



VALIDATION REPORT

M/S. SHAH PROMOTERS & DEVELOPERS

“14 MW WIND POWER PROJECT IN
MAHARASHTRA”

Report No: 53701508 – 08/120

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Client: M/S. SHAH PROMOTERS & DEVELOPERS	Client ref.: MR. RAJESH CHANDRAKANT SHAH (PARTNER)
<p>Summary/Opinion:</p> <p>The Shah Promoters & Developers has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: "14 MW Wind Power Project in Maharashtra", with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), the simplified modalities and procedures for small scale CDM project activities of annex II to decision 21/CP.8 and the relevant decisions by COP/MOP and CDM Executive Board.</p> <p>The project activity (grid-connected wind turbines with a capacity of 14 MW clean renewable electricity generation) intends to reduce GHG emissions by displacing the equivalent amount of electricity from the Western region grid of India, which predominantly uses fossil fuels.</p> <p>A risk-based approach has been followed to perform this validation. In the course of the draft validation, 12 Corrective Action Requests (CARs) and 05 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"> - 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) No. 4/5/2008-CCC, dated 2008/04/09. - 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 210,940 (total) t CO₂e is most likely to be achieved within the 10 years (fixed) crediting period at an average of 21,094 t CO₂e per annum. 	

Report No.: 53701508 – 08/120	Subject Group: Environment
Report title: "14 MW Wind Power Project in Maharashtra"	
Work carried out by: Manojkumar Borekar, Swapnil Thanekar	
Technical review: Ms. Katja Beyer	
Work verified by: Mr. Eric Krupp	
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Indexing terms

Climate change
CDM
Validation
Kyoto Protocol

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Abbreviations:

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CO₂	Carbon dioxide
CO₂e	Carbon dioxide equivalent
CP	Certification Program
CR	Clarification Request
CUF	Capacity Utilization Factor.....
DNA	Designated National Authority
DR	Document Review
EB	CDM Executive Board
EIA	Environmental Impact Assessment
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
HGA	Host Government Approval
I	Interview
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
MEDA	Maharashtra Energy Development Agency
MERC	Maharashtra Electricity Regulatory Commission
MITCON	MITCON Consultancy Services Limited
MPCB	Maharashtra Pollution Control Board
MSEB	Maharashtra State Electricity Board
MSEDCL	Maharashtra State Electricity Distribution Company Limited
MW	Megawatt
MWh	Megawatt hour
ODA	Official Development Assistance
PDD	Project Design Document
PLF	Plant Load Factor
PPA	Power Purchase Agreement
QC/QA	Quality control/Quality assurance
ROE	Return on Equity
SPD	Shah Promoters & Developers

UNFCCC	United Nations Framework Convention on Climate Change
WEG	Wind Electric Generator
WTG	Wind Turbine Generator

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1 INTRODUCTION

M/s. Shah Promoters & Developers facilitated by M/s. MITCON Consultancy Services Ltd. has commissioned the JI/CDM Certification Program (CP) of TÜV NORD CERT GmbH to validate the project:

“14 MW Wind Power Project in Maharashtra”

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^{/KP/};
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 17/CP.7^{/MA/}; the annex to the decision;
- the simplified modalities and procedures^{/SMP/} for small scale CDM project activities contained in annex II to decision 21/CP.8
- subsequent decisions made by COP/MOP and 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 13), which are included in the PDD and other relevant supporting documents.

The items covered in the validation are described below:

- **UNFCCC and Host Country Criteria**

- UNFCCC/Kyoto Protocol requirements, in particular,
 - the requirements of the CDM as set out in decision 17/CP.7 (Marrakech Accords)^{/MA/},
 - the present annex, and
 - relevant decisions by COP/MOP and 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 and 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^{VVM}, employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs^{CPM}. 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

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

1.3.2 Project Parties

The project is a unilateral project and hence India is the sole party involved in the project activity.

1.3.3 Project Entities

The following entities are involved in the developing of the project^{/PDD/}:

Project Proponent: M/s. Shah Promoters & Developers
Apte Road, Deccan Gymkhana
AST-1, Success Chambers
Pune- 411 004
Maharashtra, India

Contact person: Mr. Rajesh Chandrakant Shah
Partner -Management
Tel: 91-20-242275996, 91-20-25531777
Fax: 91-20-24275998
Mobile: 91-9822095858
Email: Rajeshshah28@yahoo.co.in

Project Consultant: MITCON Consultancy Services Ltd
Green Power Division
Kubera Chamber, Shivaji Nagar
Pune 411 005
India

Contact Person: Mr. Deepak Zade (Executive Vice President)
Tel +91-20-2553 3309 / 2553 4322
Fax +91-20-2553 3206
Mobile: 91-98226 84106
Email: deepak@mitconconsultancy.org

1.3.4 Project location

The project site is located at Dhule and Sangli districts of Maharashtra, India. The electricity generated is fed to the Maharashtra State Electricity Distribution Company Limited (MSEDCL) which is part of Western region grid of India.

Table 1-2: Project Location

No.	Project Scope
Host Country	India
Region	Maharashtra
Project location address	Site I - Village- Jamade, District-Dhule Site II - Village- Nagaj, District-Sangli
Latitude	Site I - 20° 59' 24.89" N Site II - 17° 08' 00.00" N
Longitude	Site I - 74° 18' 51.52" E Site II - 74° 55' 59.98" E

1.3.5 Technical project description

M/s. Shah Promoters & Developers are one of the leading builders in Pune.

The proposed project activity involves installation of 10 wind electric generators (WEGs) of individual capacities 1.25 MW^{/PO, PRO/} (4 WTGs) and 1.5 MW^{/PO, PRO/} (6 WTGs) designed as per the Germanischer Lloyd (GL)/ IEC design standards^{/PO, PRO/}. The WEGs are part of Suzlon wind farms in Dhule and Sangli districts of Maharashtra. (Suzlon Windfarm is an address for the windmills of Shah Promoters and Developers in Dhule and Sangli. Suzlon has developed the area, provided necessary physical infrastructure including evacuation facility and apportioned the cost incurred among the windmills enjoying the common facility created by it. The windmills within the Farm belong to various PPs, of which Shah Promoters and Developers is one. Please also refer CR A1). The electricity generated is fed to MSEDCL which is part of Western region grid of India. The site wise wind mill installations and technical specification of WTG's is included in the below Table 1-3.

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

The expected net electricity export to the grid is **24.528** GWh^{/PDD2/} per year at the CUF of 20 per cent from renewable sources (Wind based power generation) which are carbon neutral energy input and intended to reduce CO₂ emissions to the extent of equivalent electricity displaced by fossil fuels dominated power plant in Western region grid of India. The estimated amount of emission reductions over the chosen 10-year "non-renewable crediting period" is 210,940 tCO₂e (total) at an average of **21094** tCO₂e per annum as per revised PDD^{/PDD2/}.

Table 1-3: Site wise Wind mill Installations^{/CR/} and Technical Specification^{/TD/}:**Site wise wind mill installations**

Site	WEG Location No.	Village, District	Substation	Installed Capacity (MW)	Technology
Site-I	J-17	Jamade, Dhule	Jamade Substation	1.25	SUZLON, S-70
	J-21	Jamade, Dhule	Jamade Substation	1.25	
	J-22	Jamade, Dhule	Jamade Substation	1.25	
	J-23	Jamade, Dhule	Jamade Substation	1.25	
Site-II	N-4	Nagaj, Sangli	Ghatnandre Substation	1.5	SUZLON, S-82
	N-5	Nagaj, Sangli	Ghatnandre Substation	1.5	
	N-6	Nagaj, Sangli	Ghatnandre Substation	1.5	
	N-7	Nagaj, Sangli	Ghatnandre Substation	1.5	
	N-8	Nagaj, Sangli	Ghatnandre Substation	1.5	
	N-9	Nagaj, Sangli	Ghatnandre Substation	1.5	

Technical Specification:

Salient features of Suzlon (S-70) 1250 KW WEG	
Rotor diameter	69.1 m
Installed electrical output	1250 kW
Cut –in wind speed	3 m/s
Rated wind speed	12 m/s
Cut-out wind speed	20 m/s
Rotor swept area	3750 m ²
Rational speed	13.2/19.8
Rotor material	GRP
Regulation	Pitch
Generator	Asynchronous Generator, 4/6 poles
Rated output	250/1250 kW
Rotational speed	1010/1515 rpm
Operating voltage	690 v

Frequency	50 Hz
Protection	IP 56
Insulation class	H
Cooling system	Air -cooled
Gear box	3 stage gear box,1 planetary and 2 helical
Manufacturer	Winergy
Gear Ratio	77.848
Nominal load	1390 kW
Type of cooling	Oil cooling system
Yaw drive system	4 active electrical yaw motors
Yaw bearing	Polyamide slide bearing
Safety system	
Aerodynamic brake	3 times independent pitch regulation
Mechanical brake	Spring powered disc brake, hydraulically released fail safe
Control unit	Microprocessor controlled, indicating actual operating conditions, UPS back up system
Design standards	GL/IEC

Salient features of Suzlon (S-82) 1500 KW WEG	
Rotor diameter	82.0 m
Installed electrical output	1500 kW
Cut –in wind speed	4 m/s
Rated wind speed	14 m/s
Cut-out wind speed	20 m/s
Rotor swept area	5281 m ²
Rational speed	16.30 RPM
Rotor material	GRP
Regulation	Pitch
Generator	Asynchronous Generator,4 poles
Rated output	1500 kW
Rotational speed	1511 rpm
Operating voltage	690 v
Frequency	50 Hz
Protection	IP 54
Insulation class	H
Cooling system	Air -cooled
Gear box	3 stage gear box,1 planetary and 2 helical
Manufacturer	Winergy
Gear Ratio	95.09
Nominal load	1650 kW
Type of cooling	Oil cooling system
Yaw drive system	4 active electrical yaw motors
Yaw bearing	Polyamide slide bearing
Safety system	
Aerodynamic brake	3 times independent pitch regulation

Mechanical brake	Spring powered disc brake, hydraulically released fail safe
Control unit	Microprocessor controlled, indicating actual operating conditions, UPS back up system
Design standards	GL/IEC

2 VALIDATION TEAM

The Validation team was led by:

- **Mr. Manojkumar Borekar:** The Validation Team is lead by Mr. Borekar from TUV India Pvt. Ltd., Pune. 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 Head, Energy and Carbon Services – West Zone for TÜV India Pvt. Ltd. He is an appointed assessor for JI/CDM certification program of TUV NORD.

For this validation he was assisted by:

- **Mr. Swapnil Thanekar:** Mr. Swapnil Thanekar is CDM Expert from TUV India Pvt. Ltd., 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 technical review was conducted by:

- **Ms. Katja Beyer:** She is an Environmental Scientist and appointed Expert for the TÜV NORD JI/CDM Certification Program.

The validation report is verified by:

- **Eric Krupp.** He is a public appointed expert for the German verification of allocation applications and emission reports in the framework of EU-ETS. He is an appointed senior assessor and deputy head of TÜV NORD JI/CDM CP. For this verification he was assisted by:

3 METHODOLOGY

The validation of the project was carried out from May 2008 to June 2009. 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^{/CPM/} according to the Validation and Verification Manual^{/VVM/};
- 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 11 Corrective Action Requests and 04 Clarification Requests.

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

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

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

Figure 1: Validation protocol tables

3.2 Review of Documents

The draft PDD^{/PDD1/} submitted by the Shah Promoters & Developers in May 2008 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 2008/07/07, 2008/07/30 and 2008/10/15 the TÜV NORD JI/CDM CP performed the on-site and offsite 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 representatives proponent Mr. Rajesh Chandrakant Shah - Partner –Management, M/s. Shah Promoters & Developers Mr. Sunit Shah – Representative, M/s. Shah Promoters & Developers	- Chronological description of Project with documents of key steps - Technical details of the project realisation- project feasibility, designing, engineering, operational life time - Statutory approvals, Host Government Approval - Approval procedures and status - Quality and environmental management system:

Interviewed Persons / Entities	Interview topics
Project Consultant representatives Ms. Pooja Verma Principal Consultant – (MITCON) Mr. Vikash Kumar Singh Senior Consultant– (MITCON) Mr. Smitanshu Karekar - Project Consultant- Smitanshu Karekar & Co	- QC testing and calibration procedures and facility - Monitoring and measurement equipment- Power Generation and Metering system, grid connection of SPD, leakage, project emissions - Financial aspects- Government Incentives, equity: loan - Crediting period - Project activity starting date - CER allocation /ownership - Baseline study assumptions - Sustainable development issues, Analysis of local stakeholder consultation - Roles and responsibilities of the staff members w.r.t project management, monitoring and reporting - Technical specification data: capacity of turbo-generator, expected PLF, energy generation
O & M Contractor representatives Mr. Sadanand M. Patil – Deputy Manager, SISL, Sangli Mr. S. R. Ganthi Mathinathan – Junior Engineer, SISL, Sangli Mr. Praganesh Rathod – Electrical Engineer, Vijayanad Engineer and Co., Sangli Mr. Pratap Bhandare – Operator, Vijayanad Engineer and Co., Sangli	

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 11 CARs and 04 CRs are raised. The CARs / CRs are documented in Annex addressed in section 4.

