparing the grid electricity drawn before and after implementation of the project activity. If the grid tariff is considered, the IRR for the project will be clearly higher than the benchmark. It is surprising how these observations are missed	The same has been corrected in PDD and IRR of the project with detailed excel sheet is submitted. As the continuation of current practices is the baseline option because no investment required in that case therefore the weighted average cost for three years is used in the calculation. The IRR is well below the benchmark of the company.
7	As per the metering regulations issued by the CEA on 17th March 2006, meters should be of accuracy class 0.2, whereas the meters of the project activity are of 0.5 class. These meters would need to be replaced in line with the specifications given in the metering regulations.	In the project activity for monitoring of electricity, 0.5 class meters are used. The project activity was commissioned in 30th September 2003 and this accuracy class was expectable. There are two meters installed at the site one meter which is in the custody of Alembic is installed in 33 KV line is 0.5 class and that is expectable as per CEA guidance. One main meter is installed in 66 KV line which is also 0.5 class and that is under custody of

		<p>Government department and therefore it is beyond the purview of project proponent. Other than this the regulation was issued in 2006 while the project commissioned in year 2003.</p> <p>Therefore the meter from project proponent side is following the present regulation also while the 66KV meter is beyond the control of project proponent may follow the regulation in future.</p>
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**Table 5-2: Accounting of Hosting Comment -2**

<b>Commented by:</b> Hiral Mehta <b>Inserted on date:</b> 01/08/2007 <b>Email:</b> - <a href="mailto:paryavarmitra@yahoo.com">paryavarmitra@yahoo.com</a>		
1	Whether state government department has issued any NOC to this project?	Yes, GEDA has given the NOC.
2	It is written in PDD that this project is developed due to funding available under CDM of UNFCCC. If the funding was on priority or sustainable development was priority?	The businesses work on the profit having the consideration for environment in the mind. Therefore the decision with CDM revenue was fulfilling the business requirement as well generating the green power therefore the sustainable development was the priority.
3	How power generated at Bhavnagar from wind energy being transferred at location of factory of Alembic?	With Western regional grid electric lines.
4	List of stakeholders which were present during consultation is not shown in PDD.	The signed list is available for the stakeholders meeting and same is recorded in CD.
5	Documentation on stakeholder meeting is not done in proper way. What were the exact discussion during meeting should be described.	The same has been discussed in revised PDD and submitted to validators.
6	Whether local villagers would be beneficiary of CDM revenue earned by company? Any plan has been develop to earmark certain fund from CDM revenue for community welfare?	The project has not received any funds and therefore not decided the accrual use of the funds.

## 6 VALIDATION OPINION

The Alembic Limited has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: “5 MW Wind Power Project of Alembic Ltd at Bhavnagar, Gujarat, India”, 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), and the relevant decisions by COP/MOP and CDM Executive Board.

The purpose of this project activity is to generate electricity using renewable sources (wind) and wheel to Alembic manufacturing plant by export it to the connected state grid, thereby displacing the grid generated electricity.

A risk-based approach has been followed to perform this validation. In the course of the draft validation 13 Corrective Action Requests (CARs) and 19 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 vide the Letter of Approval (HGA) F.No.4/8/2006-CCC, dated 03/11/2006.
- 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 89698 t CO<sub>2</sub>e 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, 2007-11-28



Rainer Winter



Manojkumar Borekar

TÜV NORD JI/CDM Certification Program

## 7 REFERENCES

**Table 7-1:** Documents provided by the project proponent

Reference	Document
<b>/ADD/</b>	<ol style="list-style-type: none"> <li>1. Comparison of options for distributed generation in India.</li> <li>2. Captive Power Plants: Case Study of Gujarat, India.</li> <li>3. Wind Power Policy – 2007</li> <li>4. Year wise Installation Statistics.</li> <li>5. Incentives declared by state government for private sector wind power projects.</li> </ol>
<b>/AR/</b>	Annual Reports 2003-04, 2005-06 for Alembic Limited.
<b>/BAL/</b>	Balance sheet for wind mill power for Alembic Limited, document number: ENG/COG/F/12/01, dated: 01/12/2005.
<b>/CC/</b>	Certificate of Commissioning issued by GEDA, reference number: GEDA/PWF/SEL/UKH-COM/2003-04/14976 issued on date 19/11/2003.
<b>/CER/</b>	Certificate of first applicant to file the application for the transfer of the turbine from the developer i.e. M/s Suzlon Developers Private. Limited, dated 10/05/2006.
<b>/CT/</b>	Training and competency certificates.
<b>/ERW/</b>	Emission reduction worksheet for Alembic, document number. ENG/COG/F/12/02, dated 01/12/2005.
<b>/HGA/</b>	Letter of Approval (Host country approval) of Indian Government (Ministry of Environment and Forests), reference number: F.No.4/8/2006-CCC, dated 03/11/2006.
<b>/IRR/</b>	Certified project IRR calculation sheets consisting of Investment Analysis, Returns from Project activity and profitability projections of the Project.
<b>/LSC/</b>	<ul style="list-style-type: none"> <li>• Letter from Suzlon on dated 13/09/2003</li> <li>• Local stakeholder interview on dated 03/12/2005 (VCD submitted)</li> <li>• Letter from GEDA on dated 13/12/2006</li> </ul>
<b>/MAP/</b>	Location map: Micrositing drawing for the 1250 kW windfarm at Ukharla dated 30/07/2003.
<b>/MD/</b>	<p>Management Decision for CDM</p> <ul style="list-style-type: none"> <li>• Capital Expenditure Authorization dated 02/04/2003.</li> </ul>



Reference	Document
	<ul style="list-style-type: none"> <li>Copy of resolution passed by the Board of directors of the company in its meeting held at Vadodara dated 24/07/2003.</li> </ul>
/MR/	<ul style="list-style-type: none"> <li>Monthly reading report for Alembic for month of March-2006.</li> <li>Electricity generation report for the month of March 2006 for Alembic Limited, dated 27/07/2006.</li> </ul>
/MOC/	Modalities of communication
/ORG/	Organization chart of Alembic.
/PDD/	<ol style="list-style-type: none"> <li>PDD of 5 MW Wind Power Project of Alembic Ltd., at Bhavnagar, India, July 2007</li> <li>Revised PDD of 5 MW Wind Power Project of Alembic Ltd., at Bhavnagar, India, 02<sup>nd</sup> November 2007</li> </ol>
/PO/	Purchase order for supply of four number of wind mills each of 1250 kW capacity, dated 08/07/2003.
/PL/	<p>References of wind policy applicable to project</p> <ul style="list-style-type: none"> <li>Wind Power Policy – 2002 Government of Gujarat Energy and Petrochemicals Department Government Resolution No.EDA-102001-3054-B Sachivalaya, Gandhinagar. Dated 28 June , 2002.</li> <li>Wind power India-year wise installations statistics – <a href="http://www.windpowerindia.com/statyear.asp">http://www.windpowerindia.com/statyear.asp</a></li> <li>Incentives Declared by the State Governments for Private Sector Wind Power Projects <a href="http://www.infraline.com/">http://www.infraline.com/</a></li> </ul>
/PPA/	Execution of agreement for wind farm generation as per policy declared by Government of Gujarat vide G.R. EDA-10-2001-3054-BC Part (II) dated 20/06/2002.
/PRO/	<ul style="list-style-type: none"> <li>Procedure on monitoring the power generation and consumption of wind mill for Alembic, Doc no. ENG/COG/P/12, issue no 01, dated 01/12/2005.</li> <li>Procedure for allocation of power of windfarm at Sanodar site Alembic Limited, dated 27/07/2006.</li> <li>Procedure on monitoring the power generation and consumption of wind mill Alembic, Document Number: ENG/COG/P/12, dated 01/12/2005.</li> </ul>
/RPT/	<ul style="list-style-type: none"> <li>Maintenance report maintained by M/s Suzlon at location number. SWSSAN-SC1-AMB01-SOO5.</li> </ul>



Reference	Document
	<ul style="list-style-type: none"> <li>Meter testing laboratory, panel meter testing report by Paschim Gujarat Vij Company Limited, dated 01/07/2005.</li> <li>Suzlon Wind Farm Service, maintenance report</li> </ul>
/SC/	<ul style="list-style-type: none"> <li>Permission for setting up of wind farm at village: Ukharala / Trambak Tal. Ghoga, Dist: Bhavnagar by Gujarat Energy Development Agency, reference number: DA/SDPL-ALM/PWF/SNR/12750, dated 18/09/2003.</li> <li>Approval to the drawing for the installation of 66/33 kV 1X 12.5 MVA power transformer at village-Ukharala, Ta: Ghogha, Dist: Bhavnagar by the Office of Chief Electric Inspector, reference number: GEPG/(Y)/-575-5000-8-02, dated 20/09/2003.</li> <li>No objection certificate from Gujarat Electricity Board Transmission Circle for route approval for 6.6 kV D/C tower line suitable for dog conductor with S/C stringing from Suzlon Energy Limited to 66 kV Mamsa sub-station, dated 24/09/2003.</li> <li>Permission for commissioning the 66 kV S/C on D/C tower transmission line from Mamsa s/s to M/s Suzlon at Ukharla, dated 29/09/2003.</li> </ul>
/SCH/	Publication of notification of scheme by Gujarat Electricity Board, 24/09/2003.
/SD/	Starting date of project activity based on the "Schedule for 4 X 1.25 MW WTG.
/SF/	Estimated sources of finance V.H.Gandhi and CO. (Chartered Accountants), dated 20/04/2006.
/SHR/	Certificate for share of electricity generated by wind farm for the month of October-2003 issued by Gujarat Energy Development Agency, Reference number GEDA/PBR-JTO/PVT-WF/2003/426, dated 01/11/2003.
/SOC/	Statement of Compliance, GL wind statement number- WT 00-007 A- 2003 for compliance for the "Design Assessment of wind turbine Suzlon S.64 / 1250 kW" issued to Suzlon Energy Limited, Pune- 411001, India.
/TD/	Technical data sheets for S.64/1250 (50 Hz) WTG
/UCERT/	Certificate issued by M/s Suzlon Infrastructure limited as the first applicant for transfer of turbine from project developer, issued on date 10/05/2006.

**Table7-2:** Background investigation and assessment documents

Reference	Document
/AMS-I.D./	AMS-I.D.: “Grid connected renewable electricity generation” (Version 11: 18/05/2007)
/CBD/	CO <sub>2</sub> Baseline Database for Indian Power Sector -User Guide, Ver 2 dated June 2007 published by CEA.
/CPM/	TÜV Nord JI / CDM CP Manual (incl. CP procedures and forms)
/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)
/IPCC-GP/	IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, 2000.
/IPCC-RM/	2006 IPCC Guidelines for National Greenhouse Gas Inventories
/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

**Table 7-3:** Websites used

Reference	Link	Organisation
/cea/	<a href="http://www.cea.nic.in">www.cea.nic.in</a>	Central Electricity Authority
/dna-i/	<a href="http://cdmindia.nic.in/cdm_india.htm">http://cdmindia.nic.in/cdm_india.htm</a>	The National Clean Development Mechanism (CDM) Authority of India
/ieta/	<a href="http://www.ieta.org/">http://www.ieta.org/</a>	Website of International Emission trading Association (IETA)
/imp/	<a href="http://www.powermin.nic.in">www.powermin.nic.in</a>	Indian Ministry of Power

Reference	Link	Organisation
/ipcc/	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	IPCC publications
/mnes/	<a href="http://www.mnes.nic.in">www.mnes.nic.in</a>	Ministry of non-conventional energy sources
/sz/	<a href="http://www.suzlon.com/">http://www.suzlon.com/</a>	Suzlon Energy Limited
/UNFCCC/	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNFCCC

**Table 7-4:** List of interviewed persons

Reference	Mol <sup>1</sup>		Name	Organisation / Function
/IM01/	T,E, V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	R.K.Baheti	Director and President-Finance
/IM01/	T,E, V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	S.S.Singh	Deputy General Manager, Cogeneration, Power Dist. & Water Plant.
/IM01/	T,E, V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Santosh M. Jejurkar	Assistant General Manager (Business Finance)
/IM02/	T,E, V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Shashi Prakash	Senior Consultant – (E & Y)

<sup>1)</sup> Means of Interview: (Telephone, E-Mail, Visit)

# ANNEX

## Validation Protocol

## ANNEX : VALIDATION PROTOCOL

**Table 1: Mandatory Requirements for (CDM) Project Activities**

Requirement	Reference	Conclusion
<b>Parties</b>		
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
The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK
The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK
In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK
Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto	CDM Modalities and Procedures §31b	OK



Requirement	Reference	Conclusion
Protocol Article 5 and 7.		
<b>Additionality</b>		
Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	<del>CAR A2, CAR A6, CAR B2-B3, CR A1-A2, CR B1-B16</del> OK
<b>Forecast emission reductions and environmental impacts</b>		
The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	<del>Ref CAR A5, CAR B5</del> OK
<b>Environmental impacts (only for large scale projects)</b>		
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	Not applicable
<b>Stakeholder involvement</b>		
Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	<del>CAR E1</del> OK
Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly	CDM Modalities and Procedures §40	OK



Requirement	Reference	Conclusion
available.		
<b>Other</b>		
The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	<del>CAR A4, CAR B1</del> OK
The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	<del>CAR A1, CAR B5</del> OK
Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK
<b>Requirements for small-scale projects only</b>		
The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakech 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	OK
The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and use the simplified baseline and monitoring methodology for that project category.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e	OK
If required by the host country, an analysis of the environmental impacts of	Simplified Modalities and Procedures for Small Scale CDM Project Activities	Not



Requirement	Reference	Conclusion
the project activity is carried out and documented.	§22c	applicable





**Table 2: Requirements Checklist**

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>					
<b>A.1. Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
A.1.1. Are the project's spatial boundaries (geographical) clearly defined?	/PDD/ (A 4.1.4)	DR	Project activity is located at Ukharla, Trambak, district Bhavnagar, State of Gujarat, country India with latitude 21° 34' 23.2'' N and longitude 72° 05' 52.1'',	OK	
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/PDD/ (B.3) /MAP/	DR	The project system boundaries are described in the project design document. However CAR A1 has been raised.  As per para 8 of "Indicative Simplified Baseline and Monitoring Methodology for selected small scale CDM project activity categories, version-10", the project boundary requirement is not properly addressed and should encompass the emission reduction associated with the related supply of energy by external sources, under section B.3 of PDD. Further more the unique identification of each WTG is missing under section A.4.1.4 of PDD.	CAR A1	OK

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A.2. Participation Requirements</b> <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
A.2.1. Which Parties and project participants are participating in the project?	/PDD/ (A.3)	DR	The following parties are involved in the project activity: India (Host Party) and the project participant : Alembic Limited	OK	
A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/PDD/ (A.3)	DR, I	Alembic has received the host country approval (F.No. 4/8/2006-CCC on dated 03/11/2006) from DNA of India to ascertain the project activity meets with the host country's sustainable development criteria.	OK	
A.2.3. Do all participating Parties fulfil the participation requirements as follows: – Ratification of the Kyoto Protocol – Voluntary participation – Designated a National Authority	/PDD/ / HGA /	DR, Unfccc web site	Yes, India has ratified the Kyoto Protocol in August 2002 and has established a DNA. The voluntary participation in the project is stated in the HGA.	OK	
A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/PDD/ (A.4.4) /SF/	DR, I	<p>The Project does not involve any public funding from annex-1 country. Nevertheless below CAR A2 has been raised.</p> <p>Under section B.5 of PDD, the project proponent has not described about the source of finance (Cp 17 CP.7) and management decision. Alembic is requested to submit the appropriate</p>	CAR A2	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			evidences of same.		
<b>A.3. Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.3.1. Does the project design engineering reflect current good practices?	/PDD/ (A.4.3.) /TD/ /SOC/	DR, I	As per PDD, WTG are designed according to the Germanischer Lloyd (GL) design standards. Project proponent has submitted power generation prognosis, generated power curve of Suzlon S 64 – 1250 kW WTG, micro siting drawing studied by Alembic during the conceptualization of project activity. In addition to that Suzlon had received the “Statement of Compliance” (GL wind statement number-WT 00-007 A- 2003) for the design of windmill.	OK	
A.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/PDD/ /SOC/ /TD/	DR	<p>The technology result in a significantly better performance than any commonly used technologies in the host country.</p> <p>Under section A.4.2, project proponent should comprise “how environmentally safe and sound technology and know how is being applied by the project activity inter alia technology transfer to the Host Party (ies) for the project activity” (Cp CDM-SSC-PDD guidelines).</p>	CAR A3	OK

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/PDD/ (B.7.2.) /CT/	DR, I	<p>Alembic has signed the agreement with M/s Suzlon Energy Limited for the operation and maintenance of project activity.</p> <p>During the interview, validation team has ascertained that, operators of M/s Suzlon Energy Limited are trained for uninterrupted operation of project activity. Thus, training and maintenance requirement are met by the project activity.</p>	OK	
<b>A.4. Contribution to Sustainable Development</b> <i>The project's contribution to sustainable development is assessed.</i>					
A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development?	/HGA /	DR	Yes, the contribution of sustainable development is confirmed in the HGA.	OK	
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/PDD/ (A.2)	DR, I	<p>The project creates technological and economic benefits in addition to environmental and social benefits than GHG emission reductions.</p> <p>The project activity will provide direct as well as indirect job opportunities to the local population mainly for activities like construction and security. Further, the project activity also caters to the growing power demand of the country.</p>	OK	
<b>Small scale project activity</b> <i>Is it assessed whether the project qualifies as</i>					

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<i>small-scale CDM project activity</i>					
A.4.3. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM?	/PDD/ (B.1) /AMS- I.D/	DR	<p>The project activity fall under the “Type I: Renewable energy projects” and category I D/ Version 11 (EB 31): “Grid connected renewable electricity generation”.</p> <p>Alembic has installed four windmills of 1.25 MW each (total installed capacity of 5 MW) which is less than eligibility limit of 15 MW for small scale CDM project activity applies only to renewable component.</p> <p>Under section B.6 of the PDD, Alembic has not given the justification for selecting the relevant methodological choice (Cp CDM-SSC-PDD guidelines statement under B.6. “Explain and justify-----methodological choice”, including and the first bullet “Where the category provides-----AMS ID). Further reference of ACM0002 and choice of ex-ante/ex-post calculation of the EF<sub>y</sub> is missing.</p>	CAR A4	OK
A.4.4. Is the small scale project activity not a debundled component of a larger project activity?	/PDD/ (A.4.5)  /MAP/	DR	<p>The project activity is not a de-bundled component of a larger project activity. Since, there is no CDM project activity in the same category by the same project proponent within 1 KM of the present project activity in last two years.</p>	OK	