3.5 Public Stakeholder Comments

The PDD was made publicly available through TÜV NORD JI/CDM CP web site www.global-warming.de. Comments on the PDD were invited within 30 days, i.e. 21/05/2008 to 19/06/2008.

No comments were received. In case comments would have been received, they would have also been made publicly available on this website.

3.6 Finalising the report

The draft validation report containing a set of CARs and CRs was submitted to the project proponent. The project design document was revised addressing the CARs and CRs issued by TÜV NORD JI/CDM CP. After reviewing the revised and resubmitted project documentation^{/PDD2/}; resolving the CRs and 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 13) 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^{/PDD1/}, visits, interviews and supporting documents are summarised. This also includes the corresponding corrective action taken by the client and its final assessment. The results are shown in table 4-1:

Table 4-1: Summary of CAR and CR issued

Validation topic ¹⁾	No. of CAR	No. of CR
General description of project activity (A) <ul style="list-style-type: none"> - Project boundaries - Participation requirements - Technology to be employed - Contribution to sustainable development 	2	1
Project baseline (B) <ul style="list-style-type: none"> - Baseline Methodology - Baseline scenario determination - Additionality determination - Calculation of GHG emission reductions <ul style="list-style-type: none"> Project emissions Baseline emissions Leakage - Emission reductions - Monitoring Methodology - Monitoring of <ul style="list-style-type: none"> Project emissions Baseline emissions Leakage Sustainable development indicators / environmental impacts - Project management planning 	8	3

Validation topic ¹⁾	No. of CAR	No. of CR
Duration of the Project / Crediting Period (C)	1	1
Environmental impacts (D)	-	-
Stakeholder Comments (E)	1	-
SUM	12	5

¹⁾ 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^{/HGA/} dated 2008/04/09, the Indian DNA, National CDM Authority under Ministry of Environment & Forests confirmed the voluntary participation of M/s. Shah Promoters & Developers 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.^{/HGA/}. Nevertheless in the Host Government Approval it is stated that project proponent has to comply with the following conditions:

- M/s. Shah Promoters & Developers shall not sell the CERs to any agency/ company/ organization which purchase the CERs using ODA Funds.
- M/s. Shah Promoters & Developers 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
- M/s. Shah Promoters & Developers shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority.
- M/s. Shah Promoters & Developers 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
- This approval is not transferable. The authority reserves the right to revoke the Host Country Approval if the conditions stipulated in this approval are not complied with to the satisfaction of the National CDM Authority.

4.2 Project design

The project activity utilizes the kinetic energy of the wind for the grid connected renewable electricity generation. The high velocity wind passes over the blades of the WTG (connected to the generator) causing them to rotate generator and thereby generate electricity.

The WTG's are Suzlon S-70 (1250 kW)^{/PO, PRO/} and Suzlon S-82 (1500 kW)^{/PO, PRO/} models, which use the state of art technology developed by Suzlon according to the GL/ IES design standards. The WTG's are supplied by Suzlon Energy which is part of Suzlon group and have various R & D centers in Germany, Netherland and Asia.

The technology employed by the project activity is well established and available in India; hence technology transfer to host country is not involved.

According to sustainable development, various social, economic, technological and environmental benefits are achieved. The technology used is environmentally safe and sound^{/PRO/}. Also, according to host government (India) EIA is not required for windmills as harnessing wind power through windmills is considered environmentally safe and sound.

The project activity does not involve any ODA funding for its financing. The geographical (Site I – village Jamade, district Dhule; Site II – village Nagaj, district – Sangli, state Maharashtra, India) and temporal boundaries (10 years crediting period, 20 years operational lifetime) is clearly defined.

Nevertheless, CAR A1, CAR A2 and CR A1 had been raised in the course of the validation and was 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 13: EB 36).

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 CO₂equ/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 "Tool to calculate the emission factor for an electricity system" (Version 01, EB 35).

OR

b) The weighted average emissions (in kg CO₂equ/kWh) of the current generation mix.

For the project activity, baseline emission reductions have been estimated using weighted average emissions according to the procedures prescribed in the approved methodology (in tCO₂e/GWh) of the current generation mix, using the most recent statistics available at the time of PDD submission (Paragraph 9, sub point (b)). This is in line with the methodology as defined in the clarification SSC 065: “If the Project Proponent decides to use option b), the calculation should be done ex post, every year during the crediting period. The estimation of emission reductions, needed for completing the PDD for registration could be done with the last available information at the time of the PDD submission.”¹

Due to the choice of option b) weighted average EF the PP has stipulated to monitor the EF over the crediting period.

The ex-post emission coefficient has been calculated based on the baseline information of the Western region grid provided in B.6.1 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 CO₂ Baseline Database² (Version – 3.0, December 2007) published by CEA the ‘Weighted Average Emission Rate (tCO₂/MWh) (incl. Imports)’ is considered. The resultant figure of 860 tCO₂/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 MEDA and the energy policy of the Government of India. The project is also in line with Non Conventional Energy Policies.

Nevertheless, CAR B1 has been raised and was successfully closed (ref Annex: Validation Protocol – Table 3).

Additionality

Prior consideration of the clean development mechanism: The project developer has claimed the start date of the project activity is April 20, 2006^{PO/} and to substantiate the claim has submitted a copy of the purchase order for the supply of WEGs released to Suzlon Energy Ltd. The project developer has not undertaken any construction or any real action on the implementation of the project activity prior to this date. Since the *real action of the project activity* had begun on April 20, 2006^{PO/}, as per Glossary of CDM terms (Version 03), this date has been treated as the start

¹ http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_PMFHRF0B1LD9C1HNOY2BSCFT2IRYU2

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

date of the project activity. The PDD was web-hosted for public comments on May 21, 2008, i.e., after the start date of the project activity.

In accordance with the EB-41, annexure-46, the validation team assessed the Partner's resolution and other supportive which establish a clear-cut CDM consideration of project activity from conceptualization stage and continued efforts of the PP to achieve CDM status³. The, evidence was called from the project developer to substantiate the claim that the need for CDM benefits was seriously considered before the start of the project activity^{/PO/, /MD/}. In response, the project developer submitted a certified copy of the Partners' Resolution dated January 3, 2006, wherein the Partners of SPD, who are the only competent and authorized persons to take a decision on setting up of this project activity, had resolved that the CDM benefits are imperative to take up the implementation of the project activity. The project developer further substantiated the claim by submitting the correspondence with machinery suppliers (dated December 18th, and 25th 2005) and Bank of Maharashtra (dated February 21st, 2006) to whom the project developers had applied for a loan wherein the Partners have considered CDM benefits to render the project bankable. In light of above substantiation, the Validation team found clear intention of the project promoter to go with the project activity with the CDM benefits and deemed the Partner's Resolution OK.

It was also confirmed during the personal discussions with the project developer that they would not have gone ahead with implementation of the project in the absence of positive opinion on the CDM benefits given by the machinery supplier, Suzlon Energy Ltd. even before the partners' resolved to seek CDM registration. The project developer also furnished the correspondence exchanged between Suzlon and the firm as evidence. Based on the documents submitted and discussions held, TÜV is convinced that there was serious consideration of CDM benefits by the Partners before the start date of the project activity and that the project would not have come up without CDM benefits.

Paragraph 100 (b) of VVM requires the DOE to review and satisfy through reliable evidence from the project participant, that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation VVM also states that evidence to support the parallel action should include, inter alia, contracts with consultants for CDM/PDD/methodology services, among others.

SPD submitted the proof of the appointment of the consultant during the project implementation, which is one among the decisive indicators to conclude that SPD had taken continuing and real actions to secure CDM status for the project in parallel with its implementation. It is only after the Consultant was appointed for CDM services that the last batch of 6 WEGs were commissioned. And the Power Purchase Agreement was signed on 14th March 2008, by which time the PP had completed the stakeholders meeting and had submitted the application to DNA seeking HCA. Documentary evidence on management decision, purchase orders released, appointment of CDM consultant, PPA, minutes of the meeting of stakeholders and the submission of application to DNA seeking HCA have been submitted to DOE for verification and they have been verified and found to be in order. The DOE affirms

³ Please refer CAR B3 and its subsequent closure under Annex-6 of PDD

that it is convinced of the parallel action taken by the PP to get the project registered as CDM activity along with implementation of project.

Demonstrating additionality: As the total installed capacity of the project activity is only 14 MW, it is a small-scale project activity. In accordance with paragraph 28 of the simplified modalities and procedures for small-scale CDM project activities, the additionality of the project activity has been demonstrated using Attachment A to Appendix B (additionality tool for small scale project activities). As all requirements specified vide § 28 of the simplified modalities and procedures are complied with by the project activity, this approach has been assessed to be appropriate for the additionality assessment for this project activity.

The individual arguments presented in the PDD to justify the additionality and the assessment of the validation team is summarized in table 4-2.

Table 4.2: Additionality Assessment

Type of barrier [#]	Argument	Assessment
(a)	Project is financially unattractive and would continue to remain financially unattractive even under optimistic assumptions.	<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
(b)	Plant Load Factor of wind power project is low. Wind power generation is subject to various factors like wind availability, grid availability, machine availability and transmissions losses, all these factors being beyond the control of PP.	<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
(d)	The tariff structure for wind power projects is a single-part tariff structure as compared to utility scale fossil fuel and hydro projects, which have two-part tariff structure. This implies that project activity carries a higher investment risk as the investment recovery is not decoupled from the level of actual generation achieved by the project due to variations in off take. Thus, in case of the project activity, issues such as transmission unavailability, back-down of generation or part-load operations,	<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

Type of barrier [#]	Argument	Assessment
	which are beyond the control of the investors are likely to affect the project activity more severely.	
(a)	The investment required for a wind power project is higher than most of the common renewable energy projects being implemented at present as well as conventional energy projects.	<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
d)	Project developer is in the business of real estate development and hence has no experience in the operation of wind power projects	<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
(c)	Wind energy based power generation is not a common practice in Maharashtra	<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
Assessment of the validation team		<input checked="" type="checkbox"/> Project is additional <input type="checkbox"/> Project is not additional

Classification as per 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

Investment Analysis

Project developer has demonstrated through the investment analysis that the financial returns of the project activity are insufficient to justify the required investment. TÜV has adopted a six-pronged strategy to ascertain the veracity of the conclusion drawn by the project developer, viz:

- determining the suitability of the benchmark applied for the type of financial indicator presented;
- conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy and suitability of parameters;
- cross-checking the parameters against third-party or publicly available sources;
- reviewing annual financial reports related to the project participant;

- e) assessing the correctness of computations carried out and documented; and
 - f) Subjecting the critical assumptions of the project activity to reasonable variations to determine under what conditions variations in the result would occur, and the likelihood of these conditions.
- a) Suitability of financial indicator and benchmark: Additionality Tool (Ver 05.2) requires the PP to identify the financial indicator, such as IRR, NPV, cost benefit ratio, or unit cost of service (e.g., levelized cost of electricity production in \$/kWh or levelized cost of delivered heat in \$/GJ) most suitable for the project type and decision-making context. The project developer has chosen Equity IRR to demonstrate the additionality of the project. Additionality Tool (Ver. 05.2) permits the use of equity IRR, for demonstrating the additionality using benchmark analysis. The tool permits the use of either project IRR or equity IRR⁴. Since the project developer is demonstrating the financial unattractiveness of the project, equity IRR is appropriate, as it is often used by the project developers to make a decision on investing in the project. That apart, the use of equity IRR in this instant case was also considered more appropriate for two reasons:
- i) The contribution of the equity while funding the project activity was significant as compared to debt. The project is funded by equity in excess of 50% unlike other projects where equity constitutes only 30%; and
 - ii) the entire loan gets repaid within 3 years in the case of 5 MW and within 5 years in the case of 9 MW unlike other projects where the loan repayment stretches to as long as 7 years or even 10 years. Hence, the loan was more of a bridge loan in nature and hence, the project was classified as equity financed.

In the above background, DOE considered the equity IRR as the suitable financial indicator.

DOE also computed project IRR (without CDM benefits) which works out to 12.85% as against the WACC of 13.88 % (WACC has been selected as the benchmark). Even project IRR is less than the benchmark, thus reinforcing the conclusion of DOE that the project is additional. Project IRR calculation and WACC are enclosed in the Summary sheet.

Additionality tool (ver.05.2) states that the discount rates and benchmarks shall be derived from “Government bond rates, increased by a suitable risk premium to reflect private investment and/or the project type, as substantiated by an independent (financial) expert or documented by official publicly available financial data”⁵, among others. However, it is imperative that the benchmark selected should be *suitable* for the *type* of financial indicator presented. Accordingly, Govt. Bond rate – weighted average yield of Govt. Securities for the year 2004-05 (6.11%)⁶ – has been taken by the PP into consideration to work out the benchmark using the well-accepted CAPM.

⁴ Tool for the demonstration and assessment of additionality (Version 05.2) p.6

⁵ Tool for the demonstration and assessment of additionality (Version 05.2) p.6

⁶ Annual Report 2004-05, Reserve Bank of India, P.155, can be accessed at <http://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/65526.pdf>

The benchmark works out to 17.05% with the use of deposit rates and 16.95% with the use of Govt. bond rate as proxy for risk free rate. The conservative estimate of the two, viz., 16.95% has been considered as the benchmark. TUV Nord evaluated the variables considered in the benchmark computation and the appropriateness thereof against the conditions laid down by EB and was convinced of the appropriateness of the benchmark computation and its suitability to the financial indicator used to demonstrate the additionality.

Based on the facts that the

- a) the benchmark satisfies all the conditions stipulated by the Additionality Tool; and
- b) the firm earned a return of 22% on its capital during the year 2005-06 (profit of Rs.5.36 million on a capital of 24.47 million);

TUV-Nord considers the benchmark chosen is conservative and appropriate for the project.

Using the benchmark, the project developer has demonstrated that the expected return from the project activity is lower and hence the project is additional.

b) Parameters and assumptions used: The three important parameters, which determine the equity IRR of the project, are project cost, financing pattern, and profitability estimates. The project cost include, civil works cost, WEG cost, evacuation cost, MEDA processing costs and preoperative expenses. All the constituents of the project cost are based on quotation/purchase orders/work orders received/released/placed, except the pre-operative expenses, viz., bank processing charges and expenditure during construction. Civil works cost, WEG and common evacuation costs are all based on purchase orders. Bank processing charges are based on the amount paid to banks for processing loan application. Expenses during construction represent travel, administrative expenses, rent rates and taxes and insurance during construction. These expenses have been certified by the Statutory Auditor of the firm. Moreover, of the total cost, bank processing charges and pre-operative costs account for only 10 basis points. The financing pattern yields a gearing of 48:52. The project developers have adopted a conservative approach of restricting the leverage to 1:1 (approx). The loan sanction letter of bank evidences the gearing.

The profitability estimates of the project, which forms the basis for equity IRR calculation is based on installed capacity, PLF, power tariff, O&M cost, insurance cost, interest, depreciation, taxation. The installed capacity is a computed figures based on the number of WEGs installed and the capacity thereof. The PLF works out to 20%, which is in conformity with MERC order. PP has also submitted the statistics of PLF achieved by the wind power projects in Maharashtra. The record reveals that barring 2003-04, the wind power projects never achieved even a PLF of 20% in the past⁷. The statistics reveal that the wind power projects achieved a PLF of as low as 8% and 9% in 2000-01 and 2001-02. After 10 years, the capacity has been derated

⁷ http://www.mahaurja.com/Download/Sitewise_WindInstallationInfo.xls

by 5% as per TERI report⁸. Power tariff is based on PPA, which is in line with the tariff recommended by MERC for wind power projects. O&M cost and insurance cost are based on O&M contract and the cover note received for insurance by the project developer. Interest is based on detailed computation forming part of the worksheet. The project developer has depreciated the entire assets over the life time of the asset, viz., 20 years for computing book profit and Income Tax Act stipulated WDV depreciation for income tax calculation, which are accepted accounting methods. Tax liability has been calculated as per the income tax rules. In computing the income tax liability, the project developer has taken into account the accelerated depreciation (80%), which the wind turbines are eligible and the Tax holiday (u/s 80IA of the Income Tax Act, 1961), which the infrastructure projects (under which the project activity falls) are entitled to for the 10 consecutive years out of the first 15 years. The tax shield enjoyed by the parent company on account of accelerated depreciation has also been taken into account while computing the equity IRR. The tax rate assumed corresponds to the tax rate⁹ prevailing at the time of taking decision.

c) Cross checking parameters: The cost of WEGs, power evacuation costs, O&M cost, insurance costs, interest costs, depreciation and tax rate have been cross checked with quotations, purchase orders, loan sanction letters, Income Tax Act, PPA entered into by the project developer with the Utility and the MERC order. The input costs considered appear to be in order.

d) Financial reports of project participant: TUV requisitioned the Annual Reports^{/AR/} of the project participant. None of the input values taken in the computation can be based on the Annual Accounts, as the project is engaged in an activity totally different from the present activity of the firm. The firm has earned a profit of Rs. 5.3 million in 2005-06, 65.3 million in 2006-07 and Rs.125.4 million in 2007-08. Considering the fact that the firm has earned a profit and that the accelerated depreciation would go to reduce the tax liability, the *tax shield* enjoyed has been accounted for as cash inflow while calculating IRR.

e) Assessment of correctness of computation: The assessment involves checking the data input taken from quotation/documents, adoption of correct accounting principle and arithmetical accuracy. TUV checked the quotation/ documents and ensured that right input has been taken in the project cost and projections. The accounting principles adopted for computing depreciation, tax, tax shield are found to be in order. The arithmetical accuracy is also found to be correct.

The principle adopted by the project developer for computing equity IRR is in conformity with the “Guidance on the Assessment of Investment Analysis” issued by EB. Paragraph 10 of Annex 45 of EB 41 states in the calculation of equity IRR only the portion of investment costs which is financed by equity should be considered as the net cash outflow, the portion of the investment costs which is financed by debt should not be considered a cash outflow. DOE verified the calculations and found that only equity has been taken as *cash outflow* in IRR calculation, which implies that

⁸ "The efficiency of any rotating machine reduces due to ageing. A simplified norm of one time deration by 5% after 10 years may be considered to estimate net saleable energy" Wind Energy Information 2005/2006, TERI P.19

⁹ Tax rate has gone up after the project was conceived as the educational cess has been increased from 2% to 3%. To that extent, the project would become all the more additional.

only that portion of investment costs, which is financed by equity, has been considered as net cash outflow, which is strictly in conformity with the guidance of EB. IRR has been computed for 20 years. Since the entire assets have been fully depreciated, the salvage value has been taken 5% of equipment cost, which appears reasonable. Considering the wear and tear the WEGs are likely to suffer during the 20 years, they may not command any value more than the 5%. In computing the equity IRR, the project developer has taken into account profit after tax, depreciation and salvage value. The common evacuation cost being interest free loan to State Utility as per MERC Order, repayment thereof by the State Utility is taken into account as cash inflow as per MERC Order. From the total, the repayment of term loan has been deducted, which is the accepted accounting principle, in as much as the repayment of term loan is made out of cash flow, i.e., profit after tax and depreciation. In the calculation only that portion of investment costs, which is financed by equity, have been considered as the net cash outflow, which is as per the Guidance issued by EB.

Based on the above, the equity IRR of the project works out to 13.04% in contrast to the benchmark of 16.95%. In the above background, TUV Nord is convinced that the project is additional and not a business-as-usual scenario. However, the conclusion was checked by subjecting the critical assumptions to reasonable variations.

f) Sensitivity analysis: The robustness of the conclusion arrived have been tested through a sensitivity analysis by subjecting critical assumptions to $\pm 5\%$ and $\pm 10\%$ variation. The project developer has identified PLF, project cost and O&M cost as critical assumptions. Accordingly, sensitivity analysis has been conducted to analyze the impact of a 5% and 10% change in (a) project cost, (b) PLF and (c) O&M Cost on the profitability of the project activity. The sensitivity analysis reveals that the project would remain additional as could be seen from the following chart and the data given below:

Chart –1: Sensitivity Analysis based on Equity IRR

Factors	Variation				
	-10%	-5%	Baseline	+5%	+10%
PLF	10.32%	11.69%	13.04%	14.37%	15.69%
Project cost	15.84%	14.34%	13.04%	11.89%	10.87%
O&M Cost	13.38%	13.21%	13.04%	12.87%	12.69%
Benchmark ROE	16.95%				

As the sensitivity analysis given above reveals, the project would remain additional even with a 10% increase in the PLF or a 10% decrease in the project cost. As the chart reveals, profitability is not sensitive to O&M Cost at all. The project will become *non additional* if

- PLF goes up by 14.8%
- Project cost goes down by 13.25%

PLF: The PLF considered in projections is 20%, as against 19% observed by Maharashtra Energy Development Agency based on the data collected from all the windmills presently operating in the State. A 12% hike in PLF would mean achieving a PLF of 22.4%, which the project developer has submitted is ruled out having regard to the past experience. PP has submitted the data published by MEDA to substantiate the argument. In fact, the project developer has not achieved more than 12¹⁰ % PLF since commencement of generation at Dhule site from April 2007 to March 2008. TUV agrees with the project developer and is convinced that achievement of such a high PLF is not possible.

Project cost: As stated above, the cost taken into computation is based on quotations¹¹. Orders have already been placed based on such quotations and the equipment has already arrived at installed. The cost, therefore, represents firm cost and as such the question of any reduction in the cost, that too by as much as 11% is highly unrealistic. TUV agrees with the argument put forth by the project proponent.

O&M Cost: As regards O&M cost, the project would not lose its additionality status, even if the cost drops down to zero, which is highly unrealistic as the project developer has already entered into an O&M contract with the machinery supplier and no machinery supplier would provide O&M free of cost. That apart, the price indices in the last few years have only been going up and never registered a decline. With the country experiencing double-digit inflation, any reduction in O&M Cost is only hypothetical.

Barrier analysis: Besides investment analysis, project developer has also demonstrated the additionality of the project through barrier analysis. TUV had adopted a three-pronged strategy to validate the barriers identified by the project proponent. In the first place, it evaluated the barrier as to whether the barriers have a clear and definable impact on the financial viability of the project activity. Such barriers, having a clear and definable impact on the profitability of the project, have been treated as a part of the investment barrier. Secondly, the existence of the barrier *per se* was ascertained with available evidence and interviews. Finally, an evaluation was made as to whether the identified and document-supported barriers present insurmountable hurdle to the project activity.

a) Clear and definable impact on profitability of the project activity: Of the barriers identified by the project developer, the opinion of TUV is, that the single part tariff is a significant barrier, it is not a decisive barrier; TUV Nord does not consider higher cost of investment as a barrier as this has already been factored into in the investment analysis. Likewise, lack of experience cannot be considered as barrier since the O&M Contractor is expected to look after the maintenance of windmills. TUV Nord is convinced that wind availability together with grid and machine availability and prevailing practice are barriers in as much as they do not lend themselves to a clear and definable impact on the profitability of the project activity. TUV Nord is convinced that in none of these two barriers it is feasible to estimate with any degree of certainty the impact on the profitability of the project activity.

¹⁰ <http://www.mahaurja.com/download/windgenerationinfo.xls>

¹¹ Quotations have been submitted to TUV during validation

b) Existence of the barrier *per se*: Of the barriers listed by the Project Proponent, TUV Nord considers the common practice as the most important barrier. Based on the data collected by TUV Nord, it is convinced that the present practice is to use only thermal power generation. As per the General Review of CEA, 2006, total electricity availability at bus-bar in the State of Maharashtra was 82075.33 GWh¹², out of which wind electricity generation was 495.36 GWh¹³ and yielding a negligible share of 0.6% and proving that wind energy power generation is insignificant as compared to other power project generation sources in Maharashtra.

Since the power generation is dependent upon the vagaries of wind, TUV is convinced that the PLF could drop down. An analysis of power generation by the wind mills located in Maharashtra reveals that the maximum PLF achieved by the wind mills in the State never exceeded 20%. In two out of the last five years, the PLF achieved by wind mills was as low as 8 and 9%. Though the PLF touched 20% during 2003-04, it had dropped to 19% in 2004-05. Since the performance is entirely dependent on the vagaries of wind, PLF cannot be estimated with any degree of certainty.

Evaluation of barriers: These barriers, TUV Nord believes, present an insurmountable hurdle in as much as the project developer cannot estimate or forecast the occurrence or otherwise and the extent of impact the project activity would suffer if the barrier becomes a reality. Hence, TUV concludes these barriers really exist for the project activity.

Based on the foregoing, TUV Nord has concluded that the project activity

- a) faces investment barrier in as much as the equity IRR is less than the benchmark return and continue to remain additional even under most favorable conditions (based on sensitivity analysis);
- b) faces other barriers in as much as it cannot estimate with any degree of certainty the likely wind pattern and the resultant PLF;

Thus the validation team came to the conclusion that the project activity is additional and is not a business-as-usual case. The CDM registration would help SPD in overcoming the barriers identified above.

Nevertheless, CARs B2-6 and CR B2 were raised and successfully closed (ref Annex: Validation Protocol - Table 3).