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A.5. General Topics</b>					
A.5.1. Has the PDD been duly filled?	/PDD/	DR	Under section B.6.3 of PDD, symbol E <sub>gy</sub> describes “net units of electricity substituted in the grid in year ‘y’” is mismatching with section B.7. Furthermore is not uniform with annex 4 of PDD and spreadsheet.	<del>CAR A5</del>	OK
A.5.2. Has all necessary information been made available to the validator?	PDD	DR, I	<p>Under section B.5 of PDD, the project proponent has not described about the source of finance (Cp 17 CP.7) and management decision. Alembic requested to submit the appropriate evidences of same.</p> <p>The spreadsheet of IRR calculations submitted to the DOE for the financial assessment of the additionality should substantiate with proper documentary evidences. Also detailed assumptions for IRR calculation and information on the data used to calculate the return on capital is not apparent in PDD. Furthermore the IRR calculations should authenticate by the responsible authority of Alembic or competent third party and should be the part of PDD.</p> <p>Under section B.5 “Investment Barrier” it is stated that “According to one study in</p>	<del>CAR A2</del>  CAR A6	OK  OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>Gujarat for the same period the following results are obtained". The clarification is needed as to which study the project proponent is referring. Also the project proponent should substantiate the statement "the wind turbines .....in state" under other barriers with proper documentary evidences. Further the source of data for the table "Wind Installation in Gujarat over the year" under the section B.5, Regulator Risk is not stated.</p> <p>The project proponent should provide necessary document to demonstrate that banking period in Gujarat is 6 months compared to states of Maharashtra, Tamil Nadu and Karnataka. Furthermore, project proponent should provide proper documentary evidence to demonstrate the tariff in Gujarat state is amongst lowest in the country.</p>	CR-A1	OK
				CR-A2	OK
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					





CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.1. Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Does the project apply an approved methodology and the correct version thereof?	/PDD/ (B.1, B.4.)	DR	The project activity is confirming to “Type I: Renewable energy projects” and category I D/ Version 11 (EB 31): “Grid connected renewable electricity generation”.	OK	
B.1.2. Are the applicability criteria in the baseline methodology all fulfilled?	/PDD/ (B.2) /AMS- I.D/	DR	<p>Yes, the baseline methodology is in line with the baseline methodology provided with category.</p> <p>The project activity is confirming to “Type I: Renewable energy projects” and category I. D / Version 11: “Grid connected renewable electricity generation”.</p> <p>Under section B.6 of the PDD, Alembic has not given the justification for selecting the relevant methodological choice (Cp CDM-SSC-PDD guidelines statement under B.6. “Explain and justify-----methodological choice”, including and the first bullet “Where the category provides-----AMS ID). Further reference of ACM0002 and choice of ex-ante/ex-post calculation of the EF<sub>y</sub> is missing.</p>	CAR A4	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.2. Baseline Scenario Determination</b> <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
B.2.1. What is the baseline scenario?	/PDD/ (B.4)	DR	<p>All existing sources of power generation have been considered for the Western region grid and the base line scenario is as per the data obtained from the CEA, which gives conservative value. Please refer CAR B1.</p> <p>While determining the baseline emission factor, project proponent has not applied the latest version of CEA database (Cp <a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a>). Also the data source of simple operating and build margin is missing under Annex- 3 of PDD.</p>	CAR B1	OK
B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/PDD/ (B.5)	DR	<p>The option to fulfil electricity requirement of Alembic during the conceptualization of project activity are as below:</p> <p>Alternative 1: Thermal power plant based on lignite / coal as fuel.</p> <p>Alternative 2: Captive power plant based on Natural Gas</p> <p>Alternative 3: Energy generation using renewable source of wind power.</p> <p>Coal based power generation is a</p>	OK	

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



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			preferred option by the project proponent as the technology is proven, widely practiced and most economical option for generating electrical power.		
B.2.3. Has the baseline scenario been determined according to the methodology?	/PDD/ (B.4)	DR	Yes	OK	
B.2.4. Has the baseline scenario been determined using conservative assumptions where possible?	/PDD/ (B.4) /CEA/	DR	While determining the baseline emission factor, project proponent has not applied the latest version of CEA database (Cp <a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a> ). Also the data source of simple operating and build margin is missing under Annex- 3 of PDD.	CAR B1	OK
B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/PDD/ (B.4)	DR	Yes, all relevant boundary conditions have taken into account.	OK	
B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/PDD/ (B.4)	DR	While determining the baseline emission factor, the PP has not applied the latest version of the CEA data base. CAR B1 has been raised under this context.	CAR B1	OK
B.2.7. Have the major risks to the baseline been identified?	/PDD/ (B.4)	DR	There is no major risks to the baseline been identified as the data is obtained from CEA data source.	OK	
<b>B.3. Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>					
B.3.1. Is the project additionality assessed	/PDD/ (B.5)	DR	Under section B.5 of PDD, the project proponent has not described about the		



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
according to the methodology?	/AR/ /IRR/ /SHR/		source of finance (Cp 17 CP.7) and management decision. Alembic requested to submit the appropriate evidences of same.	CAR A2	OK
			Under regulatory risk of section B.5 of PDD, project proponent should authenticate with reference the various mentioned policies and provide extract of same to DOE.	CAR B2	OK
			Project proponent should demonstrate the robustness of the financial attractiveness due to reasonable variations in the critical assumptions of the project through sensitivity analysis	CAR B3	OK
			Under section B.5 "Investment Barrier" it is stated that "According to one study in Gujarat for the same period the following results are obtained". The clarification is needed as to which study the project proponent is referring. Also the project proponent should substantiate the statement "the wind turbines .....in state" under other barriers with proper documentary evidences. Further the source of data for the table "Wind Installation in Gujarat over the year" under the section B.5, Regulator Risk is not stated.	CR-A1	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>The project proponent should provide necessary document to demonstrate that banking period in Gujarat is 6 months compared to states of Maharashtra, Tamil Nadu and Karnataka. Furthermore, project proponent should provide proper documentary evidence to demonstrate the tariff in Gujarat state is amongst lowest in the country.</p> <p>IRR calculation is unclear with respect to financial implication of below mentioned entities</p> <ul style="list-style-type: none"> <li>• GETCO annual charges (Electrical inspection charges, etc)</li> <li>• Sundry Administration expenses</li> <li>• GEDA charges refund</li> <li>• Maintenance of spares as percent of annual maintenance cost</li> <li>• Aggregate insurance charges will go on reducing by percent per year in view of value of windmills going down every year and likely increase in Insurance charges</li> <li>• Service tax and education cess payable over O&amp;M charges</li> </ul>	<p>CR-A2</p> <p>CR-B1</p>	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.3.2. Are all assumptions stated in a transparent and conservative manner?	/PDD/ (B.5) /AR/ /IRR/ /SF/	DR	<p>The spreadsheet of IRR calculations submitted to the DOE for the financial assessment of the additionality should substantiate with proper documentary evidences. Also detailed assumptions for IRR calculation and information on the data used to calculate the return on capital is not apparent in PDD. Furthermore the IRR calculations should authenticate by the responsible authority of Alembic or competent third party and should be the part of PDD.</p> <p>Project proponent should demonstrate the robustness of the financial attractiveness due to reasonable variations in the critical assumptions of the project through sensitivity analysis</p> <p>IRR calculation is unclear with respect to financial implication of below mentioned entities</p> <ul style="list-style-type: none"> <li>• GETCO annual charges (Electrical inspection charges, etc)</li> </ul>	<p><del>CAR</del> A6</p> <p><del>CAR</del> B3</p>	<p>OK</p> <p>OK</p>



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<ul style="list-style-type: none"> <li>• Sundry Administration expenses</li> <li>• GEDA charges refund</li> <li>• Maintenance of spares as percent of annual maintenance cost</li> <li>• Aggregate insurance charges will go on reducing by percent per year in view of value of windmills going down every year and likely increase in Insurance charges</li> <li>• Service tax and education cess payable over O&amp;M charges</li> </ul> <p>Under section B.5 of PDD, weighted average cost of the power used by Alembic is for one year while investment analysis is done for three years. Clarification requested.</p> <p>Further, during the conceptualization of project activity, Alembic was fulfilling their power requirement by below sources</p> <ol style="list-style-type: none"> <li>1. Grid electricity</li> <li>2. Natural gas based cogeneration turbines</li> <li>3. Diesel generating (DG) set (It was used in emergency conditions)</li> </ol> <p>However comparative analysis is done for lignite, coal and NG based power plant. It is unclear about the implication of fuel cost escalation while calculating the weighted</p>	<p><del>CR-B1</del></p> <p><del>CR-B2</del></p>	<p>OK</p> <p>OK</p> <p>OK</p>





CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			average cost of the power used by Alembic.  PDD states that, "It could have either continued to use current generation mix of electricity at <b>high tariff</b> or set up a captive unit based on coal or diesel. There was also an option going for WTG's considering CDM benefits to achieve financial closure". CDM revenues do not result in "financial closure" (as the term is understood normally) unless they are securitized, which is not envisaged. Secondly, the statement implies that the project is not additional. (page 14 of PDD).	<del>CR-B3</del>	OK
			The average return on capital computation is not acceptable. The average return is <i>not</i> additive. It is not known whether the return on equity is post-tax or pre-tax. Both the costs should be post-tax or pre-tax, preferably post-tax. Since the project (wind power project) is being funded through internal accruals and term loan, the right procedure would be to compute the WACC for the project and not to rely on the WACC of the company as a whole. Depending upon whether post tax or pre tax WACC is considered, IRR should be computed on identical lines. The project may not be considered 'additional', as at the weighted	<del>CR-B4</del>	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>cost of INR4.10/kWh, the project yields a return of 14.42% unless it could be proved that the IRR of 14.42% is lower than the benchmark return.</p> <p>To establish the additionality of the project, the Project IRR should be computed using the Grid Power cost instead of the weighted average cost as the PDD itself claims that, „It could have either continued to use current generation mix of electricity at <b>high tariff</b> or set up a captive unit based on coal or diesel” to prove the additionality of the project.</p> <p>Annual generation of units per WTG in ‘Dataintpt’ worksheet needs to be backed by calculation (instead of figure input). The documentary evidence for grid non-availability loss is required. When the GEB is charging 4% wheeling charges, the question of transmission loss cannot arise.</p> <p>The profitability statement does not take into account depreciation and does not provide for tax. Since Windmills are eligible for 80% depreciation, the tax shield accruing to parent company because of windmill project should be taken as credit in the profitability statement.</p> <p>There cannot be actual repayment</p>	<p>CR-B5</p> <p>OK</p> <p>CR-B6</p> <p>OK</p>	<p>OK</p> <p>OK</p>



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			<p>schedule and std. repayment obligation. Company has to repay the loan as per the repayment schedule agreed upon undertaken at the time signing the loan agreement. Therefore, the question of 'actual repayment schedule' given in 'Recap' worksheet does not arise. Moreover, the question of negative repayment does not arise. In case repayment schedule is modified, with the consent of the financial institution, interest has to be recomputed.</p>	<del>CR-B7</del>	OK
			<p>While in the 'Dataintpt' worksheet it is envisaged to be provided from the 2<sup>nd</sup> year onwards, in all the worksheets, O&amp;M expenses has been taken from the 5<sup>th</sup> year only.</p>	<del>CR-B8</del>	OK
			<p>Providing depreciation at 10% on Straight Line basis in 'Generat' worksheet is not acceptable. Windmills are entitled to 80% WDV depreciation and the Straight Line depreciation is taken at 5.28%. Moreover, there is no question of depreciation on land.</p>	<del>CR-B9</del>	OK
			<p>Computation of interest on term loan on average balance ('Termloan' worksheet) is not acceptable; it should be on opening balance.</p>	<del>CR-B10</del>	OK



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			In the 'IRR' worksheet, the interest should be added back to cash inflow, as the total project cost is taken as cash outflow. The residual value at 5% is not acceptable. The land cost should be taken at cost and plant and machinery cost may be taken at 5 or 10%.	CR B11	OK
			The profitability statement should be computed upto post tax profit, after taking into consideration the applicable tax rate to the company, depreciation and the tax shield enjoyed by the company because of higher depreciation rate enjoyed by windmill project.	CR B12	OK
			Table containing installation cost and generation cost of power through lignite, coal, natural gas and wind given in the PDD should be backed by documentary evidence. (page 15 of PDD).	CR B13	OK
B.3.3. Is sufficient evidence provided to support the relevance of the arguments made?	/PDD/ (B.5) /AR/ /IRR/ /SF/	DR	Please refer comments made under B.3.1	CAR A2 CAR B2 CAR B3 CR A1 CR A2 CR B5 CR	OK OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
				B14 CR B15	
B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	/PDD/ (B.5) /CC/ /MD/ /SD/	DR	Under section B.5 of PDD, the project proponent has not described about the source of finance (Cp 17 CP.7) and management decision. Alembic requested to submit the appropriate evidences of same.	CAR A2	OK
<b>B.4. Calculation of GHG Emission Reductions – Project emissions</b> <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.4.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.6) /PRO/ /ERW/	DR	Under section B.6.3. and annex 3 to PDD, the calculation of" EG <sub>y</sub> " has not been presented in a transparent manner so as to enable the reader to reproduce the calculation. (E.g. what is the PLF considered? What is the availability of WTG considered?).  Further, the achieved emission reductions as stated under sections A.4.3 and B.6.4 of PDD does not correspond with the total electricity exported (9636 MWh/year) and the combined margin grid emission factor (0.953 tCO <sub>2</sub> /MWh).	CAR B4	



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.4.2. Have conservative assumptions been used when calculating the project emissions	/PDD/ (B.6)	DR	Please refer CAR B1.	CAR B1	OK
B.4.3. Are uncertainties in the project emission estimates properly addressed?	/PDD/ (B.6)	DR	Section B of PDD, discuss the qualitative explanation of how quality control and quality assurance are undertaken related to key parametrs of GHG emission.	OK	
<b>B.5. Calculation of GHG Emission Reductions – Baseline emissions</b> <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.6)	DR	Please refer CAR B1 and CAR B4.	CAR B1 CAR B4	OK
B.5.2. Have conservative assumptions been used when calculating the baseline emissions	/PDD/ (B.6)	DR	Please refer CAR B1 and CAR B4.	CAR B1 CAR B4	OK
B.5.3. Are uncertainties in the baseline emission estimates properly addressed?	/PDD/ (B.6)	DR	Yes	OK	



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>B.6. Calculation of GHG Emission Reductions – Leakage</b> <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.6)	DR	Not applicable		
B.6.2. Have conservative assumptions been used when calculating the leakage emissions?	/PDD/ (B.6)	DR	Not applicable		
B.6.3. Are uncertainties in the leakage emission estimates properly addressed?	/PDD/ (B.6)	DR	Not applicable		
<b>B.7. Emission Reductions</b> <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/PDD/ (B.6)	DR	All clarifications have been raised in the context of baseline calculations in the section B are to be resolved before providing the conclusion.	Yet Not OK	
<b>B.8. Monitoring Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.8.1. Is the monitoring plan documented	/PDD/	DR	Under section B.6.3 of PDD, symbol E <sub>gy</sub>		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
according to the approved methodology and in a complete and transparent manner?	(B.7)		describes “net units of electricity substituted in the grid in year ‘y’” is mismatching with section B.7. Furthermore is not uniform with annex 4 of PDD and spreadsheet.  Table template given under section B.7.1 of PDD is not inline with CDM-SSC-PDD guidelines and needs appropriate corrections. Further under section B.8, the contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity does not indicate whether the person/entity is also a project participant listed in Annex 1.	CAR A5  CAR B5	OK  OK
B.8.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/PDD/ (B.7)	DR	Yes, all monitored data will be kept for two years after the crediting period.	OK	
<b>B.9. Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
B.9.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the	/PDD/ (B.7) /ORG/	DR	The monitoring plan contains only one parameter for monitoring which is the Net Electricity exported (EG <sub>y</sub> ) to the Western region grid. The collection and archiving of EG <sub>y</sub> is properly accounted in the	OK	

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
project boundary during the crediting period?			monitoring plan.		
B.9.2. Are the choices of project GHG indicators reasonable and conservative?	/PDD/ (B.7)	DR	Yes	OK	
B.9.3. Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/PDD/ (B.7) /RPT/	DR	Yes	OK	
B.9.4. Is the measurement equipment described and deemed appropriate?	/PDD/ (B.7)	DR	Yes	OK	
B.9.5. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/PDD/ (B.7) /RPT/	DR	Though the section B.7.1 gives the description of monitoring, archival policy, calibration frequency and Quality Management System. Clarification is sought regarding the accuracy of the tri vector energy meter used for the monitoring the total electricity exported under section B.7.1 of PDD (Cp (Published in the Gazette of India, Extraordinary, Part III, section iv), Central Electricity Authority, 17th March, 2006).	CR B16	OK
B.9.6. Is the measurement interval identified and deemed appropriate?	/PDD/ (B.7) /RPT/	DR	Though the section B.7.1 gives the description of monitoring, archival policy, calibration frequency and Quality Management System. However, clarification is sought regarding the accuracy of the tri vector energy meter used for the monitoring the total electricity exported under section B.7.1 of PDD (Cp (Published in the Gazette of India, Extraordinary, Part III, section iv), Central	CAR 16	OK

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Electricity Authority, 17 <sup>th</sup> March, 2006). CAR 16 has been raised under this context.		
B.9.7. Is the registration, monitoring, measurement and reporting procedure defined?	/PDD/ (B.7.) /IM01/ /RPT/	DR I	The authority and responsibility for registration, monitoring, measurement and reporting is with Director and President (Finance) of the Alembic.	OK	
B.9.8. Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/PDD/ (B.7.) /RPT/	DR	Alembic has contracted with M/s Suzlon for operation and maintenance of project activity. Validation team has checked maintenance scheduled of Suzlon for the project activity.  Maintenance of monitoring equipment like energy meter is done by Alembic on periodic basis. Project proponent has established procedure for periodic calibration of site energy meter, moreover the calibration procedure of Ukharla substation energy meter is already established by Gujrat Electricity Board.	OK	
B.9.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/PDD/ (B.7.) /RPT/	DR	Project proponent has contracted with M/s Suzlon for operation and maintenance of project activity. M/s Suzlon is having well established system for records keeping. Daily record are very good connected by information technology. On line parameters related to the electricity generation is stored in DCS system. Every day electricity generation by project activity is mailed to the project proponent. Moreover Alembic	OK	