4.4 Crediting Period

The intended crediting period of the project is fixed 10 years (February, 2009 to January, 2019). The starting date of the crediting period is 01/02/2009 or date of registration of PDD whichever will be later in accordance with § 12 of CDM Modalities and procedures.

¹² Table No. 5.3, CEA General Review 2006

¹³ Table No. 3.4, CEA General Review 2006

In the context of starting date of the project activity and the crediting period CAR C1 and CR C1 has been 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 13 and the latest version of Appendix B to the simplified M & P for Small Scale CDM project activities.

The project category is grid connected renewable electricity generation (wind) system having installed capacity (14 MW) less than 15 MW and hence as per appendix B - 'Indicative Simplified Baseline and Monitoring Methodologies for Selected Small-Scale CDM project activity categories', the proposed CDM project falls under category I.D – Grid connected renewable electricity generation.

Monitoring methodology designed for the real measurements of Net export of electricity to Western region grid of India is determined by application of the apportion mechanism adopted by MSEDCL. The monitoring plan for the project activity under section B.7 of PDD provides the apportion mechanism followed by the MSEDCL.

The Maharashtra State Electricity Distribution Company Limited (MSEDCL) is certifying agency for joint meter reading which provides the combined export and import values by the common bulk meter. Furthermore, the individual generation reading is provided by the O & M contractor (Suzlon). On the basis of both these readings the 'Net electricity exported to grid' is determined for each project promoter. The process of estimation of net electricity exported to grid is jointly carried out by representative of MSEDCL and Suzlon.

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

Nevertheless, CAR B7 and CR B3 have been raised and were successfully closed (ref Annex: Validation Protocol – Table 3).

4.6 Calculation of GHG Emissions

Methodologies for calculating emission reductions are documented under section B.6.3 of PDD. The project activity is employing grid connected renewable generation of electricity and intends to reduce carbon dioxide (CO₂) emissions by generating electricity from wind turbines, which would be exported to fossil fuel dominated the Western grid.

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.

According to the final PDD the project is expected to reduce emissions of 210,940 **tCO₂e** (total) at an average of 21,094 **tCO₂e** per annum over a 10 years crediting period.

4.7 Environmental Impacts

Social and environmental impacts of the project have been sufficiently addressed. No adverse environmental impacts^{/ECO/} as well as transboundary impacts have been envisaged from this project activity.

4.8 Comments by Local Stakeholders

SPD informed the various stakeholders at both the sites (Dhule and Sangli) 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 (M/s. Shah Promoters & Developers), local authorities on 23/10/2007 ^{/LSC/} at Mahadev Dongar site, village Nagaj, district Sangli and 08/01/2008 ^{/LSC/} at Khor-Titane village, district Dhule .

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 on May 20, 2008 and invited comments within 30 days, until June 19, 2008 by parties, stakeholders and UNFCCC accredited non-governmental organisations. However no comments were received during the period of webhosting.

6 VALIDATION OPINION

The Shah Promoters & Developers has commissioned the TÜV NORD JI/CDM Certification Program to validate the project: “14 MW Wind Power Project in Maharashtra”, with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords), the simplified modalities and procedures for small scale CDM project activities of annex II to decision 21/CP.8 and the relevant decisions by COP/MOP and CDM Executive Board.

The project activity (grid-connected wind turbines with a capacity of 14 MW clean renewable electricity generation) intends to reduce GHG emissions by displacing the equivalent amount of electricity from the Western region grid of India, which predominantly uses fossil fuels.

A risk-based approach has been followed to perform this validation. In the course of the draft validation, 12 Corrective Action Requests (CARs) and 05 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) No. 4/5/2008-CCC, dated 2008/04/09.
- 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 210,940 (total) t CO₂e is most likely to be achieved within the 10 years (fixed) crediting period at an average of 21,094 t CO₂e per annum.

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, 2009-06-02



Rainer Winter
TÜV NORD CERT GmbH



Eric Krupp
TÜV NORD CERT GmbH

7 REFERENCES

Table 7-1: Documents provided by the project proponent

Reference	Document
/ADD/	<ul style="list-style-type: none"> Synergy Global's proposal for purchase/trading of certified emission reduction accruing from the project activity. Proposal dated 11/04/2006 from Synergy Global to Mr. Rajesh Shah Auditors View on the Project- Letter dated 06/12/2005. SPD's letter to equipment supplier for clarification regarding CDM – Letter dated 18/12/2005 Equipment Supplier's reply to SPD- Letter dated 26/12/2005 Table 1.88; TERI Energy Data Directory and Yearbook 2005/06; Page number 219. Table 1.98; TERI Energy Data Directory and Yearbook 2004/05; Page no 201 CEA General Review 2006, Table Number-3.4 MNES Annual Report 2007-08 Integrated Energy Policy; Government of India (Planning Commission); Table 7.1, Page 90 Letter from Bank of Maharashtra to PP, stating clarification regarding CER income clubbed in the Financial of the project dated 2005/12/18 Letter from SPD dated 2007/04/09 to M/s Mitcon Consultancy. Work order dated 2007/09/20 by SPD on Mitcon Consultancy WTG performance review by SUZLON, WTG no J 23 shut down for 48 days due to cable theft WTG performance review by SUZLON, WTG no J 21 shut down for 21 days due to cable theft Email from Suzlon along with PPT stating the problems associated with the cable thefts
/BAL/	<ul style="list-style-type: none"> Balance sheet, Trading and Profit and Loss account of M/s. Shah Promoters & Developers , 2003-04,2004-05,2005-06,2006-07 and 2007-08.
/CAL/	<ul style="list-style-type: none"> Calibration certificate of energy meters with serial numbers 04902209, 04902207, 04737790, 04738075
/CC/	<ul style="list-style-type: none"> Certificate of Commissioning of 4 x 1250 kW Wind Electric Generators, issued by MSEDCL, reference number: SE/DHL/Tech/Wind/ No. 6580 issued on date 2006/08/22. Certificate of Commissioning of 6 x 1500 kW Wind Electric Generators, issued by MSEDCL, reference number: SE/SC/T/AE[C]/ No. 8016 issued on date 2007/10/08.
/CT/	<ul style="list-style-type: none"> Training and competency certificates.
/HGA/	<ul style="list-style-type: none"> Letter of Approval (Host country approval) of Indian Government (Ministry of Environment and Forests), reference number:

	F.No.4/5/2008-CCC dated 2008/04/09.
/ICN/	<ul style="list-style-type: none"> Insurance cover note issued by M/s The New India Assurance Company Policy number: 152601/46/07/04/00000056, 152601/11/07/11/00000300, 152601/11/07/11/00000301, 152601/11/07/11/00000302, 152601/11/07/11/00000303, 152601/11/07/11/00000304 for 1.5 MW WTGs, dated 2007/10/22 at Sangli Site Insurance cover note issued by M/s The New India Assurance Company Policy number: 152601/11/07/11/00000218, 152601/11/07/11/00000219, 152601/11/07/11/00000220, 152601/11/07/11/00000221, for 1.25 MW WTG's dated 2007/08/31 at Dhule site
/IRR/	<ul style="list-style-type: none"> IRR calculation sheets consisting of Investment Analysis, Returns from Project activity and profitability projections of the Project.
/LSC/	<ul style="list-style-type: none"> Local stakeholder interview at Phopade, Khori-Titane Village, Dhule District on date 08/01/2008 (Minutes of Meeting submitted) Local stakeholder interview at Mahadev Dongar Site, Village - Nagaj on date 23/10/2007 (Minutes of Meeting submitted)
/MAP/	<ul style="list-style-type: none"> Location map: Micrositing drawing for windfarm at Dhule and Sangli.
/MD/	<ul style="list-style-type: none"> Partner's resolution for CDM, Extract from the minutes of the meeting of the partners of M/s. Shah Promoters & Developers held on January 03, 2006 at the registered office of the firm at 11:00 am.
/MOC/	<ul style="list-style-type: none"> Modalities of communication
/MR/	<ul style="list-style-type: none"> Monthly energy reading report for Dhule and Sangli wind farm of M/s. Shah Promoters & Developers
/O&M/	<ul style="list-style-type: none"> Operation and management agreement (service only) between M/s. Shah Promoters & Developers and M/s. Suzlon Windfarm Services Limited dated 2006/08/29. Maintenance (with parts and/ consumables) Agreement between M/s. Shah Promoters & Developers and M/s. Suzlon Windfarm Services Limited dated 2006/08/29.
/ORG/	<ul style="list-style-type: none"> Organization chart of M/s. SISL, O & M Contractor
/PDD/	<ul style="list-style-type: none"> PDD of 14 MW Wind Power Project in Maharashtra of M/s. Shah Promoters & Developers Ltd., at Dhule and Sangli Districts of Maharashtra, India, PDD of 14 MW Wind Power Project in Maharashtra of M/s. Shah Promoters & Developers Ltd., at Dhule and Sangli Districts of Maharashtra, India, Version-03 dated 2008/11/26

/PO/	<ul style="list-style-type: none"> • Purchase order for supply of four number of wind mills each of 1500 kW capacity, dated 2006/12/19 • Purchase order for supply of four number of wind mills each of 1250 kW capacity, dated 2006/04/20 • Purchase order for supply of two number of wind mills each of 1500 kW capacity, dated 2007/02/08
/PPA/	<ul style="list-style-type: none"> • Wind energy purchase agreement between M/s. Shah Promoters & Developers and MSSEDCL dated 14/03/2008 for 4x1.5 MW WTGs at Nagaj Village, Sangli District • Wind energy purchase agreement between M/s. Shah Promoters & Developers and MSSEDCL for 2x1.5 MW WTGs at Nagaj Village, Sangli District • Wind energy purchase agreement between M/s. Shah Promoters & Developers and MSSEDCL dated 04/09/2006 for 4x1.25 MW WTGs at Jamade Village, Sakri Taluka, Dhule District
/PRO/	<ul style="list-style-type: none"> • Operational manual for WTG model no. S70-1.25 MW by M/s. Suzlon Energy GmbH • Operational manual for WTG model no. S82-1.5 MW by M/s. Suzlon Energy GmbH
/SC/	<ul style="list-style-type: none"> • Letter from MEDA for infrastructure clearance for setting up of 5 MW (4 x 1250 kW) Ph. III wind power project at Balsane (Brahamanwel), Tal. Sakri, Dist. Dhule as Developer • Letter from MEDA dated 2006/08/05 for transfer of capacity from M/s. Suzlon Energy Ltd., Pune (Developer) to M/s. Shah Promoters & Developers, Pune (Investor) capacity of 5 MW (4X1250 kW) Ph-III wind power project of at Gut No.19 of Forest Compartment No. 374 and 424 of Village Jamade (Brahamanwel) Tal. Sakri, Dist. Dhule and Clearance for commissioning for the above project. • Letter from MEDA dated 2006/07/28 for amendment in infrastructure clearance • Letter from MEDA dated 2007/09/13 for infrastructure clearance for setting up of 9.00 MW (6 x 1500 kW) wind power project at Nagaj (Dhalgaon), Tal. Kawathemahakal, Dist. Sangli • Letter from MEDA dated 2007/09/27 for clearance for commissioning for 9.00 MW (6 x 1500 kW) wind power project by M/s. Shah Promoters & Developers, Pune at Gut No. 585, 604 forest compartment No. 251 of village Nagaj (Dhalgaon), Tal. Kawathemahakal, Dist. Sangli
/SD/	Starting date of project activity based on the "Schedule for 4 X 1.25 MW WTG.
/SF/	Loan sanction letter from Bank of Maharashtra dated 2006/07/07.