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			has systematic linkage of all GHG key parameters with system management.		
<b>B.10. Monitoring of Baseline Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/PDD/ (B.7) /RPT/	DR	Table template given under section B.7.1 of PDD is not inline with CDM-SSC-PDD guidelines and needs appropriate corrections. Further under section B.8, the contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity does not indicate whether the person/entity is also a project participant listed in Annex 1.	CAR B5	OK
B.10.2. Are the choices of baseline GHG indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Based on the year 2004 – 2005 the grid emission factor was calculated with fuel data and electricity generation in Western regional grid. However, the latest applicable guidelines of CEA are not referred. CAR B1 has been raised under this context.	CAR B1	OK
B.10.3. Is the measurement method clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/PDD/ (B.7)	DR	Yes	OK	
B.10.4. Is the measurement equipment described and deemed appropriate?	/PDD/ (B.7)	DR	Yes	OK	
B.10.5. Is the measurement accuracy addressed	/PDD/	DR	Clarification is sought regarding the		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	(B.7) /RPT/		accuracy of the tri vector energy meter used for the monitoring the total electricity exported under section B.7.1 of PDD (Cp (Published in the Gazette of India, Extraordinary, Part III, section iv), Central Electricity Authority, 17th March, 2006).	GR B46	OK
B.10.6. Is the measurement interval for baseline data identified and deemed appropriate?	/PDD/ (B.7) /RPT/	DR	Under section B.6 of the PDD, Alembic has not given the justification for selecting the relevant methodological choice (Cp CDM-SSC-PDD guidelines statement under B.6. "Explain and justify-----methodological choice", including and the first bullet "Where the category provides-----AMS ID). Further reference of ACM0002 and choice of ex-ante / ex-post calculation of the EF <sub>y</sub> is missing.  While determining the baseline emission factor, project proponent has not applied the latest version of CEA database (Cp <a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a> ). Also the data source of simple operating and build margin is missing under Annex- 3 of PDD.	CAR A4  CAR B2	OK  OK
B.10.7. Is the registration, monitoring, measurement and reporting procedure defined?	/PDD/ (B.7) /RPT/	DR	Yes, the registration, monitoring, measurement and reporting procedure defined.	OK	
B.10.8. Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/PDD/ (B.7) /RPT/	DR	Operation and maintenance of wind generators will be done by Suzlon energy Limited headed by the General Manager.	OK	



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B.10.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/PDD/ (B.7.2) /RPT/	DR	Yes, the procedures for day to day records handling are identified and stated under section B.7.2 of PDD. The metering equipment is maintained in accordance with GUVNL electricity standards and has the capability of recording hourly and monthly readings.	OK	
<b>B.11. Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
B.11.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/PDD/ (B.7)	DR	Not applicable		
B.11.2. Are the choices of project leakage indicators reasonable and conservative?	/PDD/ (B.7)	DR	Not applicable		
B.11.3. Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/PDD/ (B.7)	DR	Not applicable		
<b>B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts</b> <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host	/PDD/ (B.7)	DR	Monitoring of the sustainable development indicators is not warranted by legislation in the host country. As the project activity is		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
country?			wind based power generation, no adverse environmental impacts are envisaged. Environmental impacts are to be monitored only in case the project has a significant adverse impact.	OK	
B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/PDD/ (B.7)	DR	Same as above.	OK	
B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host Country?	/PDD/ (B.7)	DR	Alembic has received the host country approval from DNA of India to ascertain the project activity meets with the host country's sustainable development criteria. However, the sustainable development indicators are not warranted by legislation in the host country.	OK	
<b>B.13. Project Management Planning</b> <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
B.13.1. Is the authority and responsibility of overall project management clearly described?	/PDD/ (B.7)	DR	Mr. R. K. Baheti, Director and President (Finance) are having authority and responsibility of the project activity.	OK	
B.13.2. Are procedures identified for training of monitoring personnel?	/PDD/ (B.7)	DR	Project proponent has contracted with M/s Suzlon for operation and maintenance of project activity. M/s Suzlon is having their periodic training of all employee at their training centre.	OK	
B.13.3. Are procedures identified for emergency	/PDD/	DR	Alembic has contracted with M/s Suzlon for		

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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
preparedness for cases where emergencies can cause unintended emissions?	(B.7)		operation and maintenance of project activity. Suzlon is having maintenance scheduled for the project activity.  Generating electricity through wind turbines leads to zero emissions. So such emergencies are not expected.	OK	
B.13.4. Are procedures identified for review of reported results/data?	/PDD/ (B.7)	DR	There is a well established information exchange between Suzlon and Alembic Limited via internet service. Every day Suzlon reporting to the Alembic for electricity generation.	OK	
B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/PDD/ (B.7)	DR	No procedure is identified for corrective actions.	OK	
<b>C. Duration of the Project/ Crediting Period</b> <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					





CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
C.1.	Are the project's starting date and operational lifetime clearly defined and evidenced?	/PDD/ (C.1.1) /SD/ /PO/	DR	<p>The project's starting date and operational lifetime clearly defined under section C of PDD. However, clarification is sought regarding the crediting period start date stated as 01/10/2007 in the section C.2.2.1 of PDD. However as per Para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project activity.</p> <p>Under section C.1.1, it's stated that the project started on 01<sup>st</sup> July 2003 and Power generation commencement on 30<sup>th</sup> September 2003. Only one dates needs to be mentioned as per Cp CDM-SSC-PDD guidelines" and proof of same need to submit to validation team.</p>	CR-C1	OK
C.2.	Is the start of the crediting period clearly defined and reasonable?	/PDD/ (C.2.2.1) /SHR/	DR	As per section A.4.3 of PDD, the chosen fixed crediting period by Alembic is 10 (ten) years is not covering the total crediting period appropriately. Furthermore, it is not in line with the table given in section B.6.4 of PDD.	CAR-C1	OK
<b>D. Environmental Impacts</b> <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>						



CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.1.	Has an analysis of the environmental impacts of the project activity been sufficiently described?	/PDD/ (D.1)	DR	Yes	OK	
D.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/PDD/ (D.1)	DR I	No, EIA is not required for this project activity in India.	OK	
D.3.	Will the project create any adverse environmental effects?	/PDD/ (D.1)	DR, I	No, the project activity is not expected to create any adverse environment effect.	OK	
D.4.	Are transboundary environmental impacts considered in the analysis?	/PDD/ (D.1)	DR	No trans boundary impact has been envisaged from this project activity.	OK	
D.5.	Have identified environmental impacts been addressed in the project design?	/PDD/ (D.1)	DR	No, the project activity is not expected to create any adverse environment effect.	OK	
D.6.	Does the project comply with environmental legislation in the host country?	/PDD/ (D.1)	DR	Yes	OK	
<b>For Small-scale projects</b>						



CHECKLIST QUESTION		Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.7.	Does host country legislation require an analysis of the environmental impacts of the project activity?	/PDD/ (D.1)	DR	No	OK	
D.8.	Does the project comply with environmental legislation in the host country?	/PDD/ (D.1)	DR	Yes	OK	
D.9.	Will the project create any adverse environmental effects?	/PDD/ (D.1)	DR	No, the project activity is not expected to create any adverse environment effect.	OK	
D.10.	Have environmental impacts been identified and addressed in the PDD?	/PDD/ (D.1)	DR	Yes, environmental impacts have been identified in the PDD.	OK	
<b>E. Stakeholder Comments</b> <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>						
E.1.	Have relevant stakeholders been consulted?	/PDD/ (E.1.)	DR	Yes , as per PDD relevant stakeholder has been consulted and considered the following stakeholders <ul style="list-style-type: none"> <li>▪ Local government representatives</li> <li>▪ Designated National Authority, Government of India</li> <li>▪ Ministry of Non Conventional Energy Sources, Government of India</li> <li>▪ GEDA</li> <li>▪ GPEB</li> </ul> However, project proponent has not		



CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			identified local villagers and O & M contractor's employees as one of the key stakeholder under section E.1 of PDD. Furthermore, the project proponent should mention the respective dates of consultation with the identified stakeholders and minutes of meeting in the relevant section of PDD.	CAR E1	OK
E.2. Have appropriate media been used to invite comments by local stakeholders?	/PDD/ (E.1.)	DR	Personal communication is used for the stakeholder's consultation process.	OK	
E.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?	/PDD/ (E.1)	DR	No stakeholder consultation process is required by the regulations / laws of India.	OK	
E.4. Is a summary of the stakeholder comments received provided?	/PDD/ (E.2)	DR	Yes, the summary of the comments received are provided in PDD.	OK	
E.5. Has due account been taken of any stakeholder comments received?	/PDD/ (E.3)	DR, I	No adverse comment has been received by local stakeholder. However the comments received during web hosting of project activity were also made publicly available on the <a href="http://www.global-warming.de">www.global-warming.de</a> site with a hyperlink with UNFCCC. The comments received from two stakeholders were reviewed and taken into account during the course of validation. The summary of the comments is presented in this report.	OK	

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**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
<b>CAR A1</b> As per para 8 of “Indicative Simplified Baseline and Monitoring Methodology for selected small scale CDM project activity categories, version-10”, the project boundary requirement is not properly addressed and should encompass the emission reduction associated with the related supply of energy by external sources, under section B.3 of PDD. Further more the unique identification of each WTG is missing under section A.4.1.4 of PDD.	A.1.2, B.9.1	<p>The electricity from wind turbines is fed into Western regional grid and supplied to Alembic limited (Panelav and Vadodara plant). The Western regional grid is included in the project boundary and the section is amended in the PDD.</p> <p>The unique identification of the windmills is included in section A.4.1.4 of revised PDD.</p>	<p>Under section B.3 of PDD, Alembic limited has now consider the Western region grid of India as a part of project boundary and properly addressed in the block diagram. Further the unique identification of each WTG (S4,S5,S6,S7) is defined as per the Survey numbers stated in Power Wheeling Agreement with GETCO is now appropriately mentioned under section A.4.1.4 of PDD.</p> <p>Thus CAR A1 has been closed.</p>
<b>CAR A2</b> Under section B.5 of PDD, the project proponent has not described about the source of finance (Cp 17 CP.7) and management decision. Alembic requested to submit the appropriate evidences of same.	A.2.4, , A.5.2, B.3.1, B.3.3, B.3.4	<p>The sources of finance, capital expenditure proposal and CDM consideration has been submitted with the revised PDD.</p> <p>The reference of same is referred in the section B.5 of revised PDD.</p>	<p>Under section B.5 of PDD, Alembic has described below supportive for sources of finance “V.H.Gandhi and CO. (Chartered Accountants), dated 20/04/2006”.</p> <p>Further more project proponent has submitted below proof of Management Decision for CDM</p>