Table7-2: Background investigation and assessment documents

Reference	Document
/AMS I.D./	Grid Connected renewable electricity generation, version 13, EB 36
/ATT/	Attachment A to Appendix B
/CBD/	CO ₂ Baseline Database for Indian Power Sector -User Guide, version 3 dated December 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-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)
/TEF/	Tool to calculate the emission factor for an electricity system, version 01
/TOL/	“Tool for the demonstration and assessment of additionality” version-5.2, EB-39
/VVM/	IETA, PCF Validation and Verification Manual version : 14/01/2008

Table 7-3: Websites used

Reference	Link	Organisation
/add/	http://www.indiasolar.com/barriers.htm	Barriers to Renewable Energy Development in India at Indiasolar.com
	http://www.windpowerindia.com/statest.html	WindPowerIndia
	http://www.wrpc.nic.in/html/annualrpt0405.pdf	Annual Report 2004-2005, Western Regional Electricity Board, CEA Ministry of Power,

	http://www.livemint.com/2007/08/03181828/Renewable-energy-ministry-seek.html?d=1 http://cdmpipeline.org/publications/CDMpipeline.xls http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf	Government of India Livemint publication, The Wall Street Journal CDM Pipe line publication Planning Commission of India
/cea/	www.cea.nic.in	Central Electricity Authority
/cma/	http://www.natcomindia.org/datasources.htm	Natcom India, Ministry of Environment, and Forest, Government of India.
/dna-i/	www.envfor.nic.in/cdm/index.htm	The National Clean Development Mechanism (CDM) Authority of India
/ECO/	<ul style="list-style-type: none"> http://envfor.nic.in/legis/crz/so-1070(e).html ; Appendix II http://www.sanctuaryasia.com/resources/paupdate/62aug06.doc http://en.wikipedia.org/wiki/List_of_endangered_species_in_India http://www.bnhs.org/bnhs/documents/AWC_2007/Threatened_Species_2007.pdf 	Ministry of Environment and Forest Newsletter on protected areas in India and South Asia List of Endangered Species in India Threatened Species covered during AWC
/GHG/	http://www.ghgprotocol.org/templates/GHG5/layout.asp?MenuID=849	World Business Council for Sustainable Development
/ieta/	http://www.ieta.org/	Website of International Emission trading Association (IETA)
/imp/	www.powermin.nic.in	Indian Ministry of Power
/ipcc/	http://www.ipcc.ch/	IPCC publications

/MEDA/	http://www.mahaurja.com/Download/Sitewise_WindInstallationInfo.xls	Maharashtra Electricity Distribution authority
/MERC/	http://www.mercindia.org.in/pdf/Detail_Wind_Energy_Order.pdf http://www.mercindia.org.in/pdf/Annexures.pdf	Maharashtra Electricity Regulatory Commission
/mnre/	http://mnes.nic.in/	Website of Ministry of New and Renewable Energy
/moef/	http://envfor.nic.in/	Ministry of Environment and Forests.
/UNFCCC/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons

Reference	Mol1		Name	Organisation / Function
/IM01/	T	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Rajesh Chandrakant Shah	M/s. Shah Promoters & Developers, Partner – Management
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Sunit Shah	M/s. Shah Promoters & Developers- Representative
/IM02/	V,T	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Pooja Verma	MITCON Consultancy Services Ltd -Principal Consultant
/IM02/	V,T	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Vikash Kumar Singh	Project Consultant-Consultancy Services Ltd - Senior Consultant
/IM02/	V,T	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Smitanshu Karekar	Project Consultant-Smitanshu Karekar & Co.
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Sadanand M. Patil	SISL- Deputy Manager
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	S. R. Ganthi Mathinathan	SISL-Junior Engineer

/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Praganesh Rathod	SISL-Electrical Engineer, Vijayanad Engineer and Co
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Pratap Bhandare	SISL-Operator, Vijayanad Engineer and Co

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

ANNEX : VALIDATION PROTOCOL

Table 1: Mandatory Requirements for (CDM) Project Activities

Requirement	Reference	Conclusion
Parties		
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.		
Additionality		
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	CAR B2-B6 and CR B1 OK
Forecast emission reductions and environmental impacts		
The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	Ref CAR B7 and CR B3 OK
Environmental impacts (only for large scale projects)		
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
Stakeholder involvement		
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	CAR E1 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 available.	CDM Modalities and Procedures §40	OK



Requirement	Reference	Conclusion
Other		
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	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	CR A2 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
Requirements for small-scale projects only		
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	CR A1 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 the project activity is carried out and documented.	Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c	Not applicable



Table 2: Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity <i>The project design is assessed.</i>					
A.1. Project Boundaries <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) /PO/ /SC/ /MAP/	DR	Project activity is located at two sites. The unique identification for Site I - Village-Jamade, District-Dhule (Latitude: 20°59'24.89" N, Longitude: 74°18'51.52"E) Site II - Village-Nagaj, District-Sangli (Latitude: 17°08' 00.00" N, Longitude: 74°55'59.98" E).	OK	
A.1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/PDD/ (B.3) /PO/ /SC/	DR	The project system boundaries are clearly described in the project design document. The project boundary comprises the physical, geographical site of the renewable generation source. The project boundary includes the WEGs, regional grid and substations of the project. As the power plant evacuates the power to the Western Region Grid all the power plants contributing electricity to the Western Grid are part of system	OK	

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



			boundaries.		
A.2. Participation Requirements <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) /HGA/ /PO/	DR	The following party is involved in the project activity: India (Host Party) and the project participant : M/s. Shah Promoters & Developers.	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) /HGA/	DR, I	M/s. Shah Promoters & Developers has received the host country approval (F. No. 4/5/2008-CCC on dated 2008/04/09) 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 is a Party to the Kyoto Protocol and has ratified the Protocol on 26 August 2002. The Indian DNA forwards the letter of approval where a voluntary participation is confirmed.	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)	DR, I	The Project does not involve any public funding from Annex 1 country.	OK	



A.3. Technology to be employed <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.4.2.) /INV/	DR, I	The project activity includes installation of Suzlon (S-70) and Suzlon (S-82) models. M/s Suzlon is amongst leading WTG manufacturers and know to follow current good practices. The power generation technology employs environmentally safe and sound technology.	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/ (A.4.2.) /TD/	DR	The project is grid connected wind based power generation with WTG's designed as per GL/ IEC standard which will result in significantly better performance.	OK	
A.3.3. Does the project make provisions for meeting training and maintenance needs?	/PDD/ /IM01/ /CT/	DR, I	Training and maintenance need has been identified and operation and maintenance contract has been established with technology supplier. M/s. Shah Promoters & Developers has signed the agreement with M/s Suzlon Energy Limited for the operation and maintenance of project activity. During the interview, validation team has ascertained that, operators of M/s Suzlon Energy Limited are trained for uninterrupted operation of project	OK	



			activity. Thus, training and maintenance requirement are met by the project activity.		
A.4. Contribution to Sustainable Development <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?	/PDD/ (A.2.) /HGA/ /moef/	DR	The Host country approval (F. No. 4/5/2008-CCC on dated 2008/04/09) is furnished to the DOE.	OK	
A.4.2. Will the project create other environmental or social benefits than GHG emission reductions?	/PDD/ (A.2)	DR	The project creates technological and economic benefits in addition to environmental and social benefits than GHG emission reductions. 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.	OK	
Small scale project activity <i>Is it assessed whether the project qualifies as 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 (A.4.5) /IM01/	DR, I	Under section B of the PDD, the bullet number 4 and 5 of applicability prescribed in approved baseline and methodology AMS I. D. (Version 13) is missing.	CR-A1	OK
A.4.4. Is the small scale project activity not a debundled component of a larger	PDD (A.4.5)	DR, I	The PP should clarify the statement (ref page 3 of PDD) which says that "The	CR-A1	OK



project activity?	/IM01/		WEGs are part of Suzlon wind farms Maharashtra State Electricity Distribution Company Limited (MSEDCL) grid.” as this contradicts to the de-bundling clause.		
A.5. General Topics					
A.5.1. Has the PDD been duly filled?		DR	No, please refer CAR 2. The section B.8 of PDD fails to provide contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity. Furthermore, if also do not indicate if the person/entity is also a project participant listed in Annex 1.	CAR-A2	
A.5.2. Has all necessary information been made available to the validator?		DR	Please refer Additional remarks / minor or editorial mistakes in conjunction to table-3.	Not OK	OK
B. Project Baseline <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>					
B.1 Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1 Does the project apply an approved	/PDD/	DR	Yes the project refers to the approved		



methodology and the correct version thereof?	(B.1.) /AMS ID/		small scale methodology AMS.ID – “Grid connected renewable electricity generation” Version-13, Version 13: EB 36 which comes under the sectoral scope 1: Energy industries (renewable - / non-renewable sources). However, please refer CAR A1.	CAR A1	OK
B.1.2 Are the applicability criteria in the baseline methodology all fulfilled?	/PDD/ (B.2.) /AMS ID/	DR	Under section B of the PDD, the bullet number 4 and 5 of applicability prescribed in approved baseline and methodology AMS I. D. (Version 13) is missing.	CAR A1	OK
B.2 Baseline Scenario Determination <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.) /AMS ID/ /CBD/ /TEF/	DR	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. The baseline is the MWh produced by the renewable generating unit multiplied by ex-post grid emission coefficient (in terms of tCO ₂ /MWh) calculated in a transparent and conservative manner. However, please refer CAR B1.	CAR B1	OK
B.2.2 What other alternative scenarios have been considered and why is the selected	/PDD/ (B.4.)	DR	The selected scenario is the equivalent amount of electricity would be generated		



scenario the most likely one?			by operation of the fossil fuel dominated power plants connected to the Western region grid. This is explained under section B.4 of PDD.	OK	
B.2.3 Has the baseline scenario been determined according to the methodology?	/PDD/ (B.4.) /AMS ID/	DR	Yes the baseline scenario has been determined according to the methodology AMS I.D. version 13, para 9b and the latest version of CEA database (Cp http://www.cea.nic.in/)..	OK	
B.2.4 Has the baseline scenario been determined using conservative assumptions where possible?	/PDD/ (B.4.)	DR	While determining the baseline emission factor, project proponent has applied the latest version of CEA database (Cp http://www.cea.nic.in/). However, as per section B.6.1 of PDD, the project proponent considered ex-post grid emission factor (in line with para 9b of AMS I.D) however, they failed to include the same under monitoring plan (section B.7.1) of the PDD. Furthermore, inclusion of the grid emission factor under section B.6.2 of PDD is incorrect.	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.5.) /HGA/	DR	Relevant national / state level circumstances relevant to the baseline are summarised in PDD section B.5.	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.) /CBD/	DR	Yes	OK	
B.2.7 Have the major risks to the baseline been identified?	/PDD/ (B.4.) /CBD/	DR	There are no major risks identified to the baseline as the data is obtained from CEA data source.	OK	



B.3 Additionality Determination <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 according to the methodology?	/PDD/ (B.5.) /ADD/ /ATT/ /add/ /XLS/	DR	<ul style="list-style-type: none"> Documentary evidence supporting the statement, "IREDA and a handful of other banks are not enough to meet the installation needs, due to which wind energy did not even take off in many states" (P.15) should be submitted. This sentence is quite vague and if there is no documentary evidence supporting this sentence, it should be removed. Further the quotation from 39th Standing Committee on Energy (2003) Report (p.16) only states that the rate of interest charged by IREDA is high. Higher rates of interest charged cannot be termed as non-availability of finance in as much as the interest charged depends upon the cost of funds plus administrative cost of lending institution. Therefore, this cannot be treated as barrier. The statement, "Moreover the plant load factor of biomass based cogeneration plant or SHP or thermal power plant varies from 60 to 90 percent whereas for wind energy it comes to a maximum of 20-25 percent" is incorrect. PLF of SHP 	CAR-B2	OK



			<p>projects can be as low as 30% and that of wind power project can be as high as 27-28% also. Either the statement should be backed by documentary evidence or the statement should be modified.</p> <ul style="list-style-type: none"> • Non availability of finance barrier can be said to exist, if and only if the PP can prove, with documentary evidence, that either the project under consideration or other wind projects were refused financial assistance by institutions/banks because the project is wind power project. Hence, the statement “The dire lack of financing institutions to back the huge capital cost investment required by wind farms is another major hurdle” (p.15) is incorrect. Either the documentary evidence should be submitted or the sentence should be deleted. <p>Since it is a partnership firm, how is the serious consideration of CDM benefits at the time of taking investment decision is established? Hence under section B.5, the project proponent needs to provide documentation which will substantiate the serious consideration of CDM prior to the decision to implement the project activity. The copy of the partner's</p>		
				CAR B3	OK



			<p>resolution should be part of PDD.</p> <p>Further the serious consideration should be provided with the realistic implication on the project activity which will show the clear intention of the project proponent to implement the project activity and not mere generation of documentation for formality to submit it to DOE and hence UNFCCC along with detailed chronology.</p> <p>As per paragraph 40 of EB 40 and EB guidance through “Request for Review”, 16% return on equity based on the MERC tariff order is no longer acceptable. The PP needs to justify alternative benchmark.</p> <p>The consideration of CDM benefits in page 16 is too premature. The Additionality Tool requires the PP to demonstrate the additionality of the project and prove that the conclusions will hold good even when critical assumptions are subjected to reasonable variations. Data relating to CDM benefits need not be given in pages 16, 17 and 18. The sensitivity analysis should include variation in critical assumptions (cost and revenue, which account for 20% or more) by 10%. Only one sensitivity analysis has been</p>	<p>CAR-B4</p> <p>CAR-B5</p>	<p>OK</p> <p>OK</p>
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			<p>made with PLF, Sensitivity analysis may be prepared for a variation in project cost and O&M expenses to demonstrate the robustness of the conclusion arrived at. The sensitivity analysis working should also be presented in a transparent manner.</p> <p>PP needs to clarify the below concern w.r.t additionality:</p> <ul style="list-style-type: none"> • Since 1.25 MW WEGs are scheduled to commence generation in September 2006 (as per the worksheet), O & M expenses should not be considered for full year. Likewise, 1.5 MW WEG is scheduled to commence generation in October 2007 (as per the worksheet), O & M expenses should not be for full year. • SEB evacuation cost remains unamortized. Reasons for the same may be stated or necessary rectification be made in the calculation. • The MAT rate is given as zero in SPD worksheet, which is not correct. Rectify it. Further Tax holiday is subject to MAT., Please check and make appropriate provision for taxation 	CAR-B6	OK
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			<ul style="list-style-type: none"> • For the same reason, the insurance premium provided for should also be prorata. • Accelerated depreciation at 80% is available only on WEGs and not on civil works, approach roads, etc. Rectify the depreciation. • Cash flow statement computation is not correct; the tax shield enjoyed by the firm cannot be added to cash balance; it is notional. For this reason, balance sheet computation is also not correct. • Salvage value should include residual value plus likely profit on sale of assets in the terminal year. What is taken is only residual value. Moreover, the cost of land is not included. • The heading 'financial infeasibility' (p.16) may be changed. Since the bank has sanctioned the loan and no bank would sanction loan unless the project is feasible, this will contradict the decision taken by the banks. Clarify whether the bank considered CER income while appraising the project. If it has not, the sentence, "The project activity is not financially viable without CDM benefit" (P16) will contradict the financing decision taken by the banks 		
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			<ul style="list-style-type: none"> • There is no 'discrimination' in the 10th Plan document (p 13). It only states that the strategy of 10th plan is to increase the production of coal and electricity. The interpretation is incorrect. • The Government has not yet withdrawn the subsidy nor is the project facing uncertainty of getting generation related subsidy (p.14). It is only an apprehension not backed by any concrete action on the part of the GoM. This cannot be construed as a barrier. • The statement 'The heavy subsidy given to coal and gas supplies is the major cause of this disparity between wind and conventional sources' (page 15) should be substantiated by documentary evidence <p>Row No. 11 of Sheet 1 provides two dates as 'Board Resolution Date'. Since this is a partnership firm, the question of Board resolution cannot arise. Clarify</p> <p>The PP needs to provide realistic approach and substantiate with credible evidences how the calculations of emission reductions are appropriate with implication on IRR calculation.</p>	CR-B1	OK
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				CR-B2	OK
B.3.2 Are all assumptions stated in a transparent and conservative manner?	/PDD/ (B.5.) /ADD/ /add/ /IRR/ /XLS/	DR	Please refer comments made under B.3.1	CAR-B2 CAR-B3 CAR-B4 CAR-B5 CAR-B6 CR-B1 CR-B2	OK
B.3.3 Is sufficient evidence provided to support the relevance of the arguments made?	/PDD/ (B.5.) /ADD/ /add/ /IRR/ /XLS/	DR	Please refer comments made under B.3.1	CAR-B2 CAR-B3 CAR-B4 CAR-B5 CAR-B6 CR-B1 CR-B2	OK
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.) /MD/ /PO/ /SD/	DR	<p>Since it is a partnership firm, how is the serious consideration of CDM benefits at the time of taking investment decision is established? Hence under section B.5, the project proponent needs to provide documentation which will substantiate the serious consideration of CDM prior to the decision to implement the project activity. The copy of the partner's resolution should be part of PDD.</p> <p>Further the serious consideration should be provided with the realistic implication on the project activity which will show the</p>	CAR-B3	OK



			clear intention of the project proponent to implement the project activity and not mere generation of documentation for formality to submit it to DOE and hence UNFCCC along with detailed chronology.		
B.4 Calculation of GHG Emission Reductions – Project emissions <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.7.) /XLS/ /AMS ID/ /CBD/	DR	There are no project emissions associated with the project activity.	OK	
B.4.2 Have conservative assumptions been used when calculating the project emissions	/PDD/ (B.6.) /CBD/ /AMS I.D/	DR	Please refer comments made under B.4.1	OK	
B.4.3 Are uncertainties in the project emission estimates properly addressed?	/PDD/ (B.6.) /CAL/ /MR/ /CBD/	DR	Section B.7 of PDD, discuss the qualitative explanation of how quality control and quality assurance are undertaken related to key parameters of GHG emission. Please also refer comments under B.4.1.	OK	

<p>B.5 Calculation of GHG Emission Reductions – Baseline emissions <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></p>					
<p>B.5.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?</p>	<p>/PDD/ (B.6.3) /CAL/ /MR/ /CBD/</p>	<p>DR</p>	<p>As per section B.6.1 of PDD, the project proponent considered ex-post grid emission factor (in line with para 9b of AMS I.D) however, they failed to include the same under monitoring plan (section B.7.1) of the PDD. Furthermore, inclusion of the grid emission factor under section B.6.2 of PDD is incorrect.</p> <p>The baseline emissions _(project) has been calculated on the basis of ‘power generated from the project activity’ however section B.7.1 is showing net electricity exported to the grid. Hence correction required in section B.6.3. The appropriate period for data archival is also missing under the section B.7.1.</p>	<p>CAR-B1</p> <p>CAR-B7</p>	<p>OK</p> <p>OK</p>
<p>B.5.2 Have conservative assumptions been used when calculating the baseline emissions</p>	<p>/PDD/ (B.6.3) /CAL/ /MR/ /CBD/</p>	<p>DR</p>	<p>Please refer comments made under B.5.1</p>	<p>CAR-B1 CAR-B7</p>	<p>OK OK</p>
<p>B.5.3 Are uncertainties in the baseline emission estimates properly addressed?</p>	<p>/PDD/ (B.6.3) /CAL/</p>	<p>DR</p>	<p>In the monitoring plan it has been not mentioned how the generation of electricity from this project activity will be</p>		



	/MR/ /CBD/		monitored if some more WEGs will be installed near to the project activity after the registration of the project activity or define the isolation procedure of monitoring of electricity for this project activity. In short what will be the apportion procedure if other WEGs will be installed in future near to project activity.	CR-B3	OK
B.6 Calculation of GHG Emission Reductions – Leakage <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.) /AMS ID/	DR	Since the WEGs are neither transferred from another activity nor were they existing prior to this project activity and have been transferred to another activity, hence leakage calculation is not required.	OK	
B.6.2 Have conservative assumptions been used when calculating the leakage emissions?	/PDD/ (B.6.)	DR	Refer comments made under B.6.1	OK	
B.6.3 Are uncertainties in the leakage emission estimates properly addressed?	/PDD/ (B.6.)	DR	Refer comments made under B.6.1	OK	
B.7 Emission Reductions <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	The CARs/CRs given in section B have to be closed satisfactorily before forming an opinion.	Not OK	OK



B.8 Monitoring Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.8.1 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/PDD/ (B.7.) /AMS ID/	DR	<p>As per section B.6.1 of PDD, the project proponent considered ex-post grid emission factor (in line with para 9b of AMS I.D) however, they failed to include the same under monitoring plan (section B.7.1) of the PDD. Furthermore, inclusion of the grid emission factor under section B.6.2 of PDD is incorrect.</p> <p>The baseline emissions _(project) has been calculated on the basis of 'power generated from the project activity' however section B.7.1 is showing net electricity exported to the grid. Hence correction required in section B.6.3. The appropriate period for data archival is also missing under the section B.7.1.</p> <p>In the monitoring plan it has been not mentioned how the generation of electricity from this project activity will be monitored if some more WEGs will be installed near to the project activity after the registration of the project activity or define the isolation procedure of monitoring of electricity for this project activity. In short what will be the apportion procedure if other WEGs will be installed in future near to project activity.</p>	<p>CAR-B1</p> <p>CAR-B7</p> <p>CR-B3</p>	<p>OK</p> <p>OK</p> <p>OK</p>
B.8.2 Will all monitored data required for verification	/PDD/	DR	Please refer CAR B1 and CAR B7.	CAR-B1	OK



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?	(B.7.)			CAR B7	OK
B.9 Monitoring of Project Emissions <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 project boundary during the crediting period?	/PDD/ (B.7.)	DR	Please refer comments made under section B.4.1. There are no project emissions associated with the project activity.	OK	
B.9.2 Are the choices of project GHG indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Please refer comments under section B.9.1	OK	
B.9.3 Is the measurement method clearly stated for each GHG value to be monitored and deemed appropriate?	/PDD/ (B.7.)	DR	Please refer comments under section B.9.1	OK	
B.9.4 Is the measurement equipment described and deemed appropriate?	/PDD/ (B.7.) /CAL/	DR	Please refer comments under section B.9.1	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.) /CAL/ /MR/	DR	Please refer comments under section B.9.1	OK	
B.9.6 Is the measurement interval identified and deemed appropriate?	/PDD/ (B.7.) /O & M/ /PPA/	DR	Please refer comments under section B.9.1	OK	
B.9.7 Is the registration, monitoring, measurement and reporting procedure defined?	/PDD/ (B.7.) /IM01/	DR I	Please refer comments under section B.9.1	OK	



	/O & M/				
B.9.8 Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/PDD/ (B.7.) /IM01/ /CAL/ /O & M/	DR	Please refer comments under section B.9.1	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.) /O & M/ /ORG/	DR	Please refer comments under section B.9.1	OK	
B.10 Monitoring of Baseline Emissions <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.) /AUX/ /CAL/ /MR/	DR	<p>The baseline emissions ^(project) has been calculated on the basis of 'power generated from the project activity' however section B.7.1 is showing net electricity exported to the grid. Hence correction required in section B.6.3. The appropriate period for data archival is also missing under the section B.7.1.</p> <p>In the monitoring plan it has been not mentioned how the generation of electricity from this project activity will be monitored if some more WEGs will be installed near to the project activity after the registration of the project activity or define the isolation procedure of monitoring of electricity for this project activity. In short what will be the apportion procedure if other WEGs will</p>	<p>CAR-B7</p> <p>CR-B3</p>	<p>OK</p> <p>OK</p>



			installed in future near to project activity.		
B.10.2 Are the choices of baseline GHG indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Yes, CO ₂ is the GHG indicator and deemed reasonable and conservative..	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	The GHG reduction is estimated from the amount of electricity exported to the grid (MWh) and the ex-post grid emission factor (etCO ₂ /MWh). However, Please refer comments under section B.10.1.	CAR-B7 CR-B3	OK OK
B.10.4 Is the measurement equipment described and deemed appropriate?	/PDD/ (B.7.) /CAL/	DR	As per the PPA Article-11, metering is carried out through electronic trivector Main and Check meters of accuracy. The PP has installed meters of accuracy class 0.2 which are in conformance with Published in the Gazette of India, Extraordinary, Part III, section iv, Central Electricity Authority, 17 th March, 2006.	OK	
B.10.5 Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/PDD/ (B.7.) /CAL/ /PPA/	DR	Please refer comments under section B.9.4. In case of erroneous measurement of Main meter the reading from the check meter will be considered. Furthermore, readings of main and check meters are cross checked with each other to access the possibility of erroneous measurements.	OK	
B.10.6 Is the measurement interval for baseline data identified and deemed appropriate?	/PDD/ (B.7.) /CAL/ /PPA/	DR	Yes	OK	
B.10.7 Is the registration, monitoring, measurement and reporting procedure defined?	/PDD/ (B.7.) /CAL/	DR	Yes, the section B.7.2 of PDD , the PP has appointed a full time incharge to manage the overall project responsibility.		