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
			<ul style="list-style-type: none"> <li>Capital Expenditure Authorization dated 02/04/2003</li> <li>Copy of resolution passed by the Board of directors of the company in its meeting held at Vadodara dated 24/07/2003.</li> </ul> <p>Above all evidences has been properly validated by validation team and found deemed OK.</p> <p>Hence CAR A2 has been closed.</p>
<b>CAR A3</b> Under section A.4.2, project proponent should comprise “how environmentally safe and sound technology and know how is being applied by the project activity interalia technology transfer to the Host Party (ies) for the project activity” (Cp CDM-SSC-PDD guidelines).	A.3.2,	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.	Under section A.4.2 of PDD, the project proponent has properly included the proper explanation of how the project activity is environmentally safe and sound and how know how is being applied for the project activity. Thus CAR A3 has been closed.
<b>CAR A4</b> Under section B.6 of the PDD, Alembic has not given the justification for selecting the relevant methodological choice	A.4.3, B.1.2, B.10.6	The PDD has been amended accordingly.	Under section B.6.1 of PDD, the justification for selecting the relevant methodological choice



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
(Cp CDM-SSC-PDD guidelines statement under B.6. “Explain and justify-----methodological choice”, including and the first bullet “Where the category provides-----AMS ID). Further reference of ACM0002 and choice of ex-ante / ex-post calculation of the EF <sub>y</sub> is missing.			is mentioned and in line with the paragraph 9 of the approved methodology. The Project proponent has opted for option (a) to calculate grid emission coefficient i.e. Combined Margin (CM) consisting of the combination of operating margin (OM) and build margin (BM). Further the reference of ACM0002 and choice of ex-ante calculation of EF <sub>y</sub> is appropriately mentioned under section B.6.1.  Thus CAR A4 has been closed.
<b>CAR A5</b> Under section B.6.3 of PDD, symbol E <sub>gy</sub> describes “net units of electricity substituted in the grid in year ‘y’” is mis-matching with section B.7. Furthermore is not uniform with annex 4 of PDD and spreadsheet.	A.5.1, B.8.1	The PDD has been amended accordingly.	Now the symbol representing “net units of electricity substituted in the grid in year ‘y’” is uniform through out the PDD.  Thus CAR A5 has been closed



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
<p><b>CAR A6</b></p> <p>The spreadsheet of IRR calculations submitted to the DOE for the financial assessment of the additionality should substantiate with proper documentary evidences. Also detailed assumptions for IRR calculation and information on the data used to calculate the return on capital is not apparent in PDD. Furthermore the IRR calculations should authenticate by the responsible authority of Alembic or competent third party and should be the part of PDD.</p>	A.5.2, B.3.2	All assumptions are explained in the revised PDD, spread sheet (enclosure 1) and same has been submitted to DOE.	<p>The below evidences has been validated by validation team during assessment of additionality</p> <ul style="list-style-type: none"> <li>• Annual Reports 2003-04, 2005-06 for Alembic Limited.</li> <li>• Balance sheet for wind mill power for Alembic Limited, document number: ENG/COG/F/12/01, dated: 01/12/2005.</li> <li>• Certified project IRR calculation sheets consisting of Investment Analysis, Returns from Project activity and profitability projections of the Project/</li> <li>• Estimated sources of finance V.H.Gandhi and CO. (Chartered Accountants), dated 20/04/2006.</li> <li>• Execution of agreement for wind farm generation as per policy declared by Government of Gujarat vide G.R. EDA-10-</li> </ul>





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
			<p>2001-3054-BC Part (II) dated 20/06/2002.</p> <p>Detailed assumptions for IRR calculation and information on the data used to calculate the return on capital is now appropriately amended in enclosure 1 (IRR and CER calculation) as well as section B.5 of PDD.</p> <p>Hence CAR A6 has been closed.</p>
<p><b>CAR B1</b></p> <p>While determining the baseline emission factor, project proponent has not applied the latest version of CEA database (Cp <a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a>). Also the data source of simple operating and build margin is missing under Annex- 3 of PDD.</p>	<p>B.2.1, B.2.4, B.2.6, B.4.2, B.10.2, B.10.6</p>	<p>The PDD has been amended accordingly.</p>	<p>Alembic Limited has now applied the latest version of CEA database (version 02, June 2007) (Cp <a href="http://www.cea.nic.in/">http://www.cea.nic.in/</a>) while calculating baseline EF. Also the data source of simple operating and build margin is now properly addressed under Annex- 3 of PDD.</p> <p>CAR B1 has been closed.</p>
<p><b>CAR B2</b></p> <p>Under regulatory risk of section B.5 of PDD, project proponent should authenticate with reference the various mentioned</p>	<p>B.3.1, B.3.3</p>	<p>The policy document has been submitted to DOE.</p>	<p>Under regulatory risk of section B.5 of PDD, Alembic has authenticate the reference of</p>



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
policies and provide extract of same to DOE.			various policies with below evidences <ul style="list-style-type: none"> <li>• Wind Power Policy – 2002 Government of Gujarat Energy and Petrochemicals Department Government Resolution No.EDA-102001-3054-B Sachivalaya, Gandhinagar. Dated 28 June , 2002.</li> <li>• Wind power India-year wise installations statistics – <a href="http://www.windpowerindia.com/statyear.asp">http://www.windpowerindia.com/statyear.asp</a></li> <li>• Incentives Declared by the State Governments for Private Sector Wind Power Projects <a href="http://www.infraline.com/">http://www.infraline.com/</a></li> </ul> Hence CAR B2 has been closed.



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
<p><b>CAR B3</b></p> <p>Project proponent should demonstrate the robustness of the financial attractiveness due to reasonable variations in the critical assumptions of the project through sensitivity analysis.</p>	<p>B.3.1, B.3.2, B.3.3</p>	<p>For wind mill project the most important factor is the plant load factor which governs electricity generation. In the financial calculation the PLF is conservatively on higher side with respect to published literature nevertheless project proponent has performed sensitivity analysis with 1 to 5% increase in PLF and similarly decrease in PLF. This is clear from the analysis that after increasing the PLF by 5% also the IRR of the project is not crossing the benchmark. The excel sheet has been submitted and text is included in revised PDD.</p>	<p>Project proponent has carried out the sensitivity analysis by varying plant load factor of WTG. As per the Suzlon proposal the considered PLF is 26.48%. Alembic has tested the financial additionality of project activity by varying the PLF in reasonable range (<math>\pm 1-5\%</math>). Validation team has done the proper analysis of sensitivity with respect to reasonable variation in critical parameter (PLF). It is observed from the study that at none of the scenario, the IRR is crossing the benchmark. Therefore the Alembic has demonstrated the robustness of the financial attractiveness due to reasonable variations in the critical assumptions of the project through sensitivity analysis.</p> <p>Hence CAR B3 has been closed.</p>



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
<p><b>CAR B4</b></p> <p>Under section B.6.3. and annex 3 to PDD, the calculation of "EG<sub>y</sub>" has not been presented in a transparent manner so as to enable the reader to reproduce the calculation. (E.g. what is the PLF considered? What is the availability of WTG considered?).</p> <p>Further, the achieved emission reductions as stated under sections A.4.3 and B.6.4 of PDD does not correspond with the total electricity exported (9636 MWh/year) and the combined margin grid emission factor (0.953 tCO<sub>2</sub>/MWh).</p>	B.4.1, B.5.1, B.5.2	All necessary assumption has been now included in revised PDD. Further more the achieved emission reduction is now uniform throughout the revised PDD.	<p>Now the detailed calculation of EG<sub>y</sub> has been explained under section B.6.3 of PDD. The PLF has been considered as 26.48 % (reference: Suzlon proposal letter) where as availability of WTG is 100 % for first four year and after that 95 % (reference: Suzlon proposal letter) for remaining crediting period is considered. All relevant section of PDD has been corrected accordingly.</p> <p>Now the achieved emission reductions as stated under sections A.4.3 and B.6.4 of PDD is inline with each other.</p> <p>Thus CAR B4 has been closed.</p>
<p><b>CAR B5</b></p> <p>Table template given under section B.7.1 of PDD is not inline with CDM-SSC-PDD guidelines and needs appropriate corrections. Further under section B.8, the contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity does not indicate whether the person/entity is also a</p>	B.8.1, B.10.1	PDD has been revised accordingly.	<p>All necessary amendments have been done appropriately in revised PDD.</p> <p>Thus CAR B5 has been closed.</p>



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
project participant listed in Annex 1.			
<b>CAR C1</b> As per section A.4.3 of PDD, the chosen fixed crediting period by Alembic is 10 (ten) years is not covering the total crediting period appropriately. Furthermore, it is not in line with the table given in section B.6.4 of PDD.	C.2	PDD has been revised accordingly.	Now chosen fixed crediting period mentioned under section A.4.3 and B.6.4 is uniform.  Thus CAR C1 has been closed.
<b>CAR E1</b> Project proponent has not identified local villagers and O & M contractor's employees as one of the key stakeholder under section E.1 of PDD. Furthermore, the project proponent should mention the respective dates of consultation with the identified stakeholders and minutes of meeting in the relevant section of PDD.	E.1	PDD has been revised accordingly.	Now Alembic had identified local villagers and O & M contractor's employees as one of the key stakeholder under section E.1 of PDD. Below references has been reviewed by validation team <ul style="list-style-type: none"> <li>• Letter from Suzlon on dated 13/09/2003</li> <li>• Local stakeholder interview on dated 03/12/2005 (VCD submitted)</li> <li>• Letter from GEDA on dated 13/12/2006</li> </ul> Alembic has addressed respective dates of consultation with the identified stakeholders and minutes of meeting in section E of PDD.