	/PPA/		Furthermore, SPD has appointed the O & M contractor for undertaking the project activity. Furthermore as per the Extract from the minutes of meeting of the partners , the complete responsibility of the project is entitled to Mr. Rajesh Chandrakant Shah- Partner (Management).	OK	
B.10.8 Are procedures identified for maintenance of monitoring equipment and installations? Are the calibration intervals being observed?	/PDD/ (B.7.) /CAL/ /PPA/	DR	Please refer comments made under section B.10.7.	OK	
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.) /CAL/ /ORG/ /PPA/	DR	Yes, the procedures for day to day records handling are with the O & M operator which follows procedures of monitoring and reporting as per ISO 9001: 2000. The Metering equipment is maintained in accordance with SEB electricity standards and has the capability of recording hourly and monthly readings.	OK	
B.11 .Monitoring of Leakage <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	Please refer comments under section B.6.1. Since the WEGs are neither transferred from another activity nor were they existing prior to this project activity and have been transferred to another activity, hence leakage calculation is not required.	OK	



B.11.2 Are the choices of project leakage indicators reasonable and conservative?	/PDD/ (B.7.)	DR	Please refer comments made under B.11.1	OK	
B.11.3 Is the measurement method clearly stated for each leakage value to be monitored and deemed appropriate?	/PDD/ (B.7.)	DR	Please refer comments made under B.11.1	OK	
B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts <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 country?	/IM01/ /SC/ /HGA/	DR	Monitoring of the sustainable development indicators is not warranted by legislation in the host country. As the project activity is 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?	/IM01/ /SC/ /HGA/	DR	Please refer comments made under B.12.1	OK	
B.12.3 Are the sustainable development indicators in line with stated national priorities in the Host Country?	/IM01/ /HGA/ /SC/	DR	The Host country approval is furnished to the DOE.	OK	
B.13. Project Management Planning <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	/PDD/	DR	As per Extract from the minutes of		



overall project management clearly described?	(B.7.) /IM01/ /ORG/		meeting of the partners, Mr. Rajesh Chandrakant Shah, Partner-Management, is having authority and responsibility of the project activity.	OK	
B.13.2 Are procedures identified for training of monitoring personnel?	/IM01/ //ORG//	DR	Yes	OK	
B.13.3 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/IM01/	DR	Yes	OK	
B.13.4 Are procedures identified for review of reported results/data?	/PDD/ (B.7.) /ORG/	DR	Yes, the section B.7.2 of PDD identifies the procedures for the review of data.	OK	
B.13.5 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/PDD/ (B.7.) /ORG/	DR	No	OK	
C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					



C.1.	Are the project's starting date and operational lifetime clearly defined and evidenced?	/PDD/ (C.1.) /SD/	DR	Under section C.1.1 needs to prove the starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins by considering the sequence of various activities associated with it.	CR-C1	OK
C.2.	Is the start of the crediting period clearly defined and reasonable?	/PDD/ (C.2.)	DR	The start date of crediting period should be realistic. Please refer the additional remarks / minor or editorial mistakes in conjunction to table-3.	CAR-C1	OK
D. Environmental Impacts <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>						



D.1.	Has an analysis of the environmental impacts of the project activity been sufficiently described?	/PDD/ (D.1.) /IM01/ /HGA/	DR	As the installed capacity of the project activity is less than 25 MW and does not fall under either category A or B as per the latest Environment Impact Assessment Notification Ministry of Environment and Forests dated, 14 th September, 2006; it does not require any environmental clearance. However, the impact of the project on air, water, ecology, socio-economic impacts and impact due to noise are elaboratively discussed under section D.1 of PDD.	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. Please refer comments made under D.1	OK	
D.3.	Will the project create any adverse environmental effects?	/PDD/ (D.1.)	DR, I	No, the project does not create any adverse environmental impacts.	OK	
D.4.	Are transboundary environmental impacts considered in the analysis?	/PDD/ (D.1.)	DR	No transboundary impact has been envisaged from this project activity.	OK	
D.5.	Have identified environmental impacts been addressed in the project design?	/PDD/ (D.2.)	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, the project complies with environmental legislation.	OK	
For Small-scale projects						



D.7.	Does host country legislation require an analysis of the environmental impacts of the project activity?	/PDD/ (D.1.) /IM01/ /HGA/	DR	No. Please refer comments made under D.1	OK	
D.8.	Does the project comply with environmental legislation in the host country?	/PDD/ (D.1.)	DR I	Please refer comments made under section D.5.	OK	
D.9.	Will the project create any adverse environmental effects?	/PDD/ (D.1.)	DR, I	Please refer comments made under section D.3.	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 under section D.1.	OK	
E. Stakeholder Comments <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.) /LSC/	DR	Yes, relevant stakeholder has been consulted. However, the following CAR has been raised The stakeholders meeting should have been convened before the installation of the WEGs. But the PP seems to have conducted the meeting much after the WEGs were installed. In this case the project has become a <i>fait accompli</i> for the stakeholders. Negative opinions do not count at this juncture.	CAR E1	OK
E.2.	Have appropriate media been used to invite comments by local stakeholders?	/PDD/ (E.1.) /LSC/	DR	Please refer CAR E1	CAR E1	OK
E.3.	If a stakeholder consultation process is	/LSC/		Not required.	OK	



	required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?					
E.4.	Is a summary of the stakeholder comments received provided?	/PDD/ (E.2.) /LSC/	DR	Please refer CAR E1	CAR E1	OK
E.5.	Has due account been taken of any stakeholder comments received?	/PDD/ (E.3.), /LSC/	DR, I	Please refer CAR E1	CAR E1	OK



Table 3: Resolution of Corrective Action and Clarification Requests

Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
CAR A1 Under section B of the PDD, the bullet number 4 and 5 of applicability prescribed in approved baseline and methodology AMS I. D. (Version 13) is missing.	A.3.2, B.1.1, B.1.2	A.4.3,	Justification for all applicability criteria under the methodology has been added in Section B.2; page no 11 of the PDD.	Proper justification of the applicability conditions in line with the applied methodology is included. Hence, CAR A1 has been closed. OK
CAR A2 The section B.8 of PDD fails to provide contact information of the persons(s)/entity(ies) responsible for the application of the baseline and monitoring methodology to the project activity. Furthermore, if also do not indicate if the person/entity is also a project participant listed in Annex 1.	A.5.1		The PDD is now upgraded as per the CDM SSC PDD guidelines by stating that Project consultant is not project participant.	Proper corrections are now included in line with the requirements of guidelines. Hence, CAR A2 has been closed. OK
CAR B1 As per section B.6.1 of PDD, the project proponent considered ex-post grid emission factor (in line with para 9b of AMS I.D) however, they failed to include the same under monitoring plan (section B.7.1) of the PDD. Furthermore, inclusion of the grid emission factor under section B.6.2 of PDD is incorrect.	B.2.1, B.5.1, B.8.1, B.8.2	B.2.4, B.5.2,	The grid emission factor is now kept under monitoring and the same is now included under section B.7.1 of revised PDD.	OK, Hence, CAR B1 has been closed.
CAR B2 <ul style="list-style-type: none"> Documentary evidence supporting the statement, 	B.3.1, B.3.2, B.3.3		<ul style="list-style-type: none"> It has been deleted from the PDD. 	OK



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
<p>“IREDA and a handful of other banks are not enough to meet the installation needs, due to which wind energy did not even take off in many states” (P.15) should be submitted. This sentence is quite vague and if there is no documentary evidence supporting this sentence, it should be removed. Further the quotation from 39th Standing Committee on Energy (2003) Report (p.16) only states that the rate of interest charged by IREDA is high. Higher rates of interest charged cannot be termed as non-availability of finance in as much as the interest charged depends upon the cost of funds plus administrative cost of lending institution. Therefore, this cannot be treated as barrier.</p> <ul style="list-style-type: none"> The statement, “Moreover the plant load factor of biomass based cogeneration plant or SHP or thermal power plant varies from 60 to 90 percent whereas for wind energy it comes to a maximum of 20-25 percent” is incorrect. PLF of SHP projects can be as low as 30% and that of wind power project can be as high as 27-28% also. Either the statement should be backed by documentary evidence or the statement should be modified. Non availability of finance barrier can be said to exist, if and only if the PP can prove, with documentary evidence, that either the project under consideration or other wind projects were refused financial 			<ul style="list-style-type: none"> The comparison with SHP has been removed. It has been deleted from the PDD. 	<p>OK</p> <p>OK</p>



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
<p>assistance by institutions/banks because the project is wind power project. Hence, the statement “The dire lack of financing institutions to back the huge capital cost investment required by wind farms is another major hurdle” (p.15) is incorrect. Either the documentary evidence should be submitted or the sentence should be deleted.</p>				<p>Hence, CAR B2 has been closed.</p>
<p>CAR B3</p> <p>Since it is a partnership firm, how is the serious consideration of CDM benefits at the time of taking investment decision is established? Hence under section B.5, the project proponent needs to provide documentation which will substantiate the serious consideration of CDM prior to the decision to implement the project activity. The copy of the partner’s resolution should be part of PDD.</p> <p>Further the serious consideration should be provided with the realistic implication on the project activity which will show the clear intention of the project proponent to implement the project activity and not mere generation of documentation for formality to submit it to DOE and hence UNFCCC along with detailed chronology.</p>	<p>B.3.1, B.3.2, B.3.3, B.3.4</p>		<p>For demonstrating serious consideration of CDM at the project inception stage the PP has submitted the documentary evidences of the detailed chronology as mentioned under section B.5 of PDD.</p> <p>These documents clearly show that PP was well aware about CDM revenues and CDM revenues were seriously considered before the decision to go ahead with project. Furthermore, the partner’s resolution is also attached under annexure -6 to the PDD.</p> <p>Hence is Inline with the EB 41, “Guidance on the demonstration and assessment of prior consideration of the CDM”, please refer to Section B.5 for further clarification.</p>	<p>The Partner’s resolution is attached under annexure-6 to the PDD.</p> <p>Furthermore, in line with the EB-41, annex-46 ‘Guidance on the Demonstration and Assessment of Prior Consideration of the CDM’ the validation team found reliable evidences, which substantiate continuing and real actions taken prior to the implementation of project activity and SPD was involved in the steps to secure CDM status for the project in parallel with its implementation.</p>



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation team conclusion
			<p>Furthermore, the DOE is in receipt of all the documents and made the supportive documents available in public domain along with its response to "Request for Review". (http://cdm.unfccc.int/Projects/DB/RWTUV1229007791.61/Review/4XEUFU7AOUEBHFTRC8UKO2G04DVT6/display)</p> <p>With regard to the submitted evidences; the validation team concludes serious CDM consideration prior to the project implementation and continued efforts to achieve CDM status parallel with project implementation. Detailed description on the same is reflected under section B.5 of PDD. OK</p>	



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
				Hence, CAR B3 has been closed.
CAR B4 As per paragraph 40 of EB 40 and EB guidance through “Request for Review”, 16% return on equity based on the MERC tariff order is no longer acceptable. The PP needs to justify alternative benchmark.	B.3.1, B.3.3	B.3.2,	Justification regarding appropriateness of the alternative benchmark (based on CAPM) considered by the PP applicable at the time of decision making has been included in section B.5 of the PDD. In line with the “Request for Review” by CDM EB followed by the CAR raised by the DOE, suitable benchmark has now been derived by the CAPM model.	The suitability and conservativeness of the selected benchmark and its appropriateness has been demonstrated. Hence CAR B4 has been closed
CAR B5 The consideration of CDM benefits on page 16 is too premature. The Additionality Tool requires the PP to demonstrate the additionality of the project and prove that the conclusions will hold good even when critical assumptions are subjected to reasonable variations. Data relating to CDM benefits need not be given in pages 16, 17 and 18. The sensitivity analysis should include variation in critical assumptions (cost and revenue, which account for 20% or more) by 10%. Only one sensitivity analysis has been made with PLF, Sensitivity analysis may be prepared for a variation in project cost and O&M expenses to demonstrate the robustness of the conclusion arrived at. The sensitivity analysis working should also be presented in a transparent manner.	B.3.1, B.3.3	B.3.2,	The corrections suggested have been addressed in the revised PDD. Sensitivity analysis has now been carried out as per the annexure 45 EB 41.	Sensitivity analysis has been done as per Annex 45 of EB 41. Hence, CAR B5 has been closed



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
<p>CAR B6</p> <p>PP needs to clarify the below concern w.r.t additionality:</p> <ul style="list-style-type: none"> Since 1.25 MW WEGs are scheduled to commence generation in September 2006 (as per the worksheet), O & M expenses should not be considered for full year. Likewise, 1.5 MW WEG is scheduled to commence generation in October 2007 (as per the worksheet), O & M expenses should not be for full year. SEB evacuation cost remains unamortized. Reasons for the same may be stated or necessary rectification be made in the calculation. The MAT rate is given as zero in SPD worksheet, which is not correct. Rectify it. Further Tax holiday is subject to MAT., Please check and make appropriate provision for taxation For the same reason, the insurance premium provided for should also be prorata. Accelerated depreciation at 80% is available only on WEGs and not on civil works, approach roads, etc. Rectify the depreciation. 	<p>B.3.1, B.3.2, B.3.3</p>		<ul style="list-style-type: none"> This has been rectified in the revised financial analysis. This has been rectified in the revised working. M/s Shah Promoters and Developers is a Partnership Firm, as per sec 115 JB of the Income Tax Act MAT is applicable to companies only. ¹⁴ This has been rectified. Please refer to the excel sheet for revised financial analysis. <p>The total cost including civil work and approach roads has been given as a consolidated value by the equipment supplier. Its bifurcation is not possible, hence depreciation</p>	<p>Worksheet has been modified to incorporate the changes, Explanations given in respect of MAT and depreciation are satisfactory. PDD has also been modified where necessary.</p> <p>Hence, CAR B6 has been closed</p>

¹⁴ <http://law.incometaxindia.gov.in/TaxmannDit/DispCitation/ShowCit.aspx?fn=http://law.incometaxindia.gov.in/DitTaxmann/IncomeTaxActs/2008ITAct/section115JB.htm>



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
<ul style="list-style-type: none"> Cash flow statement computation is not correct; the tax shield enjoyed by the firm cannot be added to cash balance; it is notional. For this reason, balance sheet computation is also not correct. Salvage value should include residual value plus likely profit on sale of assets in the terminal year. What is taken is only residual value. Moreover, the cost of land is not included. The heading 'financial infeasibility' (p.16) may be changed. Since the bank has sanctioned the loan and no bank would sanction loan unless the project is feasible, this will contradict the decision taken by the banks. Clarify whether the bank considered CER income while appraising the project. If it has not, the sentence, "The project activity is not financially viable without CDM benefit" (P16) will contradict the financing decision taken by the banks There is no 'discrimination' in the 10th Plan document (p 13). It only states that the strategy of 10th plan is to increase the production of coal and electricity. The 			<p>includes WEGs, foundation work and approach roads. This is conservative too, as the split-up would only reduce IRR in as much as the tax shield available on account of depreciation would get reduced.</p> <ul style="list-style-type: none"> This has been rectified in the revised financial analysis. Salvage Value is the value, which is expected to be received after the sale of Scrap from the Machinery. As per MERC Order it is 5% and so the same is considered. The heading has been changed and necessary correction has been carried out. This has been deleted from the PDD 	



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
<p>interpretation is incorrect.</p> <ul style="list-style-type: none"> The Government has not yet withdrawn the subsidy nor is the project facing uncertainty of getting generation related subsidy (p.14). It is only an apprehension not backed by any concrete action on the part of the GoM. This cannot be construed as a barrier. The statement 'The heavy subsidy given to coal and gas supplies is the major cause of this disparity between wind and conventional sources' (page 15) should be substantiated by documentary evidence 			<ul style="list-style-type: none"> This has been deleted from the PDD This has been deleted from the PDD 	
<p>CAR B7</p> <p>The baseline emissions ^(project) has been calculated on the basis of 'power generated from the project activity' however section B.7.1 is showing net electricity exported to the grid. Hence correction required in section B.6.3. The appropriate period for data archival is also missing under the section B.7.1.</p>	<p>B.5.1, B.5.2, B.8.1, B.8.2, B.10.1, B.10.3, B.10.4, B.11.1, B.11.2, B.11.3, B.13.5</p>		<p>The correction has been made in section B.6.3.</p> <p>Details of archiving of data have been included in the section B.7.2 of the PDD.</p>	<p>The appropriate amendments are included in the PDD.</p> <p>Hence, CAR B7 has been closed.</p>
<p>CAR C1</p> <p>The start date of crediting period should be realistic.</p>	<p>C.2</p>		<p>The realistic start date of crediting period is corrected to 01/02/2009 or date of registration with CDM Executive Board, whichever is later.</p>	<p>The appropriate amendments are included in the PDD.</p> <p>Hence, CAR C1 has been closed.</p>



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
<p>CAR E1</p> <p>The stakeholders meeting should have been convened before the installation of the WEGs. But the PP seems to have conducted the meeting much after the WEGs were installed. In this case the project has become a <i>fait accompli</i> for the stakeholders. Negative opinions do not count at this juncture.</p>	E.1, E.2, E.4, E.5		<p>Although the promoters were aware of the CDM benefit for their renewable energy project, they came to know about the process only after approaching the consultants. Since the gestation period in wind power projects is very small hence by the time the promoters were made aware of the procedures for registration of their project, their wind mills were nearly commissioned.</p> <p>However, there were no negative comments received.</p>	<p>Proper explanation is provided.</p> <p>Hence, CAR E1 has been closed.</p>
Clarification Requests (CR)				
<p>CR A1</p> <p>The PP should clarify the statement (ref page 3 of PDD) which says that “The WEGs are part of Suzlon wind farms Maharashtra State Electricity Distribution Company Limited (MSEDCL) grid.” as this contradicts to the de-bundling clause.</p>	A.4.4		<p>Site development for a wind power project requires certain infrastructure amenities such as approach roads and grid evacuation facility. The cost of development of these facilities would put a lot of financial burden on a single promoter and hence to reduce costs, the technology supplier develops a wind farm with all basic facilities and distributes the cost of development amongst the investors, whose WTGs are located within the wind farm. In the present case the project activity falls within the wind farm</p>	<p>The WEGs are part of Suzlon wind farms in Dhule and Sangli districts of Maharashtra in p.3 of PDD. At best, Suzlon Windfarm is an address for the windmills of Shah Promoters and Developers in Dhule and Sangli and nothing more. As PP has stated the creation of infrastructure and evacuation facility are</p>



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
			developed and maintained by Suzlon Energy Limited. Individual WTGs in this wind farm belong to investors who have invested in wind energy and chosen Suzlon Energy Limited as their vendor. SPD is the owner of the WTG's and Suzlon Infrastructure Limited is the O & M contractor. A brief footer is provided in the PDD for more clarity.	costly proposition and cannot be borne by the PPs independently. Hence, Suzlon has developed the area, provided necessary physical infrastructure including evacuation facility and apportioned the cost incurred among the windmills enjoying the common facility created by it. The windmills within the Farm belong to various PPs, of which Shah Promoters and Developers is one. Other than providing infrastructure facilities, Suzlon has no ownership right, whatsoever on the windmills. Hence, Shah Promoters & Developers wind power project is a small scale and it is not a part of any large scale project. During validation, DOE has



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
				<p>also checked</p> <ol style="list-style-type: none"> 1. O & M agreements between the SPD and O & M contractor 2. PO's drawn by SPD for procurement of WTG's 3. Infrastructure clearances from MEDA for setting up of WTG's 4. Clearance for commissioning of WTG's by MEDA <p>Based on the above verification, DOE confirms that the sole owner of the WTG's in the project activity is M/s Shah Promoters & Developers and it is a small scale activity.</p> <p>Thus, CR A1 has been closed.</p>
<p>CR B1</p> <p>Row No. 11 of Sheet 1 provides two dates as 'Board</p>	<p>B.3.1, B.3.2,</p>		<p>Mistake has been rectified</p>	<p>Mistake has corrected and</p>



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
Resolution Date'. Since this is a partnership firm, the question of Board resolution cannot arise. Clarify	B.3.3			hence CR B1 has been closed
CR B2 The PP needs to provide realistic approach and substantiate with credible evidences how the calculations of emission reductions are appropriate with implication on IRR calculation.	B.3.1, B.3.2, B.3.3		As per MEDA report wind power projects in Maharashtra has achieved a maximum PLF of 20 % only. The MERC Order dated November 24, 2003, also mentions a PLF of 20% for Maharashtra. Hence based on these evidences, the generation from the project activity has been worked out at 20% PLF for a more realistic projection.	IRR has been computed using realistic PLF, which is consistent with MERC recommended PLF. Hence, CR B2 has been closed
CR B3 In the monitoring plan it has been not mentioned how the generation of electricity from this project activity will be monitored if some more WEGs will be installed near to the project activity after the registration of the project activity or define the isolation procedure of monitoring of electricity for this project activity. In short what will be the apportion procedure if other WEGs will installed in future near to project activity.	B.5.3, B.8.1, B.10.1, B.10.3		The details have now been added in the PDD, Section B.7.2. Please refer to the revised PDD for further clarification.	Under section B.7.2, SPD has mentioned the monitoring procedures of Apportion which is applied by the MSEDCL and Suzlon to arrive at the net electricity exported by the project activity to the Western region grid. Furthermore, the validation team checked the net electricity exported to the regional grid using the mentioned apportion



Draft report clarification requests and corrective action requests by validation team	Ref. checklist question table 2	To in	Summary of project owner response	Validation conclusion team
				method on sample basis. Hence, CR B3 has been closed.
CR C1 Under section C.1.1 needs to prove the starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins by considering the sequence of various activities associated with it.	C.1		Starting date of the project activity has been considered as the release of purchase order (2006/04/20) for the WTGs as this is the earliest date on which the project activity began.	OK Hence, CR C1 has been closed.

Additional remarks / minor or editorial mistakes:

- CEA guideline is referring the methodology ACM0002; hence same should be referred under section B.1 of PDD. **Rectified**
- Technical definition of trivector energy meter has not been given. **Rectified**
- In page 17, total capacity of 6 WTGs. of 1.5 MW WEG is missing. Include the same. **Rectified**
- The incorrect version of Additionality Tool is mentioned on page 16. **Rectified**
- For simplicity of understanding, the PP should apply unit of MW/ MWh under table Main Assumptions page 16 of PDD. **Rectified**
- The cell D1 needs to be renamed as the Emission factor is shown and not the Baseline emissions. **Rectified**



Table 4: Validation Table for Assessment of Financial Parameters

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Net electricity supplied to Grid	24,528	MWh	MERC Order dated 14/11/2003 P.33 and the installed capacity of the project	/MERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The value is calculated based on the installed capacity of the plant as evidenced by Purchase Orders and the PLF recommended by MERC vide its order dated 14/11/2003. The annual export of electricity to Grid works out to 24,528 MW during full year.
Total investment	787.65	Rs. million	Purchase orders, work orders and company's records as certified by the statutory auditor	/PO/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The total investment consisting of civil, electrical and mechanical works of Rs.726.1 million, evacuation cost of Rs. 37.5 million, land lease charges of Rs.16.2 million, MEDA processing charges of Rs.7 million, bank processing charges of Rs.0.3 million and pre-operative expenses of Rs.0.5 million. The unit cost of the project is 56.2 million per MW, which is high than the unit cost 40 million recommended by MERC in its order dated November 2003. Considering the fact that the order was issued in 2003, i.e., 3 years before the project placed the order and that during the interregnum, the prices have gone up, the value is valid and conservative, in as much as it is backed by purchase orders.
Electricity tariff	3.50	Rs./kWh	Power Purchase Agreement entered into with State Utility	/PPA/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The tariff is derived from the PPA entered into with State Utility on 04/09/2006 and 14/03/2008, wherein the tariff is stated to be Rs.3.50/kWh with an escalation of 15 paise per year upto 13 th year. The tariff applied in IRR calculation is appropriate.
Annual O&M costs	1.0 and 1.4	Rs. million	Operation and management agreement	/O&M/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The O&M consists of repairs, maintenance, spares and consumable and other expenses. The

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

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			Clause No. 10 and 11				agreement provides a consolidated amount of Rs.1.0 million per WEG of 1.25 MW and Rs.1.4 million per WEG of 1.5 MW. O&M cost works out to 1.6% of the project cost, which is less than the O&M cost recommended by MERC (2%) in its Order dated November 2003 and hence conservative.
Insurance	71,804 and 70,296	Rs.	Insurance cover note	/ICN/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The value is based on Insurance cover note and the amount stated is per WEG. MERC Order provides 0.5% as insurance, which forms part of O&M Cost. Even after including the insurance cost, the total O&M cost (including insurance) is less than 2% and hence the expenditure is conservative.
Depreciation	80	%	Income Tax Rules, Appendix I		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Windmills are eligible for 80% accelerated depreciation on WDV method as per Income Tax Act. Depreciation provided conforms to the Act
Income tax	33.66	%	Income Tax Act		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The value is derived from the Income tax Act as amended by the Finance Act. which is applicable to the Financial Year relevant to the year in which investment decision was taken. The Income Tax rate is 30%. The assessee is required to pay surcharge at 10% and educational cess at 2% thereon. Tax rate considered in calculation is relevant and appropriate to the period in which investment decision was taken
Tax Holiday	10	Years	Income Tax Act		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Infrastructure projects, under which this project falls, are eligible for Income Tax holiday for 10 out of first 15 years as per Section 80IA of the Income Tax Act. The tax holiday provided in the calculation is as per the provisions of the Act.
Installed capacity	14	MW	Purchase Orders	/PO/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The capacity is based on the purchase orders placed by the project developer on Suzlon for the supply of WEGs.
Project Lifetime	20	year	MERC Order P.51	/MERC/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The project life is in conformity with the MERC Order as well as manufacturer's views



Loan interest rate	10.50	%	Loan sanction letter of Bank of Maharashtra dated 07/07/2006	/SF/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The rate of interest, repayment period and initial moratorium period assumed in the IRR calculation are in conformity with the terms enshrined in the loan sanction letter
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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 Senior Assessor

The present appointment will terminate on 2010-07-05

Certification registration No. 04 02 154-03

Essen, 2007-07-06

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



CERTIFICATE OF APPOINTMENT

Katja Beyer

born on 1980-01-08


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 2010-09-18

Certification registration No. 07 09 01 - 43

Essen, 2007-09-19


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



CERTIFICATE OF APPOINTMENT

Mr. Dipl.-Ing. Eric Krupp

born on 1971-06-25


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JI/CDM CP directives and is hereby appointed as

TÜV NORD JI/CDM Senior Assessor

The present appointment will terminate on 2010-07-05

Certification registration No. 06 05 01 - 017

Essen, 2007-07-06


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



CERTIFICATE OF APPOINTMENT

Mr. Manojkumar Borekar

born on 1979-10-14

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JI/CDM CP directives and is hereby appointed as

TÜV NORD CDM Assessor

The present appointment will terminate on 2010-05-23
Certification registration No. 06 05 02 - 38

Essen, 2007-05-24


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