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
<b>Clarification Requests (CR)</b>			
<b>CR A1</b> Under section B.5 “Investment Barrier” it is stated that “According to one study in Gujarat for the same period the following results are obtained”. The clarification is needed as to which study the project proponent is referring. Also the project proponent should substantiate the statement “the wind turbines .....in state” under other barriers with proper documentary evidences. Further the source of data for the table “Wind Installation in Gujarat over the year” under the section B.5, Regulator Risk is not stated.	A.5.2, B.3.1, B.3.3,	The reference of the study is given in the PDD. The supporting for the same has been submitted in the form of a document published in wind power India.	Alembic has submitted “Captive Power Plants: Case Study of Gujarat, India, P.R. Shukla, Debashish Biswas, Tirthankar Nag, Ameer Yajnik, Thomas Heller and David G. Victor, Working paper”, while referring the study in Gujarat state.  Now the statement “the wind turbines .....in state” under other barriers also “Wind Installation in Gujarat over the year” under the section B.5, Regulator Risk has been substantiated with below reference <ul style="list-style-type: none"> <li>• Wind power India-year wise installations statistics – <a href="http://www.windpowerindia.com/statyear.asp">http://www.windpowerindia.com/statyear.asp</a></li> </ul> Hence CR A1 has been closed.
<b>CR A2</b>	A.5.2, B.3.1,	The project proponent has	In order to demonstrate that



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
<p>The project proponent should provide necessary document to demonstrate that banking period in Gujarat is 6 months compared to states of Maharashtra, Tamil Nadu and Karnataka. Furthermore, project proponent should provide proper documentary evidence to demonstrate the tariff in Gujarat state is amongst lowest in the country.</p>	B.3.3	<p>submitted the supporting document of banking period and electricity tariff in different states. It is clear from document that the Gujarat is having lowest tariff.</p>	<p>banking period in Gujarat is 6 months compared to states of Maharashtra, Tamil Nadu and Karnataka, and the tariff in Gujarat state is amongst lowest in the country Alembic has submitted below evidences.</p> <ul style="list-style-type: none"> <li>Incentives Declared by the State Governments for Private Sector Wind Power Projects  <a href="http://www.infraline.com/">http://www.infraline.com/</a></li> </ul> <p>Validation team has studied the above reference and found deemed OK, thus CR A2 has been closed.</p>
<p><b>CR B1</b></p> <p>IRR calculation is unclear with respect to financial implication of below mentioned entities</p> <ul style="list-style-type: none"> <li>GETCO annual charges (Electrical inspection charges, etc)</li> <li>Sundry Administration expenses</li> <li>GEDA charges refund</li> <li>Maintenance of spares as percent of annual maintenance cost</li> <li>Aggregate insurance charges will go on reducing by percent per year in view of value of windmills going down every year and likely increase in Insurance charges</li> </ul>	B.3.1, B.3.2	<p>In the decision making project proponent has not included the GRTCO and GEDA expenses. It was a conservative assumption as these charges increase the capital cost thus reducing the IRR. Other than this with respect to huge capital investment these cost were low. Maintenance of spares is already included in the</p>	<p>OK  Hence CR B1 has been closed.</p>



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
<ul style="list-style-type: none"> <li>Service tax and education cess payable over O&amp;M charges</li> </ul>		<p>contract with O &amp; M contractor.</p> <p>Insurances charges included are constant and very low compared with the cost (Less than a percent).</p> <p>Conservatively service tax and O &amp; M charges are not included in IRR calculation as they will increase the outflow thus reducing the IRR further.</p> <p>The project proponent has taken all conservative estimates while performing the financial analysis.</p>	
<p><b>CR B2</b></p> <p>Under section B.5 of PDD, weighted average cost of the power used by Alembic is for one year while investment analysis is done for three years. Clarification requested.</p> <p>Further, during the conceptualization of project activity, Alembic was fulfilling their power requirement by below sources</p> <ul style="list-style-type: none"> <li>Grid electricity</li> <li>Natural gas based cogeneration turbines</li> </ul>	B.3.2,	<p>The weighted average cost of power for last three year average is used in the calculation. .</p> <p>According to additionality tool the benchmark should be consistently used in the decision making. Therefore three years average is considered for the benchmark.</p>	<p>OK</p> <p>Thus CR B2 has been closed.</p>





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
<ul style="list-style-type: none"> <li>Diesel generating (DG) set (It was used in emergency conditions)</li> </ul> <p>However comparative analysis is done for lignite, coal and NG based power plant. It is unclear about the implication of fuel cost escalation while calculating the weighted average cost of the power used by Alembic.</p>		<p>The Alembic plant is working from last 100 years and seen sudden fluctuation in the costs of energy. From last ten years, there was variation in the energy cost in both ways upwards and downward as well (Please see weighted average cost of electricity for last three years). Although escalation in the energy cost which may be positive or negative but conservatively 2.5% escalation is considered in the project activity.</p>	
<p><b>CR B3</b></p> <p>PDD states that, “It could have either continued to use current generation mix of electricity at <b>high tariff</b> or set up a captive unit based on coal or diesel. There was also an option going for WTG’s considering CDM benefits to achieve financial closure”. CDM revenues do not result in “financial closure” (as the term is understood normally) unless they are securitized, which is not envisaged. Secondly, the statement implies that the project is not additional. (page 14 of PDD).</p>	B.3.2	<p>The project proponent has taken the project decision based on the CDM revenue and that is clear from board approval note. Therefore project is approved with CDM. The word financial closure implies project approval. The word is changed and project approval is used in PDD. The statement is revised accordingly.</p>	<p>OK                      Thus CR B3 has been closed.</p>



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
<p><b>CR B4</b></p> <p>The average return on capital computation is not acceptable. The average return is <i>not</i> additive. It is not known whether the return on equity is post-tax or pre-tax. Both the costs should be post-tax or pre-tax, preferably post-tax. Since the project (wind power project) is being funded through internal accruals and term loan, the right procedure would be to compute the WACC for the project and not to rely on the WACC of the company as a whole. Depending upon whether post tax or pre tax WACC is considered, IRR should be computed on identical lines. The project may not be considered 'additional', as at the weighted cost of INR4.10/kWh, the project yields a return of 14.42% unless it could be proved that the IRR of 14.42% is lower than the benchmark return.</p> <p>To establish the additionality of the project, the Project IRR should be computed using the Grid Power cost instead of the weighted average cost as the PDD itself claims that, „It could have either continued to use current generation mix of electricity at <b>high tariff</b> or set up a captive unit based on coal or diesel“ to prove the additionality of the project.</p>	B.3.2	<p>The average return on capital is calculated based on the balance sheet of Alembic and is available in public domain. The WACC is considered as the average of last three years and detailed calculation for the same has been submitted as excel sheet to DOE. Both the cost was taken post tax and the tax is also calculated from the balance sheet. As the IRR is 14.80% which is well below the WACC benchmark 15.92% and therefore the project activity is financially additional.</p> <p>Based on last three years data available in the balance sheet the generation mix of the Alembic was based on mainly three sources i.e. Electricity from Grid, electricity from natural gas based captive power plant and diesel generating set. The percentage of the sources depends on the availability of</p>	<p>OK          Thus CR B4 has been closed.</p>



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
		<p>difference sources and operating costs. As it is mentioned that the current generation mix of electricity was at high tariff (Conservatively same; weighted average cost of generation for last three years) is considered for IRR calculation.</p> <p>The project proponent would have considered coal, lignite based electricity for analysis which would have resulted in cheapest power generation but conservatively project proponent has considered weighted average cost and in that case also IRR is not crossing the benchmark WACC.</p>	
<p><b>CR B5</b></p> <p>Annual generation of units per WTG in 'Datainpt' worksheet needs to be backed by calculation (instead of figure input). The documentary evidence for grid non-availability loss is required. When the GEB is charging 4% wheeling charges, the question of transmission loss cannot arise.</p>	B.3.2	<p>In the calculation there were three losses were given by the technology provider i.e. Suzlon. The losses were –</p> <ol style="list-style-type: none"> <li>1. Transmission loss;</li> <li>2. Grid non availability loss;</li> <li>3. Wheeling loss.</li> </ol>	<p>OK</p> <p>Thus CR B5 has been closed.</p>



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 transmission loss is between the wind generator and substation (feeder). The wheeling loss is considered after the substation (feeder). Therefore the transmission loss is relevant to the project activity and supporting for the same is submitted in form of Suzlon offer.	
<b>CR B6</b> The profitability statement does not take into account depreciation and does not provide for tax. Since Windmills are eligible for 80% depreciation, the tax shield accruing to parent company because of windmill project should be taken as credit in the profitability statement.	B.3.2	The project proponent is not claiming the WDV and claiming the MAT. The same has been addressed in the IRR sheet.	OK Thus CR B6 has been closed.
<b>CR B7</b> There cannot be actual repayment schedule and std. repayment obligation. Company has to repay the loan as per the repayment schedule agreed upon undertaken at the time signing the loan agreement. Therefore, the question of 'actual repayment schedule' given in 'Recap' worksheet does not arise. Moreover, the question of negative repayment does not arise. In case repayment schedule is modified, with the consent of the financial institution, interest has to be recomputed.	B.3.2	The same has been corrected in the IRR sheet and the revised excel sheet submitted.	OK Thus CR B7 has been closed.



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
<b>CR B8</b> While in the 'Datainpt' worksheet it is envisaged to be provided from the 2 <sup>nd</sup> year onwards, in all the worksheets, O&M expenses has been taken from the 5 <sup>th</sup> year only.	B.3.2	This was only typographical error and corrected in the calculation.	OK Thus CR B8 has been closed.
<b>CR B9</b> Providing depreciation at 10% on Straight Line basis in 'Generat' worksheet is not acceptable. Windmills are entitled to 80% WDV depreciation and the Straight Line depreciation is taken at 5.28%. Moreover, there is no question of depreciation on land.	B.3.2	The project proponent has not claimed the WDV depreciation. This can be seen from the balance sheet. The project proponent has considered MAT and same is reflected in the IRR calculation. Other than this, the project proponent has calculated project IRR and the rate of depreciation is not affecting IRR calculation.	OK Thus CR B9 has been closed.
<b>CR B10</b> Computation of interest on term loan on average balance ('Termloan' worksheet) is not acceptable; it should be on opening balance.	B.3.2	The sheet is corrected based on above clarification and interest rate is calculated based on opening balance.	OK Thus CR B10 has been closed.
<b>CR B11</b> In the 'IRR' worksheet, the interest should be added back to cash inflow, as the total project cost is taken as cash outflow. The residual value at 5% is not acceptable. The land cost should be taken at cost and plant and machinery cost may be taken at 5 or 10%.	B.3.2	The project IRR is calculated after taking these corrections into consideration. The salvage value for the land is considered as 100% and salvage of machines is considered as 5%. The IRR	OK Thus CR B11 has been closed.



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
		sheet is corrected accordingly.	
<b>CR B12</b> The profitability statement should be computed upto post tax profit, after taking into consideration the applicable tax rate to the company, depreciation and the tax shield enjoyed by the company because of higher depreciation rate enjoyed by windmill project.	B.3.2	The project proponent is manufacturing healthcare products and covered under MAT. In the case of wind mill also the depreciation was considered as per the company's rule (i.e. 5.28% per year) and no other depreciation benefits were considered in this case. The same can be seen in balance sheet of the Alembic Limited.	OK Thus CR B12 has been closed.
<b>CR B13</b> Project proponent, needs to substantiate that, how project with guaranteed power compensation will mitigates the financial additionality claim?	B.3.2	In the project activity guaranteed power generation is given for four years. In the consideration of the project feasibility the project economics is calculated based on the life of the project. For this project also the decision of investment was based on the life of project i.e. 20 years. Therefore the guaranteed generation is covering 20% of the life of the project. The remaining 80% of the life of the equipment is exposed to	OK Thus CR B13 has been closed.



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
		financial risk. Other than this it is worth noting that the guaranteed generation is on the electricity generated i.e. in case on less generation from guaranteed generation the cost of electricity will be compensated. The capital investment which is very huge is not covered under that. Therefore in case of guaranteed generation capital investment is not covered and that is why investment analysis claim holds water in this case.	
<b>CR B14</b> Documentary support are needed for the computation of cost of power - generation, auxiliary consumption, steam cost, GEB power cost and transmission loss. Since 3 years average has been considered in computing the WACC, it is but appropriate that the power cost is also taken on the basis of 3 years average.	B.3.2	Supporting for the same is submitted. For power generation, steam generation the signed copy from DGM power plant is submitted as supporting; which is a consolidate sheet from daily log books. For the cost of electricity GEB bills have been submitted. The steam cost is calculated based on the actual cost in the last year is taken	Below evidences has been checked by validation team. <ul style="list-style-type: none"> <li>• Cost of power generation – SAP report of Alembic</li> <li>• Auxiliary consumption – yearly statement on power generation</li> <li>• GEB power cost – electricity bill and balance sheet of Alembic</li> <li>• Transmission loss –</li> </ul>



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
		<p>from SAP reports. The transmission loss is calculated based on total power generation in the plant and total consumption from all users.</p> <p>In decision making cost of current energy cost is considered because the energy cost is very sensitive and may vary based on cost of fuels, regulation etc. Therefore conservatively one year average cost is considered which is higher with respect to past year.</p> <p>According to additionality tool the benchmark should be consistently used in the decision making. Therefore three years average is considered for the benchmark.</p> <p>Other than this the IRR of the project is less than the current year (decision making year) benchmark as well.</p> <p>The correction is made in</p>	<p>calculated internally based on total power generation and the consumption in the plant.</p> <p>Above all information is also addressed in the PDD.</p> <p>One year average cost of Power is considered which is conservative approach while evaluation a financial additionality because the considered power cost is higher than past year. Validation team has surveyed all documentary evidences to conclude the consideration of power cost as a one year average cost.</p> <p>Further more 3 years average has been considered in computing the WACC, which is inline with latest version of additionality tool.</p> <p>Hence CR B14 has been closed.</p>





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
		steam cost sheet and revised sheet is submitted.	
<b>CR B15</b> Table containing installation cost and generation cost of power through lignite, coal, natural gas and wind given in the PDD should be backed by documentary evidence. (page 15 of PDD).	B.3.3	The project proponent has provided the supporting on the cost considered in the table. Other than this one more supporting from registered PDD is also included in the PDD.	Alembic has submitted, "Captive Power Plants: Case Study of Gujarat, India by P.R. Shukla, Debashish Biswas, Tirthankar Nag, Ameer Yajnik, Thomas Heller and David G. Victor to substantiated the information on installation cost and generation cost of power through lignite, coal, natural gas and wind given in the PDD. Validation team found the evidences deemed OK and inline with the information provided in PDD. Thus CR B16 has been closed.
<b>CR B16</b> Clarification is sought regarding the accuracy of the tri vector energy meter used for the monitoring the total electricity exported under section B.7.1 of PDD (Cp (Published in the Gazette of India, Extraordinary, Part III, section iv), Central Electricity Authority, 17th March, 2006).	B.9.5, B.9.6, B.10.5	In the project activity for monitoring of electricity, 0.5 class meters are used. The project activity was commissioned in 30th September 2003 and this accuracy class was expectable. There are two meters installed at the site one meter which is in the custody	The project commissioning date is 30/09/2003 based on commissioning certificate of WTG. However Gazatte of India is on forward date 17/03/2006. During site visit, validation team found the energy meter no GJU03992, Secure Metre of Alembic Ltd is at 33kv having the accuracy class of 0.5S which



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
		of Alembic is installed in 33 KV line is 0.5 class and that is expectable as per CEA guidance. One main meter is installed in 66 KV line which is also 0.5 class and that is under custody of Government department and therefore it is beyond the purview of project proponent. Other than this the regulation was issued in 2006 while the project commissioned in year 2003. Therefore the meter from project proponent side is following the present regulation also while the 66KV meter is beyond the control of project proponent may follow the regulation in future.	is inline with Gazatte of India. Further more energy meter no GJU03992, Secure Metre of M/S GETCO is at 66kv having class 0.5S which is under Government custody. As per the discussion with technical team of Suzlon and GETCO, it is concluded that, 33 kv energy meter is also under continues monitoring whereby, monitored net electricity export to grid by same meter is used to distribute the electricity generation with the help of 66 kv joint meter reading.
<b>CR C1</b> Clarification is sought regarding the crediting period start date stated as 01/10/2007 in the section C.2.2.1 of PDD. However as per Para 12 modalities and procedures of CDM the crediting period cannot start before registration date of the project activity. Under section C.1.1, it's stated that the project started on 01 <sup>st</sup>	C.1	Crediting period start date is considered as "01/01/2008 or date of registration of PDD, whichever will be later" under section C of revised PDD. The project proponent has made change in the PDD and 8th July 2003 which is the date	Now start date of crediting period has been changed to "01/01/2008 or date of registration of PDD, whichever will be later" in the section C.2.2.1 of PDD. Alembic has considered



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
July 2003 and Power generation commencement on 30 <sup>th</sup> September 2003. Only one dates needs to be mentioned as per Cp CDM-SSC-PDD guidelines” and proof of same need to submit to validation team.		of releasing purchase order is considered as start date. Supporting for the same is submitted.	Purchase order date as a start date of project activity i.e. 08/07/2003. Validation team has review the purchase order of WTG and found deemed OK.  Thus CR C1 has been closed.
<b>Additional remarks / minor or editorial mistakes</b>			
Title of project activity given in PDD is mismatching with host country approval (Cp F.No.4/8/2006-CCC, dated 03/11/2006).		Appropriate correction has been made in PDD.	Now the title of project activity given in PDD is inline with host country approval.

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## CERTIFICATES



### CERTIFICATE OF APPOINTMENT

**Mr. Dipl.-Ing. Rainer Winter**

born on 1963-02-21

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

**TÜV NORD JI/CDM Assessor**

The present appointment will terminate on 2010-02-26

Certification registration No. 04 02 154-03

Essen, 2007-02-27

A handwritten signature in black ink, appearing to be 'D. Winter', written over a horizontal line.

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



### **CERTIFICATE OF APPOINTMENT**

**Mr. Manojkumar Borekar**

born on 1979-10-14

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 2010-01-28  
Certification registration No. 06 05 02 - 38

Essen, 2007-01-29

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



### **CERTIFICATE OF APPOINTMENT**

**Swapnil Prasad Thanekar**

born on 1980-12-11

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 2010-08-20  
Certification registration No. 07 08 02 - 47

Essen, 2007-08-17

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